

#24-08

**AN ORDINANCE OF THE TOWNSHIP OF MANCHESTER, COUNTY OF OCEAN, STATE OF NEW JERSEY, AMENDING AND SUPPLEMENTING CHAPTER 430 OF THE TOWNSHIP CODE, ENTITLED "WATER AND SEWER" DRAFT**

**BE IT ORDAINED** by the Township Council of the Township of Manchester, County of Ocean, State of New Jersey, as follows:

**SECTION 1.** That Chapter 430, entitled "Water and Sewer," of the Code of the Township of Manchester, be and hereby is amended in its entirety to read as follows:

Article I  
Water Connections

**§ 430-1. Water connection required.**

A. Where the Township of Manchester has jurisdiction and has provided for the installation of and continued supply of potable water through any water main and/or lateral in any public or private street, roadway, highway or easement ("public water system"), all owners of any property, including but not limited to residential, commercial or otherwise, lying on or adjacent to the public or private street, roadway, highway or easement where the main and/or lateral exists, shall disconnect from and cease utilization of any existing on-site individual potable water well or wells, and shall cause any on-site potable water distribution facilities to be connected to the above-referenced public water system; and disconnection from the on-site potable water well or wells shall be done in a manner that is in compliance with the rules and regulations of the Manchester Township Division of Inspections, Ocean County Health Department and Manchester Township Division of Utilities, as well as any and all other federal, state, county or local laws and regulations which may be applicable.

B. For newly constructed single-family homes, as well as developments requiring subdivision or site plan approvals, irrigation wells shall be required for irrigation systems. Potable water cannot be used for irrigation systems.

**§ 430-2. Connection required for certificate of occupancy.**

Where any house, building or structure of any type is constructed after the date of commencement of operation of the public water system, any house, building or structure must connect to the public water system prior to the issuance of a certificate of occupancy by the Township.

**§ 430-3. Notice of availability of water service.**

Whenever a water main and/or lateral is installed in any public or private street, roadway, highway or easement, all owners of any property, including but not limited to residential, commercial or otherwise, lying on or adjacent to the public or private street, roadway, highway or easement shall connect to the water main and/or lateral within 90 days after service of notice of availability of water service. Notice of availability of water service shall

be provided by the Township, which shall be served upon the owner of the property personally, by leaving it at his usual place of abode with a member of his family above the age of 18 years, or by mailing such notice by certified mail, return receipt requested, to the owner's last known post office address as shown on the tax records of the Township of Manchester.

**§ 430-4. Failure to connect; delinquent notice.**

Should the owner of any property fail or neglect to connect to the public water system pursuant to §§ 430-1, 430-2 and 430-3, hereinabove, the owner of the property shall be provided a delinquent notice by the Township. Connection to the public water system shall thereafter be made within 30 days after service of the delinquent notice. The delinquent notice shall be served upon the owner of the property personally, by leaving it at his usual place of abode with a member of his family above the age of 18 years, or so by mailing such notice by certified mail, return receipt requested, to the owner's last known post office address as shown on the tax records of the Township.

**§ 430-5. Violations and penalties; enforcement.**

A. Any property owner who shall violate this article by failing to comply with any of its provisions within 30 days after service of the delinquent notice pursuant to § 430-4 may be subject to a fine ~~of \$25 for the first day of noncompliance, and a fine of \$10 per day for each day of noncompliance thereafter. Each day after the expiration of the 30 days in which the provisions of this article are not complied with shall be deemed and taken to be a separate and distinct offense~~ of not more than \$1,000, by imprisonment for a term not to exceed 90 days or by community service of not more than 90 days, or any combination of fine, imprisonment and community service as determined in the discretion of the Municipal Court Judge. The continuation of such violation for each successive day shall constitute a separate offense, and the person or persons allowing or permitting the continuation of the violation may be punished as provided above for each separate offense.

B. The provisions of this article shall be enforceable by the Township of Manchester through its respective designee(s), which shall include but not be limited to the Township Clerk and the Director of the Manchester Township Department of Public Works.

Article II  
Use of Septic Systems

**§ 430-6. Sewer connection required.**

A. Where the Township of Manchester has jurisdiction and has provided for the installation of a sanitary sewage collection and transmission system through any sewer main and/or lateral in any public or private street, roadway, highway or easement ("public sewer system"), all owners of any property, including but not limited to residential, commercial or otherwise, lying on or adjacent to the public or private street, roadway, highway or easement where the main and/or lateral exists, shall disconnect from and cease utilization of any existing on-site individual sewage disposal system, and shall cause any on-site sewage collection and transmission facilities to be connected to the above-referenced public sewer system. The connection to the public sewer system and disconnection from the on-site sewage disposal system shall be done in a manner that is



in compliance with the rules and regulations of the Manchester Township Division of Inspection and the Ocean County Health Department, as well as any and all other federal, state, county or local laws and regulations which may be applicable.

B. Subdivisions. As to those subdivisions which have not received preliminary approval on the effective date of Ordinance No. 00-032, the Manchester Township Planning Board shall require the developer, as a condition for approval of the subdivision, to pay the pro rata share of the cost of providing only reasonable and necessary street improvements and water, sewerage and drainage facilities, and easements therefor, located off-tract but necessitated or required by construction or improvements within such subdivision or development. This determination shall be made in accordance with the requirements set forth in N.J.S.A. 40:55D-42 and pursuant to the standards set forth in Chapter 245, Article IX, of the Manchester Township Land Use and Development Regulations, which are incorporated herein by reference. In lieu of the developer's payment of the pro rata share of the cost of providing the foregoing off-tract improvements, the Township Planning Board shall have the option of requiring the developer to install such improvements.

C. The builder or developer of one or more lots in those areas of the Township as to which the Township has not provided for the installation of a public sewer system shall be required to install a capped sanitary sewer system as defined in N.J.A.C. 5:21-1.4 within the road right-of-way to service the approved lots. Alternatively, the Township may require the builder or developer to provide a performance guarantee in lieu of the improvement. The Township Engineer shall determine the amount of the performance guarantee to be provided by the builder or developer. The requirements of this subsection shall only apply to builders and developers of lots in those areas as to which the Municipal Sewer Master Plan, official map or other official document of the Township indicates that a public sanitary sewer system will be provided to the area within a six-year period. Further, pursuant to N.J.A.C. 5:21-6.1(c), capped sanitary sewers shall be required only in areas indicated for sewer service in the State of New Jersey Statewide Water Quality Management (WQM) Plans and where permitted by the NJDEP through sewer connection approval.

**§ 430-7. Disconnection and inspection of septic tanks.**

The disconnection of an existing individual on-site sewage disposal system shall be done in the following manner and within six months of the connection to the public sewer system:

A. All septic tanks, seepage pits and distribution boxes shall have the contents removed or properly disposed of in a manner approved by the Ocean County Health Department.

B. The Ocean County Health Department, upon notification by the property owner, will provide for an official inspection of the abandonment and filling of the septic tanks, seepage pits and distribution boxes.

C. All septic tanks, seepage pits and distribution boxes shall be partially filled with soil and compacted to a level approximately 1/3 to 1/2 of the total depth. The top slab and side walls are to be collapsed three feet below grade so that no piece hinders the horizontal stacking at the bottom of the tank. At this point, the property owner shall notify the Ocean County Health Department and request an official inspection.

D. After the official inspection, the filling and compacting shall resume until all voids have

been completely filled and a soil density equal to that of the surrounding soil has been achieved and water packed as necessary.

E. The rules, procedures, and time elements contained within this article are an approved method for public sewer connection; however, they shall not preclude applications for a variance from such standards that are petitioned by the property owner and approved in advance by the Ocean County Health Department. Any such grant of an extension of time by the Ocean County Health Department shall not exceed 60 days.

F. Under no circumstances shall alternative uses for septic tanks or related appurtenances be permitted. These prohibited uses shall include but not be limited to connection of roof leaders or any source of water runoff, rainwater or wastewater from any and all sources, and shall also include the discharge or storage of any type of chemical or waste materials.

**§ 430-8. Connection required for certificate of occupancy.**

Where any house, building or structure of any type is constructed after the date of the commencement of operations of the public sewer system, any house, building or structure must connect to the public sewer system prior to the issuance of a certificate of occupancy by the Township.

**§ 430-9. Notice of availability of sewer service.**

Whenever a sewer or water main or lateral is installed in any public or private street, roadway, highway or easement, all owners of any property, including but not limited to residential, commercial or otherwise, lying on or adjacent to the public or private street, roadway, highway or easement, shall pay the required connection fee as provided for in the Township ordinance establishing water and sewer rates for the Water and Sewer Utilities no later than 90 days after the service of notice of availability of sewer or water service. The property shall be connected to the sewer or water main or lateral and the connection shall be in working condition no later than 180 days after the service of notice of availability of sewer or water service.

**§ 430-10. Failure to connect; enforcement.**

A. Should the owner of any property fail or neglect to connect to the public sewer system pursuant to §§ 430-6, 430-7 and 430-8, the owner of the property shall be provided a delinquent notice by the Township of Manchester. Connection to the public sewer system shall thereafter be made within 30 days after service of the delinquent notice. The delinquent notice shall be served upon the owner of the property personally, by leaving it at his usual place of abode with a member of his family above the age of 18 years, or by mailing such notice by certified mail, return receipt requested, to the owners' last known post office address as shown on the tax records of the Township of Manchester.

B. The provisions of the section shall be enforceable by the Township of Manchester through its respective designee(s) which shall include but not be limited to the Business Administrator and the Director of the Manchester Township Division of Utilities.

**§ 430-11. Violations and Penalties.**

Any property owner who shall violate this article by failing to comply with any of its



provisions within 30 days after service of the delinquent notice pursuant to § 430-10 may be subject to a fine of \$25 for the first day of noncompliance, and a fine of \$10 per day for each day of noncompliance thereafter. Each day after the expiration of the 30 days in which the provisions of this article are not complied with shall be deemed and taken to be a separate and distinct offense, of not more than \$1,000, by imprisonment for a term not to exceed 90 days or by community service of not more than 90 days, or any combination of fine, imprisonment and community service as determined in the discretion of the Municipal Court Judge. The continuation of such violation for each successive day shall constitute a separate offense, and the person or persons allowing or permitting the continuation of the violation may be punished as provided above for each separate offense.

### Article III Water Connection Fees

#### § 430-12. Fees required for connection or use change.

The Township's Department of Public Works, Water-East Utility and Water-West Utility, shall be authorized to charge application filing fees, engineering review fees, inspection fees and water service connection fees to applicants who desire to connect or are required pursuant to Article I of this chapter to connect to the Township's water system, or who desire to change their use associated with an existing water connection, in accordance with the fees set forth in Article VII, Water and Sewer Rates, of this chapter, or as amended and/or supplemented from time to time (the Schedule of Fees).

#### § 430-13. Schedule of Fees Available to the public.

Copies of the Schedule of Fees then in place shall be available in the Township Clerk's office for public use and examination. Appendix section of this Chapter.

#### § 430-14. Schedule of Fees in conjunction with water connections.

A. Application filing fees.

(1) Fees for filing the following applications are established in the Schedule of Fees:

- (a) Service lateral.
- (b) Service determination.
- (c) Preliminary approval.
- (d) Final approval.
- (e) New utility permit and final inspection.
- (f) Utility permit modification.

(2) Applicable filing fees are due and payable at the time applications are submitted. Applications shall be deemed to be incomplete and will not be accepted without payment of application filing fees.

(3) Application filing fees are not refundable under any circumstances

**B. Review fees.**

(1) The TOWNSHIP SEWER AND WATER Engineer will be authorized to conduct reviews only if the applicant has on deposit with the TOWNSHIP SEWER AND WATER an amount sufficient to cover the reasonably anticipated review fee for contemplated work. In no case shall the account balance be less than 10% of the initial deposit. Fees for reviewing applications shall be paid by the TOWNSHIP SEWER AND WATER at the same rate as all other work of the same nature performed by the TOWNSHIP SEWER AND WATER Engineer and shall be based on vouchers from the TOWNSHIP SEWER AND WATER Engineer stating the hours spent, the hourly rate, and the expenses incurred. Upon request, TOWNSHIP SEWER AND WATER will provide an accounting to the applicant regarding such payments and account balances.

(2) Solely for establishing the sufficiency of the initial deposit to be made by the applicant, the anticipated review fees for contemplated work are hereby established as follows:

<b>Application</b>	<b>Initial Deposit</b>
Preliminary Approval	5% of TOWNSHIP SEWER AND WATER Engineer's Estimate of Construction Cost
Final Approval	3% of TOWNSHIP SEWER AND WATER Engineer's Estimate of Construction Cost

(3) Whenever the initial deposit exceeds \$5,000, the money shall remain the property of the applicant and be held by TOWNSHIP SEWER AND WATER in escrow for the applicant.

**C. Inspection fees.**

(1) The TOWNSHIP SEWER AND WATER Engineer will be authorized to conduct inspections of construction only if the applicant has on deposit with the TOWNSHIP SEWER AND WATER an amount sufficient to cover the reasonably anticipated inspection fee for contemplated work. In no case shall the account balance be less than 10% of the initial deposit. Fees for inspections shall be paid by the TOWNSHIP SEWER AND WATER at the same rate as all other work of the same nature by the TOWNSHIP SEWER AND WATER Engineer and shall be based on vouchers from the TOWNSHIP SEWER AND WATER Engineer stating the hours spent, the hourly rate, and the expenses incurred. Upon request, TOWNSHIP SEWER AND WATER will provide an accounting to the applicant regarding such payments and account balances.

(2) Solely for determining the sufficiency of the initial deposit to be made by the applicant, the reasonably anticipated inspection fees for initially contemplated work hereby are established at 5% of the TOWNSHIP SEWER AND WATER Engineer's estimate of the construction costs.

(3) Whenever the initial deposit otherwise would exceed \$10,000, the applicant may elect to make deposits in installments. The minimum amount of each installment shall equal 25% of the total anticipated inspection fees. Additional installments are due whenever the account balance falls below 10% of the initial deposit.

(4) Whenever the initial deposit exceeds \$5,000, the money shall remain the property of the applicant and be held by TOWNSHIP SEWER AND WATER in escrow for the applicant.

**D. Connection fees.**

(1) The connection fee to connect directly or indirectly to the Township's water system shall be as established in the Schedule of Fees.

(2) Connection fees shall be paid in full at the time of the utility permit application for the water connection, except homeowners in Class I who desire or are required to connect an existing single-family dwelling to the Township's water system may make installment payments in accordance with the Schedule of Fees.

(3) Developers who convey to the Township, at no cost to the Township, all water mains and services constructed by the developer are not exempt from paying the connection fee for each direct or indirect connection to the Township's water system.

#### Article IV Sewer Connection Fees

##### § 430-15. Fees required for connection or use change.

The Township's Division of Utilities, Sewer-East Utility and Sewer-West Utility, shall be authorized to charge application filing fees, engineering review fees, inspection fees and sewer service connection fees to applicants who desire to connect or are required pursuant to Article II of this chapter to connect to the Township's sewer system, or who desire to change their use associated with an existing sewer connection, in accordance with the fees set forth in Article VII, Water and Sewer Rates, of this chapter, or as amended and/or supplemented from time to time (the Schedule of Fees).

##### § 430-16. Schedule of Fees Available to the public.

Copies of the Schedule of Fees then in place shall be available in the Township Clerk's office for public use and examination.

###### A. Application filing fees.

(1) Fees for filing the following applications are established in the Schedule of Fees:

- (a) Service lateral.
- (b) Service determination.
- (c) Preliminary approval.
- (d) Final approval.
- (e) New utility permit and final inspection.
- (f) Utility permit modification.

(2) Applicable filing fees are due and payable at the time applications are submitted. Applications shall be deemed to be incomplete and will not be accepted without payment of application filing fees.

(3) Application filing fees are not refundable under any circumstances.

###### B. Review fees.

(1) The ~~BOS~~- Township Water and Sewer Engineer will be authorized to conduct reviews only if the applicant has on deposit with the ~~BOS~~- Township Water and Sewer an amount sufficient to cover the reasonably anticipated review fee for contemplated work. In no case shall the account balance be less than 10% of the initial deposit. Fees for reviewing applications shall be paid by the ~~BOS~~- Township Water and Sewer at the same rate as all



other work of the same nature performed by the BOS- Township Water and Sewer Engineer and shall be based on vouchers from the BOS- Township Water and Sewer Engineer stating the hours spent, the hourly rate, and the expenses incurred. Upon request, BOS- Township Water and Sewer will provide an accounting to the applicant regarding such payments and account balances.

(2) Solely for establishing the sufficiency of the initial deposit to be made by the applicant, the anticipated review fees for contemplated work are hereby established as follows:

<b>Application</b>	<b>Initial Deposit</b>
Preliminary Approval	5% of BOS- Township Water and Sewer Engineer's Estimate of Construction Cost
Final Approval	3% of BOS- Township Water and Sewer Engineer's Estimate of Construction Cost

(3) Whenever the initial deposit exceeds \$5,000, the money shall remain the property of the applicant and be held by BOS in escrow for the applicant.

#### C. Inspection fees.

(1) The TOWNSHIP SEWER AND WATER Engineer will be authorized to conduct inspections of construction only if the applicant has on deposit with the TOWNSHIP SEWER AND WATER an amount sufficient to cover the reasonably anticipated inspection fee for contemplated work. In no case shall the account balance be less than 10% of the initial deposit. Fees for inspections shall be paid by the TOWNSHIP SEWER AND WATER at the same rate as all other work of the same nature by the TOWNSHIP SEWER AND WATER Engineer and shall be based on vouchers from the TOWNSHIP SEWER AND WATER Engineer stating the hours spent, the hourly rate, and the expenses incurred. Upon request, TOWNSHIP SEWER AND WATER will provide an accounting to the applicant regarding such payments and account balances.

(2) Solely for determining the sufficiency of the initial deposit to be made by the applicant, the reasonably anticipated inspection fees for initially contemplated work hereby are established at 5% of the TOWNSHIP SEWER AND WATER Engineer's estimate of the construction costs.

(3) Whenever the initial deposit otherwise would exceed \$10,000, the applicant may elect to make deposits in installments. The minimum amount of each installment shall equal 25% of the total anticipated inspection fees. Additional installments are due whenever the account balance falls below 10% of the initial deposit.

(4) Whenever the initial deposit exceeds \$5,000, the money shall remain the property of the applicant and be held by TOWNSHIP SEWER AND WATER in escrow for the applicant.

#### D. Connection fees.

(1) The connection fee to connect directly or indirectly to the Township's sanitary sewer system shall be as established in the Schedule of Fees.

(2) Connection fees shall be paid in full at the time of the utility permit application for the sanitary sewer connection, except homeowners in Class I who desire or are required to connect an existing single-family dwelling to the Township's sanitary sewer system may make installment payments in accordance with the Schedule of Fees.

(3) Developers who convey to the Township, at no cost to the Township, all sanitary sewer mains and laterals constructed by the developer are not exempt from paying the connection fee for each direct or indirect connection to the Township's sanitary sewer system.

**§ 430-17. Schedule of Fees in conjunction with water connections.**

**A. Application filing fees.**

(1) Fees for filing the following applications are established in the Schedule of Fees:

- (a) Service lateral.
- (b) Service determination.
- (c) Preliminary approval.
- (d) Final approval.
- (e) New utility permit and final inspection.
- (f) Utility permit modification.

(2) Applicable filing fees are due and payable at the time applications are submitted. Applications shall be deemed to be incomplete and will not be accepted without payment of application filing fees.

(3) Application filing fees are not refundable under any circumstances.

**B. Review fees.**

(1) The TOWNSHIP SEWER AND WATER Engineer will be authorized to conduct reviews only if the applicant has on deposit with the TOWNSHIP SEWER AND WATER an amount sufficient to cover the reasonably anticipated review fee for contemplated work. In no case shall the account balance be less than 10% of the initial deposit. Fees for reviewing applications shall be paid by the TOWNSHIP SEWER AND WATER at the same rate as all other work of the same nature performed by the TOWNSHIP SEWER AND WATER Engineer and shall be based on vouchers from the TOWNSHIP SEWER AND WATER Engineer stating the hours spent, the hourly rate, and the expenses incurred. Upon request, TOWNSHIP SEWER AND WATER will provide an accounting to the applicant regarding such payments and account balances.

(2) Solely for establishing the sufficiency of the initial deposit to be made by the applicant, the anticipated review fees for contemplated work are hereby established as follows:

<b>Application</b>	<b>Initial Deposit</b>
Preliminary Approval	5% of TOWNSHIP SEWER AND WATER Engineer's Estimate of Construction Cost
Final Approval	3% of TOWNSHIP SEWER AND WATER Engineer's Estimate of Construction Cost

Whenever the initial deposit exceeds \$5,000, the money shall remain the property of the applicant and be held by TOWNSHIP SEWER AND WATER in escrow for the applicant.

**C. Inspection fees.**

(1) The TOWNSHIP SEWER AND WATER Engineer will be authorized to conduct inspections of construction only if the applicant has on deposit with the TOWNSHIP

SEWER AND WATER an amount sufficient to cover the reasonably anticipated inspection fee for contemplated work. In no case shall the account balance be less than 10% of the initial deposit. Fees for inspections shall be paid by the TOWNSHIP SEWER AND WATER at the same rate as all other work of the same nature by the TOWNSHIP SEWER AND WATER Engineer and shall be based on vouchers from the TOWNSHIP SEWER AND WATER Engineer stating the hours spent, the hourly rate, and the expenses incurred. Upon request, TOWNSHIP SEWER AND WATER will provide an accounting to the applicant regarding such payments and account balances.

(2) Solely for determining the sufficiency of the initial deposit to be made by the applicant, the reasonably anticipated inspection fees for initially contemplated work hereby are established at 5% of the TOWNSHIP SEWER AND WATER Engineer's estimate of the construction costs.

(3) Whenever the initial deposit otherwise would exceed \$10,000, the applicant may elect to make deposits in installments. The minimum amount of each installment shall equal 25% of the total anticipated inspection fees. Additional installments are due whenever the account balance falls below 10% of the initial deposit.

(4) Whenever the initial deposit exceeds \$5,000, the money shall remain the property of the applicant and be held by TOWNSHIP SEWER AND WATER in escrow for the applicant.

#### D. Connection fees.

(1) The connection fee to connect directly or indirectly to the Township's sanitary sewer system shall be as established in the Schedule of Fees.

(2) Connection fees shall be paid in full at the time of the utility permit application for the sanitary sewer connection, except homeowners in Class I who desire or are required to connect an existing single-family dwelling to the Township's sanitary sewer system may make installment payments in accordance with the Schedule of Fees.

(3) Developers who convey to the Township, at no cost to the Township, all sanitary sewer mains and laterals constructed by the developer are not exempt from paying the connection fee for each direct or indirect connection to the Township's sanitary sewer system.

### Article V Water Connection Rules

#### § 430-18. General Information

##### § 430-18.1 Introduction and Purpose

These rules and regulations have been established to facilitate the review of applications to the ~~Manchester Township Municipal Utilities Authority~~ Manchester Township Water and Sewer Division for the Construction of Water System Facilities.

All Individual property owners and developers of residential, commercial, or industrial properties, are required by Resolution of the ~~Authority-Township~~, to submit applications for all phases of planning, design, and construction of Water System Facilities. Applications for review, as well as governing rules and regulations are required to provide for the development and systematic



con-struction of a unified water system within the Township comprising supply, storage, and distribution.

#### Office of the Authority

~~The principal office and place of business of the Authority is located at 1 Colonial Drive, Lakehurst, New Jersey 08733.~~

~~The clerk of the Authority will be available at the office of the Authority for the purpose of official business from Monday through Friday, between the hours of 9 a.m. to 4 p.m., prevailing time, except during the hours of 12 a.m. to 1 p.m. Application for review of Plans, Permit Application, and payment of fees, shall be made at the office of the Authority and to the Secretary of the Authority.~~

#### § 430-18.2 Definitions

Unless the context of these rules and regulations specifically indicates otherwise, the following meanings shall apply as indicated hereafter:

1. "Applicant" shall mean the individual, corporation, partner-ship or authorized agent making application to the ~~Authority-Township~~.
2. "As Built" shall mean a record of the Water System Facilities
3. "~~Authority~~"-Township" shall mean the Manchester Township Municipal-Utilities Authority.
4. "~~Authority~~"-Township Engineer" shall mean the Engineer duly authorized by the ~~Authority-Township~~ to review and inspect all Water System Facilities.
5. "~~Authority-Township~~ Main" shall mean a water transmission or distribution main owned by the ~~Authority-Township~~ in public streets or easements, including a service connection to the property line or edge of the easement.
6. "Booster Pumping Station" shall mean a permanent facility constructed to increase the system pressure by pumping rather than by gravity means.
7. "Commercial Concern" shall mean any concern engaged in service, trade, business, traffic, or commerce in general, exclusive of Industrial concerns.
8. "Developer" shall mean the person, persons, Company, Corporation, etc., performing site improvements.
9. "Development Construction Costs Estimating Schedule" - a uniform construction-cost estimating schedule adopted by the ~~Authority-Township~~ on an annual basis to be used by all applicants in submitting estimated costs of construction.
10. "Estimated Project Cost" shall mean the estimated cost of con-struction based upon the current "Development Construction Cost Estimating Schedule" duly adopted by the ~~Authority-Township~~ and subject to review and approval by the "~~Authority-Township~~ Engineer".
11. "Franchise Areas" areas within the Township where the applicant has been granted approval by the Township Committee and/or by the New Jersey Public Utilities Commission for the construction operation and maintenance of a comprehensive water system.
12. "Industrial Concern" shall mean any concern engaged primarily in manufacturing or processing operations.
13. "Master Plan" shall mean the plan for providing water distribution, supply, and

storage facilities for the Township prepared by the Authority-Township Consulting Engineer together with any supplements, amendments, alterations, or additions thereto or hereafter in existence, as approved by the Authority-Township.

14. "May" means permissive – "shall" means mandatory.

15. "Owner" shall mean the property upon whose behalf an application for water service is made to the Authority-Township.

16. "Planning Board" shall mean the Planning Board of the Township as created under the state statute by Township ordinance.

17. "Plumbing Inspector" shall mean the person duly designated by the Township as the subcode official administering the "State Uniform Construction Code Act"

18. "Professional Engineer" shall mean a person licensed to practice Professional Engineering in the State of New Jersey.

19. "Record Drawings" shall mean the reproducible plans representing as-built conditions.

20. "Secretary" shall mean the duly designated Secretary of the Authority Township.

21. "Service Connection" shall mean that portion of the water system conveying water from the distribution main to the individual service unit, including service pipe, corporation stop, curb stop, curb box, and meter.

22. "Street" shall mean any and all dedicated streets, avenues, alleys, lanes, highways, and roads accepted or unaccepted by the Township, County or State.

23. "Storage Facility" shall mean any reservoir, tank, or clear well utilized to provide system storage for potable water.

24. "Supply Well" shall mean an installation for the production of potable water from an underground source in accordance with diversion rights granted by the State.

25. "Township" shall mean the Township of Manchester in the County of Ocean, State of New Jersey.

26. "Township Water and Sewer Engineer" shall mean the duly appointed Water and Sewer Engineer of the Township.

27. "Unit" shall be defined as one (1) dwelling, or a portion of a structure normally occupied by one (1) family, one (1) professional office, or one (1) store. Multiple housing units such as duplex houses, garden apartments, and multiple family houses, will be assigned the number of units based on the number of dwellings contained therein. One commercially rented room without a kitchen or efficiency kitchen in hotels, motels, boarding houses, or tourist homes shall be defined as one-half (1/2) unit. A unit in a school shall be defined as one classroom in the structure. Any use not specifically addressed above shall be defined by the Authority-Township as to the number of equivalent units on a case-by-case basis.

28. "Water System Facilities" shall mean any and all distribution or transmission water mains, storage facilities, and supply wells, along with their appurtenances providing a potable water supply.

29. "Water Plant" shall mean a separate and complete water system, including all required supply and storage facilities.

#### § 430-18.3 Conditions Requiring the Installation of Water System Facilities

The Township, through the Authority shall require all residential subdivisions, multi-person or family structures, and all non-residential structures and developments, such as schools, hospitals, etc.; to connect to the nearest Authority Township water main.

In the event that the Applicant's lands are so remote or isolated from an existing Authority water main that the Authority-Township, in its sole discretion, determines that extension of its line is not economically feasible; then the Authority-Township may require that a temporary or permanent water plant be constructed to service the Applicant's proposed facility, all in accordance with these rules and regulations, and the rules, regulations, and requirements of County, State and Federal Regulatory Agencies having jurisdiction in this area, such as the State Department of Environmental Protection, Division of Potable Water.

The Authority-Township establishes herein a review procedure for proposed water system facilities regulated through an Application System.

All proposed facilities, that connect or shall connect to an Authority-Township water main, as hereinbefore listed, as well as other special units which do not fall into a listed section shall be required to file a written Application for Review in accordance with one of the following sections:

Rules and Regulations §430-19 - Water System Standards for Sub-divisions and Developments.

Rules and Regulations §430-20 - Water System Standards for Residential, Commercial, and Industrial Connections (Individual Connections)

#### § 430-18.4 Letter of No Interest

All residential, professional, commercial, and industrial structures requiring potable water facilities must apply to the Manchester Township Municipal Division of Utilities Authority prior to obtaining a building permit.

In the case of a single residential and/or small professional, commercial, or industrial building, application shall be made for a "Letter of No Interest". Upon receipt of a "Letter of No Interest" application, a determination will be made as to the availability of service or if a comprehensive system will be required.

Should a comprehensive system be required, the applicant will be so notified and required to then submit a Preliminary Application as detailed herein in §430-22 for water and §430-30 and found as Figures C and D in the appendix.

#### § 430-18.5 General Regulations Regarding the Operation and Use of the System

No person other than persons authorized by the Authority-Township, shall be permitted to make connections with the main or distribution pipes. The connections from the curb of the mains will in every case become property of the Authority-Township. The owner remains solely responsible for all service pipes from the curb line to the house.

The Authority Township shall have the right at all reasonable hours of the day to have access to the water pipes and meters, if any, upon premises or within the houses of the property owners for the purpose of examination of fixtures, if any.

All lateral or service pipes from the meter to the house shall be kept in good



repair and protected from frost at the expense of the applicant or consumer.

No person except those authorized by the Authority Township, shall open or close the curb stops or valves in any of the Authority-Township's water mains or service pipes. Repair costs resulting from unauthorized tampering shall be borne by the customer.

No plumber, consumer, or other unauthorized person shall turn the water on or off at curb stops, meter pits, valves, or any other junction between the Authority Township's connection and the individual service line entering the premises.

In cases where the water has been turned-off for non-payment of water bill, the Authority Township reserves the right to turn it on again when all back bills and service charges have been paid.

Water will be turned-off at the curb upon written request of the consumer to the Authority Township. Said request must have forty-eight hours notice and the charge paid for the service.

Water will be turned on upon written request to the Authority Township with a forty-eight-hour notice. The customer will be charged for the service. Water will not be turned on unless the owner is present at the premises. The Authority Township will not be liable for any freeze up of pipes, or damage caused by said freeze ups.

The Authority Township shall not be held liable for any damage which may result from leaks, burst pipes, mains, any attachments to pipes or from any other cause.

The Authority Township reserves the right to change the rules and regulations or the use of water from time to time, to shut off the water for alterations, extensions and repairs, and to stop and restrict the supply of water whenever it may be found necessary; and the Authority-Township shall not be liable under any circumstances for a deficiency or failure in the supply of water, whether occasioned by shutting off water to make repairs or connections, or for any cause whatever.

All bills for water shall be payable to the Manchester Township Municipal Division of Utilities Authority.

Any person who shall destroy or injure any of the works or property of the Authority-Township, or shall commit any act which shall injuriously affect or tend to affect the water of said Authority the Township, shall be prosecuted to the full extent of the law.

#### § 430-18.6 Waiver of Rules and Regulations

The Authority-Township shall have the power to waive any requirements of the Rules and Regulations where the said requirements appear to be unreasonable or where it would appear that such waiver would be in the best interest of the people of Manchester Township.

#### ~~§ 430-18.7~~ Instructions for Application for Negotiation

~~All applicants wishing to negotiate with the professional staff of the Authority Township in order to obtain a specialized agreement providing for the ultimate installation of a comprehensive water system shall submit an application, in duplicate, furnished by the Secretary of the Authority Township.~~

~~The Authority Township shall review the application at its next regular meeting. If approved, the Authority Township shall authorize said negotiations by resolution.~~

~~The applicant shall post, within five (5) days of the date of resolution, the appropriate negotiation fees in accordance with the current "Schedule of Fees and Charges" to defray the expenses of the Authority Township.~~

~~The applicant shall be entitled to the reimbursement of monies posted with the Authority Township in excess of the costs expended in negotiating a contract.~~

#### ~~Water Rate Schedule~~

~~The current approved "Schedule of Charges and Fees" is hereby made a part of these Rules and Regulations. Whenever there is any discrepancy between the Rules and Regulations and the Water Rate Schedule, the Water Rate Schedule shall govern.~~

#### § 430-19. Water System Standards for Subdivisions and Developments

##### § 430-19.1 Requirements

1. Approval by the Authority Township of all water system facilities for all proposed subdivisions and developments in the Township is required.
2. Each proposed subdivision and development shall meet the Standards and Specifications of the Authority the Township, as well as any and all relevant ordinances of the Township.
3. Each subdivision or development shall install a water distribution system with at least one service connection provided to each lot or service unit. In condominium or cooperative developments where there are no lot lines or in garden apartment house projects for rental, at least one service connection shall be provided for each structure. The size of the service connection shall be based upon the total number of units within the structure as approved by the Authority Township Engineer.
4. In areas removed from the existing Authority Township water system, the Authority Township shall decide as to whether the proposed system shall be connected to the Authority Township water system or shall be established as a permanent water supply and/or treatment facility. The Authority Township will indicate the proposed location of transmission mains to be included under the Authority Township's comprehensive master plan, as well as the size of each main to be included. The comprehensive master plan for the Authority Township water system facilities shall govern the location and size of all major transmission lines and shall include the general location of proposed storage facilities

5. The cost of transmission main extension to service proposed facilities of the applicant shall be reviewed by the Authority Township during the preliminary review period. If it is determined by the Authority Township's engineer's sole discretion that the extension of an Authority Township water main is the most practical means available to provide service, then the Authority Township will notify the applicant. The applicant may either perform the engineering design and construction or the engineering design and construction will be performed by the Authority-Township in the event the applicant designs and constructs, the inspection and review fees will be paid by the applicant. If the Authority-Township designs and constructs, the applicant will be required by agreement to reimburse the Authority-Township for all expenses incurred by the Authority-Township in the design and construction of facilities.

Reimbursements to the Authority Township shall be in accordance with a mutual agreement entered into between the applicant and the Authority-Township. The applicant shall post Cash and Performance Bonds guaranteeing payrate of the costs incurred by the Authority Township. The amount of the bonds shall be determined by the Authority Township.

6. All applications for approval of water systems for subdivisions and developments shall include the installation of meter pit, meter and lid in accordance with standard details of the Authority Township.

7. ~~The applicant shall obtain a copy of the "Rules and Regulations" from the Authority office, together with all pertinent application forms.~~ The applicant shall complete the appropriate forms for either review of preliminary plans or for review of final plans and specifications.

8. The review period for preliminary plans shall be consistent with the extent of the subdivision or development submitted. In general, this period will not extend beyond sixty (60) days from the date of acceptance for review; or to the second regular Authority-Township meeting following acceptance, unless extenuating circumstances require an extension of time. Such circumstances shall be communicated to the applicant.

9. Formal acceptance of preliminary plans shall be made by resolution and constitute approval by the Authority Township of the facilities proposed, dependent upon submission and approval of final plans and specifications for the facilities. Final plans and specifications shall include the Authority-Township Engineer's comments. Preliminary approval will be revoked and void if the applicant has not made final application with six (6) months of the grant of preliminary approval.

10. Acceptable Performance and Maintenance Guarantees shall be submitted by the applicant together with a deposit to cover all appropriate application fees in accordance with the current Rate Schedule as follows:

A) Performance Bond - as a condition for final approval, applicant shall submit a Performance Bond in the exact form as shown in Exhibit "B" of a surety company authorized and licensed to do business in the State of New Jersey which shall name the Manchester Township Municipal Division of Utilities Authority without condition as obligee and shall be in a form acceptable to the



Authority Township attorney. The amount of the Performance Bond shall be ninety (90) percent of the "Estimated Project Cost" as approved by the Authority Township engineer and shall extend until such time as the facilities are tested and approved by the Authority Township to be placed in operation. The project cost upon which the bond is based shall be the estimated cost of work to be performed if the Authority-Township were to construct the facilities. In addition, the applicant shall post a "cash bond" without condition in the amount of ten (10) percent of the estimated project cost in a form acceptable to the Authority Township. If the applicant should be adjudged a bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed to take over his affairs, or if he should fail to substantially perform one or more of the provisions of the approved plans and specifications on which final approval was given, the Authority-Township may serve written notice on the applicant, stating its intention to exercise one of the remedies hereafter set forth and the grounds upon which the Authority Township bases its right to exercise such remedy. In any event, unless the matter complained of is satisfactorily cleared within ten (10) days after service of such notice, the Authority-Township may, without prejudice to any other right or remedy, exercise one of such remedies at once, having first obtained a certificate from the Authority-Township Engineer that sufficient cause exists to justify such action.

- 1) The Authority Township may require the surety on the applicant's bond to take control of the work at once and see to it that all deficiencies complained of are made good with due diligence.
- 2) The Authority Township may take over the work, take possession of and use all materials that have been delivered to the site and paid for, and prosecute the work to completion by such means as the Authority-Township shall deem best. If the Authority-Township takes over the work any damages or expenses incurred by the Authority Township shall be paid by the surety in excess of the cash bond. Such cost, expenses, and damages shall be certified by the Authority-Township consulting engineer.

B) Maintenance Bond - upon approval by the Authority-Township of the facilities and issuance of the Certificate of Completion, the Authority-Township shall release the Performance Bond and return the Cash Bond without interest upon receipt of a Maintenance Bond in the exact form as shown in Exhibit "C", by a surety company authorized to do business in the State of New Jersey which shall name the Manchester Township Municipal Utilities Authority-Township without condition as obligee and shall be in a form acceptable to the Authority-Township attorney. The amount of the bond shall be ten percent (10%) of the sum of the Cash Bond and the Performance Bond and shall extend for two (2) years from the date of acceptance of the facilities by the Authority-Township.

C) Application Fees - upon application for final approval, the applicant shall deposit with the Authority Township all appropriate application fees in accordance with the current Rate Schedule as Outlined in §430-24 for the Eastern Service Area and §430-25 for the Western Service Area. The deposit

shall be in the form of cash, cashier's check or certified check to defray any and all costs incurred by the Authority Township relative to administration, legal, engineering, and inspection expenses. Said monies shall be nonrefundable. However, in the event these costs exceed the application fees, the applicant shall make payment within 30 days following a written request by the Authority Township, said request itemizing specifically all excess charges incurred against the applicant's initial fees.

D) The Authority-Township reserves the right to revise estimated project costs and corresponding Performance Guarantees for all remaining work at the two-year anniversary date of final application approval and at each successive two-year period thereafter should the project be so extended.

E) Upon completion of the facilities, but prior to accepting the Maintenance Bond as set forth in Subsection "B", above, the Authority Township reserves the right to have its "estimated project cost" reviewed by the Authority Township engineer to determine whether any adjustments in its cost estimates are appropriate under the circumstances at such time. The amount determined shall be at the sole discretion of the Authority Township's Engineer.

F) Where an "Estimated Project Cost" has been established by the Authority Township engineer, and submitted to the Owner or Developer for such applicant's provision of Performance, Cash, and Maintenance Guarantees, and such applicant shall fail to supply such guarantee for a period of ninety (90) days following its receipt of the estimated cost figure, the Authority Township reserves the right to revoke such estimated cost figure and, at the applicant's cost and expense, prepare and submit a new estimated cost.

Prior to acceptance of the facilities by the Authority Township, the applicant must submit all required documents in the exact form listed in Sections V and VI the appendix herein.

Inspection of the construction of all elements of the water system facilities will be performed by the Authority Township.

Record drawings of as-built conditions prepare on reproducible material acceptable to the Authority Township Engineer shall be submitted prior to the release of the Performance Bond.

As-builts shall be sized 24" by 32" and provided as AutoCAD, GIS Shape, and paper files. As-builts are to include the following information;

- a. The term 'As-Built' in the title block of each sheet.
- b. Include on each drawing the certification, signature, and seal of the Surveyor who prepared the drawing that the information is correct
- c. Include on each drawing the certification, signature, and seal of the Engineer that the construction of the water and sewer systems, including field revisions, conforms to the requirements of the original design, the Rules and Regulations of the Township Department of Utilities, all permits and approvals issued for the project and all other codes, rules, regulations and ordinances governing the

work.

d. Indicate street names and building addresses.

e. Indicate block and lot numbers for all properties within and adjacent to the project.

f. On each sheet of the as-built drawings, indicate a north arrow referenced to the New Jersey State Plane Coordinate System

g. Indicate all easements granted in conjunction with the project. For each easement indicated the instrument, book and page numbers and the date of recording of the easement by the Ocean County Clerk.

h. All vertical elevations shall be in North American Vertical Datum 1988 (NAVD 88)

i. Indicate a permanent benchmark within the project limits and the reference datum.

j. On each sheet of the as-built drawings, indicate four (4) horizontal control points with x-y coordinates in the New Jersey State Plane Coordinate System. Coordinates shall be expressed in feet with an accuracy of 0.01 feet.

k. Where profiles are included on the same drawing as the plan view, the profiles shall reflect the as-built conditions.

l. Indicate the locations and extent of concrete encasements, concrete cradles, and steel pipe casings.

m. At each crossing of water and sewer main and at crossings of water or sewer mains and storm drainage pipes, include a profile indicating the relative locations of the pipes and the vertical clearance between them.

n. Provide one (1) set of black line prints on clear mylar film, four (4) sets of black line prints on white paper and two (2) compact discs containing the AutoCAD electronic drawing file of the as-built drawings approved by the Department.

o. Indicate and identify by number all valves and hydrants.

p. Indicate and identify all fittings at intersections, changes in direction, connections to existing pipes and end caps.

q. Indicate the method and location of each pipe and fitting restraint.

r. Indicate the length, nominal diameter and pipe material of water mains between valves and fittings. Indicate the depth to the top of the water main at each valve and fitting.

s. Indicate all building services from the water main to the curb valve. Indicate the locations of the corporation stops on the main by stationing them from the valve at end of the water main pipe section.



Each subdivision plan must contain the following approval block on the original reproducible:

WATER SYSTEM FACILITIES  
APPROVED BY THE MANCHESTER TOWNSHIP  
DIVISION OF UTILITIES

---

Township Water and Sewer Engineer

Date

Developers of multiple family residential dwellings, apartment houses, condominiums, planned residential developments Where ownership of streets is retained by a homeowner's association, and commercial shopping centers will have the following options in making connection to the authorities system:

Option A. A single metered, non-residential connection will be made at the property; line; of a size determined necessary by the Applicant's Engineer and subject to review by the Authority Township Engineer. The applicant will provide and install a water meter, pit, and appurtenances of sufficient size to handle the maximum anticipated flow as approved by the Authority Township's Engineer. After connection, the applicant will be responsible for all maintenance of piping, services, and appurtenances beyond the meter pit. The applicant's annual charge for water use and service will include a charge for Authority Township maintenance of the water meter.

Option B. An unmetered line may be run-through the non-residential development with individual metered connections to the various users, i.e. shops, stores, industrial buildings. The applicant shall provide an easement for the Authority-Township and install water mains, hydrants, meters and pits, and appurtenances in accordance with these Rules and Regulations. Additional hydrants or appurtenances as desired by the applicant and approved by the Authority-Township may be connected to this main. The easement, piping, hydrants, and meter shall be turned over to the Authority-Township upon final approval of construction. The Authority Township will then maintain the facilities as part of its system.

The option to be used is to be indicated by the applicant and approved by the Authority Township.

Where the installation of a "dry" water distribution system is approved by the Authority-Township, the developer shall include the cost of water meters in the estimate of construction cost but will not be required to install the meters. The developer will be required to install services, yokes and meter pits but will not be required to disinfect the system. The meters shall be furnished to the Authority Township prior to final acceptance.

If the size of any water main, as shown by the applicant's engineer, is inadequate for the future requirements of the area, as shown on the Manchester Township Water Master Plan, the applicant shall install the larger size pipe if required to do so by the Authority-Township. Up to and including 16 inches in diameter, the Authority Township agrees to pay the applicant the difference in material cost only of the pipe and fittings. Over 16 inches diameter, the Authority-Township agrees to pay the applicant the difference in the material cost of the pipe plus the cost of the additional excavation as determined by the Authority Township Engineer.

If the Authority Township requires a booster pumping station of greater capacity or head than that required by the Applicant, the Authority Township agrees to pay said Applicant the difference between the cost of the larger pumps, motors, piping, valves, and electrical work required in the station by the Applicant and that required by the Authority Township.

If the Authority Township requires a treatment plant or water storage tank of greater capacity than that required by the Authority Township, the Authority Township agrees to pay said Applicant the difference between the cost of the treatment plant or tank required by the Authority Township.

Upon review of final plans and specifications, required local, state, and federal permit forms (if any) shall be prepared by the applicant for submittal by the authority Township. All fees required by these local, state, or federal forms shall be paid by the applicant, at the time of submission by the Authority Township. Application for ground-water diversion "rights" shall be completed by the applicant for sub-mission by the Authority Township. All permits and/or diversion rights shall be in the name of the Manchester Township Municipal Division of Utilities Authority.

#### § 430-19.2 Detailed Application Requirements

##### § 430-19.2.1 Instructions for Preliminary Application

Applicant shall file the proper form with the Utilities Department of the Authority-Township to include ~~four (4) copies~~ of the following:

- ~~a. An overall plan of the proposed subdivision/development on a scale of not less than 1" = 200' and key map at a scale not less than 1" = 1000'.~~
- ~~b. A plan of the proposed water mains, including all connections to be serviced, at a scale not greater than 1" = 1000'.~~
- ~~c. A general plan of any proposed storage and supply well facilities if required by the Authority Engineer.~~
- ~~d. A complete Engineer's Report of the proposed water system setting forth the basis of design.~~
- ~~e. Detailed cost estimate of the proposed project based upon "Development Construction Cost Estimating Schedule."~~

- a. Application – three (3) copied bearing original signature of applicant.
- b. Agent authorization if someone other than Property Owner is making application – Original plus two (2) copies
- c. Application fee.
- d. Initial review escrow deposit and completed IRS Form W-9.

- e. Five (5) copies of Engineer's report (one (1) copy not bound).
- f. Five (5) sets of plans of proposed water and sewer facilities
- g. Five (5) sets of specifications (one (1) copy not bound).
- h. Five (5) copies of Engineer's Construction cost estimate (one (1) copy not bound).
- i. Five (5) copies of The Pinelands Commission Certificate of Filling or CAFRA Permit, as applicable

Basis of design for all water system components shall be in accordance with "Grading Schedule for Municipal Fire Protection", latest edition, published by the Insurance Service Office, New York, all current state and federal standards and accepted design practice. All engineering plans, specifications, and reports must bear the seal and signature of a Professional Engineer authorized to do business in the State of New Jersey.

Final application must be made within one year of date of preliminary approval or said preliminary approval shall be considered null and void

#### § 430-19.2.2 Instructions for Final Application

Applicant shall file the proper form with the Utility Department to include the following:

- ~~a. Four copies of the most recent drawings reviewed by the Township Planning Board, and which is under consideration of the Township Planning Board. Final plans shall bear a block for the signatures of approval of the Authority as stipulated under "Requirements"~~
- ~~b. Performance guarantees as previously stipulated under "Requirements"~~
- ~~c. Easements in a form approved by the Authority, as well as a resolution authorizing the conveyance if applicable.~~
- ~~d. Engineering and inspection fees as previously stipulated under "requirements"~~
- ~~e. Four copies of the plan and profile of all proposed water mains.~~
- ~~f. Four copies of the construction details for appurtenances, such as hydrants, service connections, ect., all in accordance with the standard details for water system appurtenances included here in.~~
- ~~g. Four copies of detailed plans for supply wells and storage facilities, and, if necessary, water treatment facilities.~~
- ~~h. Four copies of the construction specifications for the proposed project, including all appurtenances, supply wells, storage facilities, and water treatment facilities.~~
- ~~i. Four copies of the detailed cost estimate of the construction costs for~~



~~the project based upon the "Development Construction Costs Estimating Schedule".~~

~~j. All application forms required for State and County approvals and permits, filled out in required duplication in the Authority's name. Copies of plans, specifications, and Engineer's Report required for submittal to the County and State agencies shall be supplied upon final review and approval by the Authority.~~

~~k. All required application fees for review and approval of permits required by state and county agencies are to be paid by the applicant. Application and review fees shall be included with the final application form to the Authority in the form of cash, cashier's check or a certified check in the amount required.~~

~~l. The applicant must commence construction within the one-year period from date of final approval or the final approval shall be considered null and void.~~

~~m. When final approval has been granted by the Authority, the applicant shall deliver reproducible drawings of the design to the Authority for the appropriate signatures; and thereafter deliver four (4) copies of the plans and specifications to the Authority for distribution as well as four (4) additional copies to the Authority consulting engineer for use during construction.~~

- a. Application - 3 copies bearing original signature of applicant
- b. Application fee
- c. Initial review escrow deposit
- d. Five (5) copies of Engineer's report (One (1) copy not bound)
- e. Five (5) sets of plans of proposed water and sewer facilities
- f. Five (5) sets of specifications (one (1) copy not bound)
- g. Five (5) copies of Engineer's construction cost estimate (one (1) copy not bound)
- h. Five (5) copies of approvals of all other agencies having jurisdiction over the work (OCUA, NJDEP, NJDOT, Ocean County Soils Conservation District, et al)
- i. Five (5) copies of Easement Agreements
- j. Performance guarantee
- k. Initial inspection escrow deposit.

#### ~~Instructions for Franchised Water Company Application~~

~~All franchised water companies shall submit an application, in duplicate, on a form (Exhibit "A") available from the Authority and shall submit plans and specifications for all new water systems to the Authority for review and approval. The Authority shall review to assure compatibility of the franchised water companies proposed facilities with the overall master plan for the Township.~~

~~The proposed facility shall have the capacity for that portion of the entire franchised area that could reasonably use the facility. The cost of these~~

~~facilities shall not be borne by the Authority or Township.~~

~~In the event the Authority desires that change be made in the water companies, Plans so that they are compatible with the Authority's Master Plan, then the Authority shall so advise the water company. The Authority shall negotiate an agreement to the additional costs to be borne by the Authority for said changes required by it. Where upon the water company's amended plans shall be approved and notification made as above.~~

~~The water company shall notify the Authority in advance of when it plans to test the water system, so that the Authority's Engineer can witness the test. Methods of testing shall be agreed upon in advance of the test.~~

~~The water company shall notify the Authority when construction is completed and shall provide Authority with a copy of a certificate by a licensed professional engineer of the State of New Jersey, a copy of the N.J. Department of Environmental Protection's operating permit, and/or any other such approving document that may be required by regulatory agencies to operate said system or extension.~~

~~The water company shall reimburse the Authority for all engineering fees which have been incurred by the Authority in connection with the review and testing procedures contemplated herein.~~

#### § 430-19.2.3 Engineer's Report

The Engineer's Report shall contain the following:

##### a) Distribution Mains

- 1) The extent of the area to be serviced, both initially and in the future, including location of any Authority Township water mains proposed to be connected to.
- 2) The number of connections to be served during the initial and ultimate development, including an estimate of the population.
- 3) All systems should be designed for a minimum of 100 gallons per capita per day. Normally, four persons per home are to be assumed for normal residential connections; however, for retirement communities, apartments, and other similar uses, the design engineer shall furnish supporting data accordingly. Estimates are to be projected for a minimum of 25 years.
- 4) All calculations required to show the design procedure utilized in sizing all water transmission and distribution mains, the method utilized in balancing the system, the

determination of required fire flow and peak hour demands anticipated.

b) Storage Facilities

- 1) The location and ground elevation of all proposed storage facilities sites, with elevation shown in conformance with the approved master plan
- 2) The size, type, and water surface elevation of all proposed standpipes or elevated tanks.
- 3) Calculations detailing the design procedure utilized to arrive at the total effective capacity of the tank, as it relates to fire reserve storage, emergency storage, and demand equalizing storage, based upon peak hour requirements or maximum daily requirements, whichever is greater.

c) Supply Facilities

- 1) Data on the geological strata from which supply is proposed, including information to the quality of the water, yield, and test well findings (if any).
- 2) A map of appropriate scale indicating sources of potential pollution within a minimum distance of one mile from the location of the proposed well.
- 3) A description of the pumping equipment proposed, including capacity of each unit, control of operation, alarm systems, and required emergency standby facilities.
- 4) A general description of proposed treatment measures necessary to meet required water quality standard, including information on the nature and dosage of any chemicals to be applied during the treatment operation, as well as the feed equipment proposed to be utilized and the method of filter back wash and sludge disposal. Treatment measures outlined shall include a description of proposed disinfection indicating the method of application, the reaction time required and the dosage proposed
- 5) A description of safety features to be included in all supply facilities for the protection of operating personnel

The Engineer's Report shall be complete in all regards and shall provide all data required for proper review of the facilities proposed. All facilities proposed shall be designed in accordance with the following design criteria



## a) Distribution Mains

All distribution mains, including transmission mains, shall be designed to provide a minimum pressure of 20 pounds per square inch (20 psi) at peak flow demand plus fire flow.

The supply mains shall be of adequate size and have properly arranged connections to the arterial mains which shall extend throughout the system and have numerous connections to the secondary feeders that supply the minor distributors.

The minor distributors supplying residential districts shall consist of mains at least 6 inches in size arranged so that they form a good gridiron in all area of the distribution system. Where long lengths of pipe are necessary, 8-inch or larger mains should be used.

In commercial districts, the minimum size main shall be 8-inch with 8-inch or larger intersecting mains in each street; 12-inch or larger mains shall be used on the principal streets and for all long lines that are not connected to other mains at intervals close enough for mutual support. Arrangements using very small mains, designed for domestic service only and incapable of providing fire protection, supplied by larger mains in a gridiron too wide to provide good fire protection are considered unsatisfactory. Minimum dead-end main size shall be 8-inch diameter with a hydrant installed at its terminus for flushing purposes.

In grading a water supply, the principal requirement considered is the ability to deliver water at sufficient rates to permit fire department pumpers to obtain an adequate supply from hydrants. To overcome friction loss in, the hydrant branch, hydrant, and suction hose, a minimum residual water pressure of 20 psi is required during flow. Higher sustained pressure is of value in permitting direct supply to automatic sprinkler systems and building standpipe and hose systems, and in maintaining conditions such that no portion of the protected area is without water.

All distribution mains shall be designed for sufficient cover to prevent freezing of the lines. Minimum cover requirements shall be 4 feet from the top of pipe to the ground surface. All water mains shall, in general, be located 10 feet off the center of the roadway on the north and west side of the road.

The design of the water distribution system shall include an analysis demonstrating the method utilized to determine the balance loops of the system. All water mains shall be designed for capacity utilizing the Hazen Williams formula with a "C" coefficient value of 110

## b) Hydrants

Each Hydrant shall be spaced as follows:

- 1) Each dwelling shall be within a 400 foot radius drawn from a hydrant, provided that the maximum hose lay from any dwelling shall not be greater than 1,000 feet along an existing or proposed right-of-way. A right-of-way is defined as an existing street or dedicated fire lane no less than 15 feet wide and maintained passable by fire equipment.
- 2) In high value industrial business or commercial zones, each structure shall be within 300 foot radius of a hydrant. The hose lay shall not be greater than 800 feet along an existing right-of-way defined above.
- 3) Where state highways, limited access roads, railroads, streams or other items will block and restrict hose lay or access vehicles, fire hydrants shall be spaced to provide coverage without hoses being required to cross such items.
- 4) Fire hydrants shall be placed at the deadend of all water mains.

c) Valves

Valves shall be located on distribution mains not more than 1,000 feet apart and so that not more than one block shall be out of service for one single break. All high spots within the system shall be provided with a fire hydrant as a means of air release. At street intersections, valves shall be located in line with curb line for ease in location.

d) Storage Facilities

Storage facilities shall be located at locations noted on the adopted master water plan. Sites other than those shown on the adopted master plan shall be reviewed by the Authority Township Engineer during the preliminary review stage. All water levels in proposed storage facilities shall be as required to suit the adopted master water plan. The effective storage which is to be utilized for demand equalization shall be provided at a minimum pressure consistent with these regulations to the highest structure to be serviced. Storage tanks shall in general be designed in accordance with the following recommendations:

- 1) Minimum Storage Capacity. The minimum storage capacity (or equivalent capacity) for systems not providing fire protection shall be equal to the average daily consumption as required by the type of development contemplated as approved by the Authority Township Engineer. This requirement may be reduced when the source and treatment facilities have sufficient capacity with standby power capability to supplement peak demands of the system.

2) Fire Reserve Storage. Fire reserve storage shall be consistent with the type structure proposed but in no case shall it be less than recommended by the National Board of Fire Underwriters, as shown in the following table:

<u>Population</u>	<u>Fire Flow (gals. per min)</u>	<u>Duration (hours)</u>	<u>Total Fire Reserve (million gallons)</u>
Less than 1000	1000	4	.2
2000	1500	6	.5
4000	2000	8	1.0
6000	2500	10	1.5
10000	3000	10	1.8

3) Control. Proper control shall be provided between other storage facilities of the authority Township so as to prevent overspilling due to different gradient levels. Double-acting altitude valves shall be provided where required to control water surface elevations. All facilities for double-acting altitude valves, including bypass line and pit, shall also be provided as required

3) Hydro-Pneumatic Tanks. Hydro-pneumatic tanks shall be provided only upon approval of the authority Township Engineer for developments of less than 50 connections. Design of hydropneumatics tanks shall be in coordination with the Authority Township Engineer recommendations.

The capacity of hydro-pneumatic tanks shall be sufficient to provide the peak hourly rate of consumption in combination, with the pumping facilities for a period of not less than 20 minutes. The effective capacity of the tank shall be taken at 25%.

e) Supply Facilities

Supply facilities shall be designed to provide for the peak daily demand. In separate systems supplying a population with more than 100 or where the average daily water demand exceeds 20,000 gallons per day, duplicate wells and pumping equipment shall be provided.

Supply facilities shall contain provisions for emergency power generation or direct drive emergency source with automatic transfer upon sensing power failure. In addition, duplicate disinfection facilities shall be provided with proper switching apparatus.

Wells shall be provided with adequate protection of the pumping equipment.

A fenced enclosure shall be provided around each supply facility to include entrance gates for personnel and equipment.

The general requirements for well design and construction, out-lined in the technical specification section of these Rules and Regulations, shall be provided for, as well as any and all requirements of the New Jersey State Department of Environmental Protection, or any other agencies

having such jurisdiction.

Testing programs to determine the supply yield at stabilized water level, as well as water quality, shall be undertaken prior to submitting final plans and specifications. All testing programs shall be as specified in the technical-section-of-these-Rules-and-Regulations-430-21.7.

#### f) Water Treatment Facilities

Water treatment facilities shall be included as necessary to provide a potable water supply meeting minimum inorganic, mineral, bacteriological, heavy metal, and organic standards in effect at the time of design. This shall include all primary, secondary and/or Interim safe drinking water standards established by federal, state, and/or local public health guidelines.

Treatment facilities shall be proposed based upon water quality samples received during the initial testing program. Preliminary approval for all treatment facilities proposed must be secured from the authority Township Engineer, prior to start of final plans and specifications. Review of the procedure proposed shall be on the basis of operating costs, ease of operation, and re-lative treatment efficiency.

Treatment equipment, where required, shall be provided in duplicate or with operational switching provision. Facilities proposed shall be housed in a separate structure of a design in conformance with accepted authority Township design standards.

#### § 430-19.2.5 Construction Plans and Profiles

Construction plans shall be similar in scale to those sub-mitted as preliminary plans and shall bear the approval signatures required of preliminary approval. Construction pro-files shall be of a horizontal scale of 1" = 50' with a vertical scale of 1" = 5'. Profiles shall show all hydrants, valves, approximate ground elevation, sizes of proposed water mains, street, and right-of-way identification, as well as stream crossing cover requirements and concrete encasements.

#### § 430-19.2.6 Construction Drawings

Construction drawings for supply wells, storage facilities, and water treatment facilities shall include a site plan of the proposed facility showing property boundaries, natural features, such as tree growth, streams, contours, etc., existing and proposed underground piping and utilities, building site orientation, and any proposed underground structures.

The detailed plans shall show the arrangement of mechanical and electrical equipment, piping, valves, fittings, etc., both within and outside the structure. Appropriate sections shall be included so as to adequately identify the work. A general architectural scheme as well as the planting scheme for cover trees and shrubs shall be included, as well as site



improvements. Details required shall include a flow schematic for any proposed treatment facilities, as well as additional details required by the Authority-Township Consulting Engineer in his preliminary review

§ 430-19.2.7 Specifications

Complete specifications for the construction work proposed shall accompany the detailed plans for water mains, supply wells, storage facilities, and water treatment facilities. Specifications for water mains shall be as generally outlined in the sample technical specification section included herein and shall include all references to equipment specified as required. Specifications for supply wells, storage facilities, and water treatment facilities shall include all pertinent data required, including copies of site borings taken.

§ 430-19.2.8 Cost Estimates

A detailed "Estimated Project Cost", as in the appendix Figure #1g shall be submitted based upon the current "Development Construction Costs Estimating Schedule" duly adopted by the Authority-Township and subject to review and approval by the Authority-Township engineer. This construction estimate, if approved by the Authority-Township engineer, at his sole discretion, shall be considered the basis for any Performance, Cash, and Maintenance Bonds required

§ 430-19.2.9 Certificate of Completion

Following the completion of all work, the applicant shall make application to the authority Township for a Certificate of Completion ~~in the exact form as Exhibit "d"~~, to include the following:

a) A statement by the applicant that construction has been satisfactorily completed and that approved record drawings plans have been transmitted to Authority Township Engineer.

b) One reproducible copy, on material acceptable to the authority Township engineer and four prints of the record drawings, marked with the approval of the authority Township engineer as follows:

**Record Plans**

Contractor \_\_\_\_\_  
Construction Period \_\_\_\_\_ To \_\_\_\_\_  
Received by Authority Engineer \_\_\_\_\_  
Date \_\_\_\_\_

c) ~~Such legal documents as are necessary to convey the interests in the~~

~~facilities to the Authority, in the exact form as shown in Exhibits E and F.~~

~~d) Affidavit that all contractors, subcontractors and materialsmen have been paid in the exact form as shown in Exhibit "G".~~

c) Maintenance Bond.

§ 430-19.2.10 Materials

Minimum materials and equipment standards shall conform to those out-lined in Section IV, "SPECIFICATIONS", ~~of these Rules and Regulations, Section 430-21.~~

§ 430-20. Water System Standards for Residential, Professional, Commercial, and Industrial Connections

§ 430-20.1 Individual Connections

- 1) All residential lot owners and all professional, commercial and industrial units which are required to connect to an existing Authority Township water main shall file a water connection permit application with the Authority Township together with the required information and fees.
- 2) The Authority Township shall review the application as to completeness and compliance with Authority Township rules and regulations.
- 3) The Authority Township may require additional information similar to that prescribed for Developments and Subdivision under Section II herein; dependent upon the extent of the professional, commercial or industrial complex proposed. Commercial units, consisting of flows similar to residential connection, will be handled according to those rules and regulations prescribed for individual connections hereinafter noted.
- 4) No unauthorized person shall uncover, make any tap, use, alter, or disturb any Authority Township water main or appurtenance thereof without first obtaining written authorization from the Authority Township.
- 5) The Authority Township shall install or cause to have installed the service connection including the curb stop and/or meter pit, meter and lid.
- 6) The Owner shall be responsible to connect the units plumbing to the Authority Township's service connection in a workmanlike manner and in accordance with the Township Code or other requirements of the Code Enforcement Officials.
- 7) All costs and expenses required for the installation and connection of a service connection shall be borne by the Owner. The Owner shall be liable to the Authority Township for any loss or damage that may directly or indirectly be occasioned by the installation of any service connection or any other cause.
- 8) Each separate and independent residential professional or commercial unit shall be provided with separate service connection and meter.

9) The installation of a service connection shall conform to the requirements of the Authority Township and the building and plumbing codes of the Township. No deviation from the prescribed procedures and materials will be allowed unless prior approval is obtained from the Authority Township.

10) No person shall perform any of the work set forth in this rules-and-regulations Chapter for any other person in the township unless he shall be a licensed plumber, a plumbing contractor authorized to perform work in the township.

#### § 430-20.2 Larger Professional, Commercial, or Industrial Connections

1) Connections of larger professional, commercial and industrial units shall be made only to adequately sized water mains of the authority Township that are within reasonable distance from the proposed unit, as determined by the authority Township. In all cases, the Authority Township shall determine whether an extension to existing authority Township water main is economically feasible or whether an interim water plant shall be required.

2) All larger professional, commercial or industrial units, as determined by the Authority-Township, in its sole discretion, must file application forms as detailed under §430-19 the-Development-and-Subdivision-section-(Section-II) contained herein

3) All work shall be inspected by the Authority Township Engineer or his authorized representative and the applicant shall notify the Authority-Township and Code Enforcement Official a minimum of two (2) working days prior to the date upon which he would anticipate work to be inspected

4) All required permits, whether County, State, or Federal, shall be secured by applicant prior to the start of any construction. No tie-in to any Authority Township water main will be allowed or approved until all permits are secured.

5) All costs and expenses required for the installation and connection of a large commercial or industrial service connection shall be borne by the applicant. The owner shall be liable to the authority Township for any loss or damage that may directly or indirectly be occasioned by the installation of any service connection or any other cause.

6) An approved meter, of adequate size, along with meter yoke and piping, shall be provided by the applicant. All costs shall be borne by the applicant. The meter provided shall become the property of the authority Township following acceptance of the connection along with easements to obtain access to the meter

7) Requirements for inspection by the Township and-Authority, as listed under Section-II §430-19 -Water System Standards for Subdivisions and Developments.

#### § 430-20.3 Materials

Minimum materials and equipment standards shall conform to those outlined in

Section IV-§430-21 -"Specifications" of these rules and regulations.

§ 430-21. Technical Specifications for Water System Construction

§ 430-21.1 Introduction and purpose

These specifications are to be considered the minimum acceptable standards for Water Systems in developments, subdivisions, and industrial and commercial projects lying within the township or connecting to the distribution system of the township, including the connections from water mains to the point of connections with the building unit. Typical drawings are included hereafter to illustrate requirements and compliment the specifications.

§ 430-21.2 General Requirements

The water system shall be looped and reinforced so as to provide an adequate supply to all building units. All water systems shall coordinate with overall Manchester Township Water Master Plan.

All lots within a subdivision shall be provided with service connections. Contiguous properties shall be taken into consideration when review of plans is initiated by the Township.

§ 430-21.3 Technical Specifications

1) All work shall be performed in strict accordance with the Township's Rules and Regulations for the Submission and Review of Applications for the Construction of Water Facilities including, but not specifically limited to, General Requirements, Technical Specifications and Standard Details. In the event of a conflict between any provisions of the Township's Rules and Regulations and the Project Drawings and Specifications, the more restrictive or higher standard shall govern for that provision.

2) The Contractor shall submit for approval initially by the Design Engineer and then by the Manchester Township Division of Utilities (MTDOU) shop drawings and manufacturer's product data for all materials and equipment to be incorporated into the project. Shop drawings and manufacturer's product data submitted to MTDOU shall bear the prior approval of the Design Engineer. The Contractor shall submit sufficient copies to the Design Engineer to provide to MTDOU six (6) copies bearing the Design Engineer's approval. MTDOU will return to the Contractor two (2) copies of each submittal marked to indicate the disposition of MTDOU's review. The Contractor shall submit new or revised shop drawings and manufacturer's product data for all items marked by the Design Engineer or MTDOU to require revision and resubmission until both the Design Engineer and MTDOU approve all items.

§ 430-21.4 General Information

§ 430-21.4.1 Quality of Materials and Workmanship

The attention of contractors is directed to the requirements of the specification intended to assure safe, watertight, and otherwise adequate



structures. The contractor shall realize fully that first-class materials and workmanship specified must be supplied in full measure to produce acceptable structures and equipment which will give uninterrupted service for an extended period. In general the latest edition AWWA standards for materials equipment, installation, and testing shall apply.

§ 430-21.4.2            Sequence of Construction Operations and Time Schedule

Prior to construction the contractor shall submit a construction schedule to the engineer for approval. The schedule shall include sequence of construction activity estimated time of initiation and completion of each phrase of the work

§ 430-21.4.3            Lines and Grade

Attention of contractor is directed to the following specific requirements regarding the establishment and transferring of lines and grades:

A) The contractor will establish all benchmarks and the position of control points on the site of the work. From these established controls the contractor shall run all offsets lines set and drive stakes and take all other measurements in order to lay out the work in accordance with the intent of the contract drawings. After the contractor has set elevations for the structures, the engineer will check such work for alignment, grade and location of steel piping, and equipment. Only upon approval of the engineer shall the contractor proceed with permanent construction of the work so checked.

B) When requested by the engineer, the contractor shall assist the engineer in any manner which may be necessary to check the grades and alignment, as well as other features of the work. No claim will be made for this service.

Failure to comply with this provision shall be sufficient cause for the authority Township to stop the work on unchecked sections.

C) The contractor shall adequately protect all monuments, stakes, and benchmarks checked by the engineer. If they are disturbed by the contractor during the progress of the work, they will be replaced at the contractor's expense.

§ 430-21.4.4            Leakage

The attention of the contractor is called to the specific requirements of this contract whereby the most rigid supervision will be required to insure an absolute minimum of leakage.

§ 430-21.4.5            Clean Up

During the course of construction all efforts shall be made to maintain a neat and orderly project. Clean up shall be pursued on a regular basis

and in conjunction with the construction.

Upon completion of all construction, final clean up shall include removal of all excess material, equipment, backfill, etc., and the site shall be restored to a condition equal to or better than that existing prior to construction.

**§ 430-21.4.6 Certificate of Insurance**

Certificates of Liability and Workmen's Compensation Insurance from a carrier licensed in the state of New Jersey Satisfactory to the Township and the Engineer shall be filed with the Township and the engineer prior to the start of construction. All of the contractor's insurance coverage shall contain a clause indemnifying and saving harmless the township and the engineer and their agents from any and all liability of whatever nature arising from the work to be performed under the contract including the attorney's fees and costs in the connection with the defense of such claims. The certificate of insurance furnished by the contractor shall state specifically that the above indemnification is guaranteed by the policy and shall be as shown hereafter.

The minimum amounts of insurance to be carried by the contractor shall be as follows:

A) Workmen's Compensation and employer's liability insurance: The contractor shall take out and maintain during the life of this contract, adequate workmen's compensation and employer's liability insurance for all employees employed in connection with the work, and in case any work is sublet, the contractor shall require each subcontractor similarly to provide workmen's compensation and employer's liability insurance for the latter's employees, unless such employees are covered by the protection afforded by the contract. Employer's liability insurance shall have limits of not less than \$500,000 per accident, or for disease, \$100,00 per claim.

B) Public Personal Injury Liability and property damage liability including contingent liability and contractual liability:

One person in any one occurrence.....	\$500,000
Two or more persons in any one occurrence.....	\$1,000,000
Property damage in any accident.....	\$500,000
Aggregate property damage limit.....	\$1,000,000

C) Automobile Liability Insurance:

One person in any one accident.....	\$500,000
Two or more persons in any one accident.....	\$1,000,000
Property damage in any accident.....	\$500,000

Property damage insurance shall be extended to cover damage to underground wires, pipes, ducts, conduits, structures, etc., and further to cover explosion damage and damage due to collapse.

A certificate endorsed by the insurance company shall be furnished, stating that said company will notify the township's Division of Utilities in advance, by certified mail, of any cancellation becoming effective.

The policies shall remain in force until all work has been completed and placed in operation.

The following clause shall be included on all insurance certificates: "The contractor agrees to assume the defense of and indemnify and save harmless the township, the consulting engineer of the township and their employees, officers, and agents from all claims related to labor or materials, furnished for the work or in doing the work; to injuries to any person or corporation received or sustained by an act of the contractor or his employees in doing the work, or in consequence of any improper materials, implements or labor used therein; and to act, omission or neglect of the contractor and his employees therein."

**§ 430-21.4.7 Dewatering Facilities**

The contractor shall provide suitable and adequate dewatering equipment to insure satisfactory construction and maximum progress.

**§ 430-21.4.8 Maintaining Streets During and Subsequent to Construction**

Unless specifically permitted, not more than 100 feet of trench shall be left open by any single work force.

Final clean up, including removal of excess pipe, backfill, or other material, shall be carried along with pipe laying, and in no case shall the clean-up lag behind the forward terminus of the pipe laying by more than 200 feet.

**§ 430-21.4.9 New Developments**

The strict requirements of the above paragraphs, applying to maintenance, traffic, excess material, etc., shall apply to existing public streets. Where the contractor is installing water facilities in a new development where streets are not yet constructed and homes are not yet occupied, these requirements may be modified to the extent that they may conflict with contractual arrangements between the owner and the contractor

**§ 430-21.5 General Specifications**

**§ 430-21.5.1 Equivalent Materials and Equipment**

Wherein the following specifications, a material, article, manufacturer, or distributor is specifically named, it is done only for the purpose of clearly defining the kind and quality for the material or article desired. It is to be understood the determination of equivalency will be at the sole discretion

of the township's Division of Utilities engineer.

§ 430-21.5.2 Materials and Workmanship

All materials, fixtures, fittings and supplies furnished under this contract, other than those particularly specified, shall be of standard first grade quality and of the best workmanship and design. Where the characteristics of any materials are not particularly specified, approval shall be granted of those materials used customarily in first class work of the nature for which the material is generally employed. All work of assembly and construction must be done in a neat, first-class and competently executed manner.

Any contractor's physical tests of materials will be made by the contractor, unless otherwise specified. The contractor shall furnish test pieces and samples in the number, shape, size and finish required. Tests will be made in accordance with the standard methods adopted by the American society for testing materials for the materials involved.

§ 430-21.5.3 Equipment

Contractors shall, and must familiarize themselves thoroughly with the type and nature of the equipment required in the proper execution of the work, and shall use and employ only first-class equipment. Previously used equipment must be in safe and in first-class working order and condition. Sufficient equipment must and shall be furnished and used to permit the completion of the work within the time specified. The equipment used on any portion of the work shall be such that no injury or damage to the roadway, adjacent property, or other throughfare of highway will result from it's use.

§ 430-21.5.4 Construction Schedule

Within ten (10) days prior to the start of the work, the contractor shall file a construction schedule with the engineer. The schedule, in the form of a progress chart, shall set forth, in detail, the procedure to be followed in the execution of the work. The schedule shall indicate the dates of commencement and completion of the several operations and portions of the work. Upon acceptance by the engineer, the schedule shall be made the basis of operations. If at any time, in the opinion of the engineer, the scheduled progress is being maintained, amendments shall be made to the construction schedule and correspondingly to the contractor's equipment and workforce, to maintain the progress of the work. Such changes shall be subject to the acceptance of the engineer, but such action by the engineer or the failure so to act shall not relive the contractor of any responsibility under this contract.

§ 430-21.5.5 Shop or Setting Drawings

The contractor shall submit for the review of the engineer shop drawings for all prefabricated work and for all manufactured items required to be furnished in the contract as required by the specifications.



When submitted for the engineer's review, shop drawings shall bear the contractor's certification that he has reviewed, checked and approved the shop drawings and that they are in conformance with the requirements of the contract documents. By approving and submitting shop drawings, the contractor represents that he has determined and verified all field measurements and quantities, field construction criteria, materials, catalog numbers and similar data, and that he has reviewed and coordinated the information in the shop drawings with the requirements of the work and the contract documents.

Engineer's review of the contractor's show drawings shall be considered as a service given as assistance to the contractor in interpreting the requirements of the contract and in no way shall it relieve the contractor of any of his responsibilities under the contract. Any fabrication, erection, setting or other work done in advance of the receipt of shop drawings returned by the engineer and notated as "No Exception Taken" shall be entirely at the contractors risk.

The engineer's review will be confined to general arrangement and compliance with the contract plans and specifications only and will not be for the purpose of checking dimensions, weights, clearances, fittings, tolerance, interferences, or coordination of trades. Shop drawings submitted by subcontractors shall be sent direct to the contractor for approval. The contractor shall be responsible for their submission to engineer. The contractor shall thoroughly check all subcontractor's shop drawings as regards measurements, sizes of members, materials, and details to satisfy himself that they conform to the contract plans and specifications. Drawings found to be inaccurate or otherwise in error shall be returned to the subcontractor by the contractor for correction before submitting them to the engineer. All details on shop drawings submitted for review shall clearly show the relation of the various parts and where the work depends upon field measurements, such measurements shall be obtained by the contractor and noted on shop drawing before being submitted for review.

Sufficient space on the shop drawing near the title box should be provided for stamps and review comments. The shop drawing shall bear the initials of the detailer's checker prior to submission. All dimensional coordination shall be done by the contractor or his detailer.

All submissions shall be properly referenced to indicate clearly the specification section, location, service and function of each particular item. All submissions for one item or group of related items shall be complete. Where manufacturer's publications in the form of catalogs, pamphlets or other data sheets are submitted in lieu of prepared shop drawings, such submissions shall specifically indicate the item for which review is requested. Identification of items shall be made in ink and submissions showing only general information are not acceptable.

If the shop drawings contain any departures from the contract requirements, specific mention thereof shall be made in the contractor's

letter of transmittal. Where such departures require revisions to layouts or structural changes to the work as shown, the contractor shall at his own expense prepare and submit revised layout drawings for review. Revision drawings shall include design calculations prepared by a professional engineer. Such drawings shall be the same size as the contract drawings unless specified otherwise. The contractor shall coordinate all reviewed equipment shop drawings with shop drawings with shop drawings of related new and altered structures, supports, piping, electrical and mechanical work to insure proper accommodation of the furnished equipment. Shop drawings for structures, supports, piping, electrical and mechanical work, which are contingent upon the specific equipment furnished, shall not be submitted until the equipment shop drawings have received final acceptance.

No work shall be done upon any part of a structure until the necessary review is conducted by the engineer.

Six (6) sets of all shop or working drawings shall be submitted, unless otherwise specified to the engineer through the contractor. If requested by the contractor and acceptable to the engineer initial shop drawings submitted by the contractor may consist of two (2) copies and a sepia. Only drawings which have been checked and corrected by the material fabricator should be submitted. The contractor shall be responsible for the prompt submission of all shop or working drawings, so that there shall be no delay to the work due to the absence of such drawings. Shop drawings shall be either 8 ½ by 11 inches or 24 by 36.

Two (2) copies of reviewed shop drawings will be returned to the contractor.

Before final acceptance is made the contractor shall deliver to the engineer two (2) complete bound sets of final accepted shop drawings applicable to the contract for the authority Township's permanent file. Reproducible (8 ½ x 11 or 24 x 36) may be required by the engineer.

#### § 430-21.5.6 Sanitary Regulations

Sanitary facilities, properly screened from public observation, for the use of all persons employed on the work shall be provided prior to the start of construction and maintained by the contractor in sufficient numbers, in such manner and at such locations as shall be approved. Sanitary facilities shall be completely self-contained and chemically treated.

#### § 430-21.5.7 Cleaning Up

Before completion of the work, the contractor shall tear down and remove all temporary structures unless expressly directed otherwise, and shall remove rubbish of all kinds from all contract structures and from the site occupied during the progress of the work. The contractor shall remove all concrete and ballast droppings and shall leave the site and the adjacent property which may have been effected by his operations in a neat and satisfactory condition. All structures and parts there of

constructed by the contractor shall be thoroughly cleaned and left in first class condition.

§ 430-21.5.8 Explosives

Explosives are not permitted

§ 430-21.5.9 Special requirements in and adjacent to county roads

The attention of the contractor is specifically directed to the requirements of the ocean county road department when working adjacent tot county roads. Trench backfills and compaction shall be as specified elsewhere. The adjacent pavement shall be maintained in a broom-swept clean condition and all work shall be so cleaned up at the close of operations each day. Access to all property, including driveways along the roads, shall be maintained at all times.

§ 430-21.5.10 Open Excavations, Safety Barricades, Watchmen

The attention of the contractor is specifically directed to the requirements in connection with the protection of all excavations and the safety of all persons. Due to the character of the work, excavations for pipe and structures will in places be wide and deep and the contractor shall be expected to keep all excavations protected at all times. He shall use suitable and adequate barricades around all openings and shall provide lights at night warning sighs shall be located, where required, including "50FT TRENCH" signs.

barricades shall be adequately braced. The use of intermittent plank barriers carried on "horses" will not be permitted in locations which are hazardous. Backfilling to the surface will be required as soon as practicable.

If required by the Division of Utilities, the contractor shall provide personnel for the sole purpose of insuring the safety of persons other than his own employees, by directing traffic, issuing warnings, resetting barricades, etc. If deemed necessary by the authority Township, the contractor shall be required to have a watchman present at night in particularly hazardous locations.

§ 430-21.5.11 Tree Protection and Tree Removal

It is intended to protect and save trees from removal wherever possible, particularly through rights-of-way and along street shoulders. Where methods of construction or minor relocation will avoid tree removal such methods will be employed without additional compensation. Trees outside the right-of-way line shall in no case be disturbed, and boxing shall be provided as may be required to protect trees adjacent to the right-of-way lines. Tree roots shall be tunneled under or folded back but shall not be cut.

§ 430-21.5.12 Trench Consolidation, Backfill, Clean-up, and Traffic Maintenance

Trench backfill shall be prosecuted expeditiously upon completion of pipe laying. All excess trench excavation shall be broom-swept to afford a clean pavement surface. The contractor shall maintain those streets in a clean condition and shall make daily inspections with the resident engineer to examine all trenches. Where settlement occurs the trench shall be repaired immediately to bring the trench up to grade.

Soft trench signs, lights and barricades, shall be maintained over all trenches until pavement replacement is made. The contractor shall arrange for traffic re-routing, detours, and barricade placement in consultation with the police, engineer or inspector.

§ 430-21.5.13 Pavement Replacement

Pavement Replacement over trenches shall be made as soon as possible after trench consolidation. Installation and placement shall be in accordance with the township of Manchester, county of ocean or state standards, as required.

§ 430-21.5.14 Control and Protection of Traffic at Construction Sites

Vehicular and pedestrian traffic on roadways shall be maintained and protected at all times, and all operations in or adjacent to road-way, sidewalks, and walkways shall be conducted and controlled accordingly.

The contractor, shall, for the protection of the traveling public and his personnel, familiarize himself and adhere strictly to the requirements of these specifications and requirements of Title 39, the motor vehicle code of the state of new jersey wherever it shall pertain to necessary and required precautionary measures regarding the type of work being done. Traffic on all roadways within the contract area is under the direct supervision and control of the police department of the township of Manchester, hereinafter referred to as the police, who will enforce these requirements and the motor vehicle code as the pertain to the contractor.

If the police notifies the contractor of any hazardous construction practices, violation of the regulations, or violation of the motor vehicle code, or if traffic volumes become excessive, all operations shall be discontinued and immediate remedial action shall be taken to the satisfaction of the police before work is resumed.

The safety measures outlined herein shall be considered as minimum standards. The final responsibility for the installation of adequate safety precautions and for the protection of the traveling public and his own personal shall rest with the contractor.

Compliance with all prescribed safety precautions contained herein shall not relieve the contractor of his primary responsibility to take all necessary measurements to protect and safeguard the work, nor relieve



him of any responsibilities.

furthermore, the contractor shall, where it may be necessary for emergency repairs or service at the side of the work under construction, register at police headquarters the names and telephone numbers of responsible representatives of the contractor who may be contacted to correct any hazardous conditions which may arise at times other than the normal working hours.

During nonworking hours, roadway lanes, sidewalks, walkways and shoulder shall be kept free of obstructions, including construction vehicles, whenever they may be present a hazard to passing traffic. In the event an obstruction cannot be removed it shall be the responsibility of the contractor to so mark the obstruction as to eliminate any hazard to vehicular traffic and, to provide a safe passage area for pedestrians.

Whenever possible the contractor will be performing an operation which requires the closing of a lane of traffic, even for brief periods of time, the contractor shall close the lane and so mark it with the necessary protective devices in accordance with the requirements hereinafter set forth.

#### § 430-21.5.15 Notification of Utility Companies

Prior to the start of any work in the vicinity of existing utilities or other subsurface facilities, the contractor shall notify the utility company at least three (3) days in advance of the start of his work. The engineer shall be furnished in writing the time at which such notice was given, and the name and position of the person contacted.

#### § 430-21.6 Technical Specifications – Water Mains

##### § 430-21.6.1 Excavation, Clearances, and Trimming

Excavations shall be of sufficient width to permit work to be done safely and completely. In no cases shall excavations be carried below grade by machine and backfill be used to bring foundations to the grade of bottom slabs, footings, or pipelines.

In all excavation for pipe, boulders, rock, masonry, or other similar materials shall be excavated to a level at least six inches below the invert of the pipe, and carefully refilled with clean  $\frac{3}{4}$ " broken stone. Rock or boulders shall be removed from sides of trenches to a place 12 inches outside the inside wall of the pipe unless written permission to do otherwise is expressly given.

The trench width just above the top of the pipe shall be maintained as narrow as possible and in general shall not exceed the outside diameter of the pipe plus two (2) feet.

##### § 430-21.6.2 Unauthorized Excavation

If any excavation is caused by the contractor's error, or wherever the

excavation is carried beyond or below the lines and grades, the contractor shall, at his own expense, refill all such excavated space with such material and in such manner as may be directed in order to insure the stability of the various structures. Space excavated beneath all structures without Authority-Township shall be refilled with ¾" broken stone by the contractor at his own expense.

**§ 430-21.6.3 Sheeting and Bracing**

Where necessary, particularly to prevent disturbance, damage or settlement of adjacent structures pipelines, utilities, improvements, or paving, excavations shall be adequately sheeted and braced. Sheeting and bracing of all excavation shall comply with the latest occupational safety and health administration requirements governing safety of workers in the construction industry.

Any damage to new or existing structures occurring through settlement water or earth pressure or other causes due to inadequate bracing or through negligence or fault of the contractor in any other manner, shall be repaired by the contractor at his own expense.

**§ 430-21.6.4 Removal of Water and Protection from Flooding**

The contractor shall continuously remove all water from the excavation throughout the progress of the work and shall keep the excavation dry at all times by approved methods such as sumps, underdrains, or well points until the structures to be built therein are completed.

precautions shall be taken to protect uncompleted work from flooding during storm or from other causes. All pipelines or structures subject to floatation shall be thoroughly braced or otherwise protected.

Contractors work force and equipment shall be adequate to keep all concrete work dry until properly set.

**§ 430-21.6.5 Topsoil**

In unpaved areas all topsoil shall be carefully removed from the site of the work over the entire width of the contractor's operations, including areas used for stockpiling excavated material and over which equipment will be driven. Topsoil shall be stored separately and replaced in the final grading and embankments to the designated lines and grades.

**§ 430-21.6.6 Compacting Foundations**

Wherever the development of suitable foundation conditions requires, the contractor shall take the proper means of compacting such foundation material. Where so required, ¾ inch stone, shall be placed on the surface and shall be compacted into the subgrade in such thickness as may be required by the engineer.

§ 430-21.6.7 Additional Excavation

Whenever, in the sole discretion of the engineer, the material found at the grades shown on the plans for the slabs, wall footings or pipe inverts, is not satisfactory, the contractor shall make any additional excavations as directed by the engineer, and shall refill the same to required grade with  $\frac{3}{4}$ " Clean Crushed Stone Graded as Required.

§ 430-21.6.8 Backfilling

As soon as the pipe or masonry has been placed and the masonry has acquired a suitable degree of hardness, the backfilling shall begin and shall thereafter be prosecuted expeditiously.

All lumber, rubbish, and braces shall be carefully removed from behind walls or other structures, unless ordered left in place by the engineer. Backfill Under the Pipe Haunches, around the pipe, and up to a cover of at least 18 inches over the top of the pipe shall be placed by hand in 6-inch layers, each layer to be thoroughly compacted by mechanical tampers of an approved type. Compaction and tamping shall be to the end that the pipe shall be securely bedded and protected.

All trenches or excavations shall then backfilled and compacted in 12-inch layers to the original surface of the ground or up to such grades as shall be directed. Backfill and compaction shall be done in such manner as to prevent settlement around all structures and pipelines. No heavy stones or boulders shall be allowed to drop into the trench.

In road rights-of-way, backfill between a plane 18 inches above the top of the pipe and the finished surface grade shall be so placed as to keep settlement to a minimum and the contractor shall restore to proper grade such settlement to a minimum and the contractor shall restore to a proper grade such settlement that might occur.

The strict requirements of this paragraph to backfill in 12-inch layers to the original surface of the ground are intended to apply to existing public roads. In new developments, backfilling shall be compacted around the pipe to the top of the pipe. From the top of the pipe to the surface, backfilling and tamping is a matter between the owner and the contractor; however, the authority Township will not accept water facilities where settlement has occurred over water trenches or around valve boxes until properly repaired.

§ 430-21.6.9 Temporary Bridges and Crossings

The contractor shall, where required to expedite the work, or where required to maintain traffic, or where otherwise ordered by the engineer, construct temporary bridges or walkways, of adequate sized members to safely carry the loads which may reasonable be anticipated.

§ 430-21.6.10 Protection and Restoration of Existing Structures and Pipelines

The contractor shall carefully protect all existing structures both above and underground, including but not limited to poles, curbs, driveways, parking areas, privately owned pavements, signs, sumps, pits, catch basins, manholes, underground tanks, and building foundations; pipelines, including gas mains, water mains, hydrants, drain lines, storm sewer, sanitary sewers, service connections, conduits, and miscellaneous underground pipelines; and shall restore same to a condition equivalent to conditions existing prior to his operation.

The contractor shall, insofar as possible, determine in advance of excavation by trenching machines, the location of all utilities and other subsurface structures and facilities and shall accurately mark same so that they may be avoided by the machine.

All sidewalks, curbs, lawns, private driveways, pavements, and other improvements damaged or removed due to the contractor's operations shall be restored to a condition at least equivalent to conditions existing prior to the contractor's operations. Replacement or restorations shall be done in accordance with applicable provisions of this specification and in conformity with the requirements of the authorities in charge; All work to be done to the satisfaction of the engineer.

All side walks and pavements, including pavements on roads, shall be maintained during the period of trench consolidations, and the contractor shall be expected to keep his trench adequately protected at all times. Pavement cutters shall be used prior to excavation to reduce the pavement disturbance to a minimum.

#### § 430-21.6.11 Work in Lawn Areas

Where the work is in easements located within privately owned lawn areas, rear yards, etc., the contractor shall make every effort to minimize disturbance to the area. All trees shall be boxed or otherwise protected. Excavated material shall be stored on tarpaulins or other means used to prevent it from being spread on the ground. Backfill shall be completed on the same day. Topsoil shall be removed and stored separately, and upon completion of backfill shall be evenly spread over the disturbed area. If settlement occurs, the contractor shall bring in additional top soil to bring the trench up to grade. All disturbed lawns, trees, shrubs, bushes, planting, fences, walls, driveways walkways, etc., shall be restored to the satisfaction of the owner. It is suggested that the contractor take "before and after" photographs of all such areas.

#### § 430-21.6.12 Concrete

Definition: Whenever the term concrete is used herein, it is understood to mean a homogenous mixture of cement, sand and coarse aggregate with the proper amount of water. The class of concrete shall be designated by strength. The Strength shall refer to the unit compressive stress required to fracture the concrete in accord with the standard methods of making compression tests of concrete as defined by the

American society of testing materials, c-39. Concrete shall have a compressive strength at the end of 28 day of not less than 3000 psi, as determined by the test described herein. Maximum slump shall be 5 inches.

#### § 430-21.6.13 Bedding

##### Reference Specifications:

ASTM D 698 test for moisture-density relations of soils, using 5.5 lb. rammer and 12 inch drop.

##### Materials:

Bedding material shall be broken stone, free from silt, clay and organic materials and shall conform to the requirements of the new jersey state department of transportation standards for number 57 course aggregates.

##### Concrete cradle:

Where existing storm or gravity sewer pipe crosses over and within six (60) inches of the water main pipe, the contractor shall, when directed by the engineer, support the existing pipe on a 3000 psi concrete cradle extending from the spring line of the water main pipe to the spring line of the existing pipe. The cradle shall have a length equal to the outside diameter of the existing pipe plus two (2) feet and a width equal to the outside diameter of the existing pipe plus (2) feet and width equal to the outside diameter of the water main pipe plus one (1) foot, centered on the respective pipes. ~~All concrete work shall conform the requirements of section 3.20 [replace with ordinance number], cast in-place concrete.~~

##### Methods of construction:

###### 1) General

Pipe shall be bedded true to line and grade with a uniform and continuous support from a firm base. No blocking shall be used to bring the pipe to grade.

###### 2) Polyvinyl Chloride Pipe

###### A) Stable Bedding Foundations

"Stable backfill" material shall be placed and compacted in four successive courses or lifts within the bedding area. Progressing from the bottom of the trench upwards these courses are as follows; the four inch area beneath the bottom of the pipe, the haunch area from the bottom of the pipe to the springline, the area from the springline to the top of the pipe, and the 6" area above the top of the pipe.

The first or foundation course shall initially be placed to a point above the pipe bottom, such point being determined by the depth of loose material resulting from the preparation of this course, and the amount of compaction required to bring the material to grade.

In the second or haunching course care shall be taken to ensure that sufficient "suitable backfill" has been worked under the haunch of the pipe to provide adequate side support. Precautions shall be taken to



prevent movement of the pipe during the placement of the material under the pipe haunch.

"Suitable backfill" material shall then be placed in two separate lifts (third and fourth courses). Upon completion of the placement of the backfill material for each course the material shall be compacted by hand or with mechanical tampers to a minimum of 90 percent standard proctor density. Care should be taken to avoid contact between the pipe and the compaction equipment. Compaction shall be done in such a way so that the equipment is not used directly over the pipe until sufficient backfill has been placed so that the equipment will not have a damaging effect on the pipe.

Bell holes shall be excavated in the first course to allow for unobstructed assembly of the joint. Care shall be taken that the bell hole is no larger than that necessary to accomplish proper joint assembly while maintaining the pipe support. When the joint has been made the bell hole shall be carefully filled to provide adequate support for the pipe throughout its entire length.

#### B. Unstable trench

Where unsuitable material is encountered as determined by the engineer either beneath the bedding or lateral to the trench bedding, the bedding width shall be a minimum of five times the pipe inside diameter as measured centered on the pipe. Unsuitable material beneath the pipe shall be removed to a depth as directed by the engineer and backfilled with crushed stone conforming to the new jersey state department of transportation standards for number 57 coarse aggregate. Due to the nature of the crushed stone little or no comp active effort is required. The crushed stone shall be initially placed to the approximate bottom of the pipe with the objective of providing a level and uniform foundation for the pipe. Care shall be exercised in placing the crushed stone in the subsequent haunching course to ensure that sufficient material is worked under the haunch of the pipe the provide adequate side support. Care shall further be exercised to prevent movement of the pipe during placement of the final course of the crushed stone to the top o the pipe care shall be exercised to protect the pipe from the placement of the crushed stone.

the contractor shall after each of the courses of crushed stone, place "suitable material" to choke the stone to prevent lateral and longitudinal migration of fines. Sufficient choking material shall be placed to fill the volume of the crush stone voids. The final bedding "suitable backfill" material course shall be hand or mechanical tamped to 90 percent standard proctor density.

### 3. Ductile Iron

#### A. Stable bedding foundations

Bedding for stable trench conditions shall be type 2 flat bottomed with bell holes as defined by AWWA C-600. Suitable backfill shall then be placed to the pipe springline at 90% standard proctor density. The remaining backfill shall then be placed in 12" maximum lifts and

compacted to 90% standard proctor density to an elevation just below the applicable surface restoration.

#### B. Unstable trench

Where unsuitable material is encountered as determined by the engineer either beneath the bedding or lateral to the trench bedding, the bedding width shall be a minimum of five times the pipe diameter as measured centered on the pipe. Unsuitable material beneath the pipe shall be removed to a depth as directed by the engineer and backfilled with crushed stone conforming to the new jersey state department of transportation standards for number 57 coarse aggregate.

Due to the nature of the crushed stone little or no compactive effort is required. The crushed stone shall be initially placed to the approximate bottom of the pipe with the objective of providing a level and uniform foundation for the pipe. Care shall be exercised in placing the crushed stone in subsequent course to ensure that sufficient material is worked under the haunch of the pipe to provide adequate side support. Care shall further be exercised to prevent movement of the pipe during placement of the material beneath the pipe haunch. For the placement of the remainder of the crushed stone to the pipe stringline care shall be exercised to protect the pipe from the placement of the crushed stone.

The contractor shall after each of the courses of crushed stone, place the "suitable material" to choke the stone to prevent and longitudinal migration of fines. Sufficient choking material shall be placed to fill the volume of the crush stone voids. The final bedding "suitable backfill" material course shall be hand or mechanical tamped to 90 percent standard proctor density.

#### § 430-21.6.14 Pipe

##### A) General

Ductile iron pipe shall be centrifugally cast, double cement-lined and shall conform with ANSI A21.51 (AWWA C-151). Double cement lining shall conform with ANSI A21.4 (AWWA C-104) and shall include a bituminous dip coating. Pipe may be furnished in 19 or 20 foot nominal laying lengths.

Main line joints shall be of the push-on type with a rubber gasket conforming with ANSI A21.11 (AWWA C-111). Pipe plain ends shall be suitable beveled to permit easy entry into the bell. Should pipe be installed with less than four feet of cover each joint shall be cable bonded to carry 500 amps. Bonding shall be continuous to the nearest fire hydrant to service connection. Pipe and pipe joints shall be as manufactured Tyton Joint Pipe Class 52. For connections requiring transition coupling, Hymax or approved equal shall be used, ~~"tyton" as manufactured by united states pipe and foundry company, "fastite" as manufactured by American cast iron company, "super bell-tite" as manufactured by griffin pipe company, or approved equal.~~

Joint restrain on straight pipe lengths shall be by concrete reaction blocks all pipe installed in corrosive soils shall be encased in;

A. Polyethylene Wrap.

B. Pipe thickness

Pipe thickness design shall be in accordance with ANSI A 21.50 (AWWA C-150) with design based upon maximum anticipated working pressure combined with 50% increase for water hammer and utilizing the maximum anticipated earth loading conditions combined with an H-20 live loading. Minimum bedding conditions shall be type 2 as outlined in the above standard. Minimum acceptable pipe thickness is class 50 52.

C. Marking

Each pipe delivered to the job shall have clearly marked the weight, class designation and sampling period. In addition, each pipe shall have cast on the face of the bell the manufacturer's mark and the year the pipe was produced.

D. Jointing

Pipe shall be handled with care to avoid damage to the lining and coating. Cutting of pipe where required shall be done only by experienced men using power driven pipe cutters in such a manner to leave a smooth end, normal to the pipe axis, with cement lining undamaged. Cut ends shall be beveled to prevent damage to gaskets.

Jointing shall be done in strict accordance with manufacturer's recommendations. Pipe ends shall be thoroughly cleaned prior to joining and only approved lubricants shall be used.

Pipe shall be carefully aligned to line and grade. Where necessary to change direction, pipe may deflect in the joint in accordance with the manufacturer's recommendations.

Cast iron fittings shall be double cement lined, class 250-psi 350, push-on joint, meeting ANSI A 21.10 (AWA C-110). Joints shall conform with ANSI A 21.11 (AWWA C-111). Double cement lining shall conform to ANSI A 21.4 (AWA C-104) and shall include a bituminous seal coat.

Polyvinyl Chloride Pipe (PVC)

A) General PVC pipe shall conform to AWWA C900.

Main line joints shall be push-on type with an elastomeric seal conforming to ASTM D-3139. Plain with plastic film. The Tracer Wire shall be insulated 18 gauge solid or braided copper wire and shall be required to be installed from the corporation valve to stop box, tape shall be ~~alarm tape as manufactured by Paul Potter Associates or equal~~ and shall be 3 inches wide with 1 1/2 inch lettering which states "buried water main below". The lettering shall repeat every 21 inches. The tape shall be anchored to all valve boxes, hydrants, and services so that is electrically continuous. Contractor must demonstrate tape is electrically continuous before final acceptance. Tracer Wire shall be manufacture by Copperhead or approved equal. Tracer wire shall not be the color yellow.

Joint Restraint shall be by concrete reaction blocks.

**B. Pipe Thickness**

All pvc pipe shall have a pipe standard dimension ration (SDR) of eighteen (18) with pressure class of 150 psi.

**C. Marking**

Each pipe delivered to the job shall have clearly marked the nominal pipe size, material code designation, the SDR and pressure class, the AWWA designation and manufacturer's name

**D. Jointing**

Pipe shall be handled with care to prevent damage. Cutting of the pipe where required by the pipe manufacturer so as to have a smooth end, normal to the pipe axis. Cut ends shall be beveled to prevent damage to the seals and gaskets.

Jointing shall be done in strict accordance with the manufacturer's recommendations. Pipe ends shall be thoroughly cleaned prior to jointing and only approved lubricants used.

Pipe shall be carefully aligned to line and grade. Where necessary to change direction pipe may be deflected at the joint in accordance with the manufacturer's recommendations.

Cast iron fittings shall be double cement lines, push-on joint, meeting ANSI A 21.10 (AWWA C-110). Joints shall conform with ANSI A21.11 (AWWA C-111). Cement lining shall conform to ANSI A 21.4 (AWWA C-104) and shall include a bituminous seal coat.

**§ 430-21.6.15 Pipe Laying**

All pipe shall be carefully examined for defects, and no pipe known to be defective shall be laid. If any pipe is found to be broken or defective after being laid, it shall be removed and replaced by sound pipe.

Joint surfaces shall be protected from damage and shall be carefully examined before jointing. No damage joints shall be used in the work.

Pipes shall be thoroughly cleaned and ample precautions shall be taken to prevent entrance of dirt and debris into the pipe after laying. Exposed ends of all uncompleted lines shall be provided with plugs or covers at all times when pipe laying is not actually in progress.

All pipe shall be carefully laid to true alignment and grade with bell end upgrade. The trench bottom shall be carefully graded to the proper elevation and the maximum practical solid bearing area shall be provided throughout its entire length prior to swinging the pipe into place. First class bedding shall be provided with the foundation shaped to conform to the lower part of the pipe exterior for a width of at least 60% of the outside diameter where practicable. Bell holes shall also be dug for pipe bells so that the barrel of the pipe will have a firm bedding for its full

length. No blocking under the pipe will be permitted.

Care shall be taken not to excavate below grade. Material excavated below adopted grade shall be replaced by material which will meet with the approval of the engineer.

Immediately after the pipe is brought to the final position, it shall be thoroughly secured and properly bedded, and ample support shall be provided to prevent settlement or disturbances.

Pipe shall be protected during construction against possible floatation due to pouring of concrete or in case the trench becomes flooded prior to placing the backfill, either with water or a wet mud mixture.

§ 430-21.6.16 Testing

When a length of pipe deemed adequate by the engineer is ready for testing, the line shall be completely filled with water, all air expelled, and leakage test made. Piping shall be tested prior to connection with existing system. The contractor shall furnish all labor, materials and equipment for performing these tests in the presence of the engineer, including water, calibrated pressure gauges, test bulkheads and temporary blocking, filling and air release connections and valves, calibrated drum and test pump.

All portions of new water mains and connections and accessories thereto will be tested under a minimum hydrostatic pressure of 150 psi based on the elevation of the lowest point in the section of line under test. Under the foregoing conditions, the maximum allowable leakage in total gallons during the two-hour test per 1000 LF of pipe being tested as follows:

Diameter	Gallons	Diameter	Gallons
6"	1.80	20"	6.00
8"	2.40	24"	7.20
10"	3.00	30"	9.00
12"	3.60	36"	10.00
16"	4.80	48"	14.41

In the event that a section under test fails to meet the allowable leakage, the contractor shall make all necessary repairs and repeat the test. The test shall be repeated as many times as is necessary to meet the allowable leakage specified above.

§ 430-21.6.17 Sterilizing

All piping shall be thoroughly cleaned, flushed, and sterilized in accordance with AWWA C651.

Method for Disinfection:



All new water lines shall be disinfected before water is used for domestic consumption. The developer shall furnish and install all bulkheads, pipes, valves, taps, plugs, labor, water and other equipment to sterilize the lines. One of the following procedures may be used to accomplish disinfection;

A) By introducing a chlorine gas-water mixture by means of a solution feed chlorinating device, or if approved by the engineer, the gas shall be fed directly from a chlorine cylinder equipped with proper regulating device.

B) By fastening, in an approved method, the required number of HTH, high-test calcium hypochlorite tablets to the inside top of every length of pipe laid. The tablets shall be fastened carefully so that as much of the tablet as possible will come in contact with the water.

**Point of Application:**

For a chlorine gas-water mixture or direct gas application, the preferable point of application is at the beginning of the water main extension or any valve section it. Application may be through a corporation stop.

When tablets are used, the tablets should be fastened to the inside top of every length of pipe laid, starting with the first and progressing as each additional length is laid.

**Rate of Dosage:**

Dosage shall be in accordance with AWWA C651

Satisfactory quality of water delivered by the new mains should continue for a period of at least two full days as demonstrated by laboratory examination of samples taken from taps free from outside contamination.

**§ 430-21.6.18 Corporation Stops**

Corporation stops shall be 1" with AWWA standard inlet threads, suitable for connection to the polyethylene water service, as manufactured as Endot Endopure PE Pipe, or approved equal, tubing as specified hereinafter. Stops shall be as manufactured by the Hays manufacturing division of Zurn Industries, inc. with "Hays-tite" outlet couplings, the Ford Meter Box Company, inc. with "pack-joint" outlet couplings, or Mueller 300 Ball Corporation Valve, 1-inch, Model E-25009N with Mac-Pak Compression Nut with 110-conductive-compression-connection, or equal. Stainless-steel stiffeners shall be inserted in service pipe prior to making "Hays-tite" or "pack-joint" connections or approved equal.

Corporation stops shall be spaced a minimum of 12 inches apart along the barrel of the main. A hole-type cutter shall be used to tap mains for installation of corporation stops. Auger type drills will not be allowed.

Corporation stops for poly vinyl chloride mains shall utilize double barrel or full circle broad width type services saddles, manufactured by Ford Meter Box Company model FC202 unless otherwise approved. Direct

tapping for service connections will not be permitted.

§ 430-21.6.19 Meters

~~Meters shall be Sensus Technologies inc. SR displacement-type magnetic drive cold water meters and~~ Meters shall be Sensus iPERL Smart Water Meter and shall include a Sensus Technologies, inc. Touchread pad for automated remote meter reading. Following payment or the applicable meter fee, as set fourth in the township's current Rate Ordinance, the Township's water system operator will furnish the water meter and Touchread pad for installation by the contractor.

§ 430-21.6.20 Meter Yokes, Key Stops

Yokes shall be cast iron, straight line with support prong suitable or setting 5/8" x 3/4", 3/4" and 1" meters. Yokes shall include an inverted key type valve on the inlet side, expansion connection, and inlet and outlet couplings for connection to polyethylene pipe with stiffeners as specified hereinbefore and as detailed on the plans. Valves must be suitable for 200 psi working pressures and shall be tested to meet this requirement. Certification of test shall be forwarded to the engineer. Yokes shall be manufactured by the ford meter box company, inc; Mueller company ; or equal.

§ 430-21.6.21 Meter Boxes and Covers

~~Not applicable to project.~~ Curb stops shall be manufactured as Mueller E-25211N.

§ 430-21.6.22 Service Pipe

Service piping shall be polyethylene plastic tubing manufactured in accordance with ASTM D-2737 2239 with a minimum standard dimension ration (SDR) of 9 7. ~~Pipe shall meet the requirements of type III class "c" grade P34 polyethylene as defined in ASTM D-1248, shall be rated for a 460 psi~~ 200 psi working pressure at 73.4 degrees F, and shall be designed to withstand a hydrostatic stress of 630 800 psi at the same temperature. The pipe shall be approved by the national sanitation foundation for use as a carrier of potable water. Pipe shall have name of manufacturer, pipe size, ASTM specification number, and pressure rating permanently imprinted on exterior of pipe wall at minimum intervals of 5 feet. Pipe delivered and stockpiled shall be packaged for protection against dirt and damage and suitably covered to protect the pipe from sunlight.

Polyethylene pipe connections shall be made with case brass couplings as specified for outlets couplings on corporation stops.

Minimum covers of three (3) feet Six (6) inches is to be maintained.

§ 430-21.6.23 Methods

Tapping of the new mains shall be carried out only by men experienced in this work using equipment designed for use with the corporation stops specified above.

corporation stops shall be the same size as the service unless otherwise desired.

At locations where no danger to other utilities exist new services may be bored.

Before a service to any building is disconnected, the contractor shall advise the occupants 24 hours in advance and all work shall be scheduled and coordinated to keep the length of time any building is without water to an absolute minimum. Under no circumstances shall any service be disconnected overnight.

#### § 430-21.6.24 Fire Hydrants

##### § 430-21.6.24.1 Materials

Fire hydrants shall be a traffic model compression type with 5-1/4" main valve opening, one 4-1/2" pumper nozzle and two 2-1/2" hose nozzles. Hydrants shall have a 6" side inlet mechanical joint shoe connection to accommodate the class of pipe hereinbefore specified. Depth of bury shall be suitable for a minimum pipe depth of 3'-6". Hydrants shall conform with AWWA specification C-502, latest edition. Hydrant seat shall be provided with bronze to bronze threaded connection.

Threading of pumper and hose nozzles shall conform to national standard. Hydrants shall open by turning counterclockwise (open left) and shall comply with AWWA specifications for the hydrant type specified. A certificate of inspection and test shall be furnished including submission of a flow and friction loss curve.

The operating nut shall be pentagon shape measuring 1-1/2" national standard point to flat.

Non-kicking hose nozzle chains are required.

Hydrants shall receive prime and ship coats of paint at the factory. Submit coating specification for approval. Owner will select color of coating for hydrants. The contractor shall be responsible within the prices bid for field touch up or repainting of hydrants as required.

The design shall be such that lubrication of the operating threads is possible without disassembly.

Drain mechanisms shall be bronze to bronze to preclude galvanic corrosion of dissimilar metals and shall operate automatically with the opening and closing of the main valve.

Each hydrant shall be shop tested under 300 psi applied above and below the compression valve. Any hydrant showing any defects shall be rejected. All tests shall be made at the expense of the supplier.

A gate valve and box shall be located between the hydrant and main.

Fire hydrants shall be manufactured as by American-darling valve and manufacturing company, Mueller company, Super Centurion Model A-423 operating nut open left, Mechanical Joint Standard or approved equal. ~~M & H valve and fittings company, Smith valve and Hydrant products of US Pipe and Foundry company, or equal.~~

#### § 430-21.6.24.2 Installation and Restraint

Hydrants shall be placed at locations as directed by the engineer. Pumper nozzle shall face the road. Hydrants shall be set plumb.

Each fire hydrant shall be placed on a slab of concrete not less than (4) inches thick and fifteen (15) inches square. Hydrant assemblies shall be provided with a minimum of four (4) SQ. FT. concrete blocks both at the tee and hydrant.

Around the base of each fire hydrant shall be placed not less than seven (7) cubic feet of broken stone or brickbats to insure the complete drainage of the hydrant when closed. All backfill around hydrants and valves shall be thoroughly and carefully compacted after correct positioning.

Before installing any hydrant, care shall be taken to see that all foreign material is removed from the interior of the barrel.

When hydrant is ready for service, the hydrant and valve shall be opened and closed to see that all parts are in working condition. After closing the main valve, a nozzle cap shall be removed and the standpipe interior inspected to make sure of proper drainage.

#### § 430-21.6.24.3 Hydrant Shut-off / Gate Valves and Valve Boxes

Gate valves shall be ductile iron body, non rising stem, resilient seated, internally and externally epoxy coated gate valves. Valves shall conform with the requirements of AWA standard for gate valves for ordinary water works service (AWA c-509)

Valves shall open left (counterclockwise). The operating nut shall be square, measuring 1 5/16 inch at the top, 2 inches at the base and 1 3/4 inches high. An arrow showing the direction of opening and the word "open" shall be cast on the flange of the operating

nut. Valves shall be suitable for water working pressure to 150 psi.

Lubrication instructions and parts list shall be furnished in triplicate for each type and manufacture.

Gate valves shall be AWA type as manufactured by following manufactures Tyler Union model 6855 or approved equal:

~~Clow corporation~~

~~Kenedy~~

~~Mueller-Co.~~

~~US-Pipe-and Foundry-Company~~

Each valve shall be provided with a cast iron, three piece, screw-type valve box. Valve boxes shall be 5 1/5 inch shaft with a round base and shall be provided with extra deep covers with the word "water" and an arrow indicated open left cast on.

Length of valve boxes shall be to suit each particular installation, and shall have about eight inches of adjustment up and down available after setting to grade. Valve boxes shall be as manufactured by Tyler Pipe Company, ~~the-kennedy-valve-and manufacturing-company,~~ Campbell-foundry-company or approved equal.

§ 430-21.6.25 Main Line Valves

§ 430-21.6.25.1 Butterfly valves

Not Permitted. ~~Not applicable to project.~~

§ 430-21.6.25.2 Gate Valves

Gate valves shall be ductile iron body, non-rising stem, resilient seated, internally and externally epoxy coated gate valves. Valves shall conform with the requirements of AWWA standard for gate valves for ordinary water works service (AWWA C-509)

Valves shall open left (counter clockwise). The operating nut shall be square measuring 1 5/16 inch at the top, 2-inches at the base and 1 3/4 inches high. An arrow showing the direction of opening and the word "open" shall be case on the flange of the operating nut. Valves in shall be suitable for water working pressure to 150 psi. Valves shall be provided with mechanical join ends.

Lubrication instructions and parts lists shall be furnished in triplicate for each type and manufacture.

Gate valves shall be AWWA type as manufactured by the following-manufactures-Mueller Resilient Wedge A2361, or approved equal:

~~Clow-Corporation~~



Kennedy  
Mueller-Co.  
US Pipe and Foundry Company

Valves in sized 6" through 12" shall be mounted vertically, larger than 12" shall be mounted horizontally.

Each buried valve in sized 3 inches to 24 inches shall be provided with a cast iron, three piece, screw-type valve box. Valve boxes shall be 5 ¼ inch shaft with a round base and shall be provided with extra deep covers with the word "water" and an arrow indicated open left cast on.

Length of valve boxes shall be to suite each particular installation and shall have about 9 inches of adjustment up and down available after setting to grade. Valve boxes shall be as manufactured by Mueller company, the Kennedy valve and manufacturing company, Campbell foundry, or approved equal.

Two (2) valve operating wrenches suitable for operating the valves installed shall be furnished.

#### § 430-21.6.25.3 Anchorage

Where required or indicated on the drawings, valves on branch lines or dead ends shall be restrained to the main line with positive anchorage compatible with the pipe material and of an approved type designed to withstand the specified test pressure.

#### § 430-21.7 Technical Specifications – Supply Facilities

Note: The following specification as been arranged to show an 18" x 12" underreamed well.

##### § 430-21.7.1 General

Specifications for supply wells shall include information as to the following item, to be included within the design of the facilities and delineated within the specifications.

All well heads shall be provided with adequate means to prevent surface and shallow ground waters from gaining access into the well and aquifer. The annular space outside the casing shall be filled with a non-shrink neat cement grout for a minimum of fifty vertical feet from top of casing. Cement grout shall be a minimum 2" thick and shall be filled from the bottom to the top in one continuous operation.

All wells shall be provided with an outer casing.

All outer casings shall be continuous with tight joints for the entire length of the well.

The casing pipe and pump foundation shall extend a minimum of 12

inches above the ground elevation or above the maximum flood elevation

All wells, once drilled, shall be properly capped with a torch welded steel plate prior to the construction of pumping and control facilities and structures, to completely exclude the entry of contaminating matter.

All new well supplies shall be tested to determine the ability of the well to yield water. Test pumping shall be undertaken under the direction of the engineer at a rate and for a period of time necessary to determine the yield of the supply with a stabilized water level.

Water samples shall be recovered during the test period and complete bacteriological and chemical analysis test run to determine the water quality. Analysis shall include heavy metals.

Pump and associated equipment shall be designed and installed to insure a pollution a frost-proof installation.

Maximum pumping capacity of the well shall be such that the pumping level will not fall below the top of the well screen. Pump setting and suction inlet shall be located so that the pumping level cannot be drawn below the top of the screen nor below the level of the lowest pump bowl.

Discharge piping from the well shall be provided with a swing check valve and shut-off valve. Check valve shall be between the pump and any other connection to the discharge piping. A suitable air release valve shall also be provided.

A suitable means of well blow-off shall be provided. Blow-off piping shall terminate above ground and flood level and shall be capped to prevent entry of pollutants.

All well installation shall include the following equipment:

- 1) A water level gauge
- 2) Discharge pressure gauge
- 3) Propeller flowmeter
- 4) Flow recorder – totalizer
- 5) Emergency power supply and/or emergency direct drive power supply.

#### § 430-21.7.2 General Description – Specifications

A section shall be included to present a description of all the facility proposed, to include references to equipment to be installed.

##### A) Example Description

The well shall be provided with an outer casing of a minimum of 18-in diameter, \_\_\_ feet deep measured from grade, the exact depth to be determined by field conditions. The well shall be provided with an inner casing which shall be a minimum of 12-in diameter. The well screen shall be 12-inch diameter with a total length of \_\_\_ feet with \_\_\_ feet of blank and a plug shall be provided below the bottom screen. The well below

the outer casing shall be underreamed a minimum of 32-inch diameter and to a depth about 5 feet below the bottom of the well screen.

The underreamed portion of the well and the space between the inner and outer casing shall be packed with gravel. The gravel size shall suit the characteristics of the water bearing formation and be compatible with the screen selected. The well shall be sealed with cement grout between the drilled hole and the outer casing for the entire depth. The drill hole shall be a minimum of 24-inch diameter to provide a minimum 2-inch grout thickness. The well shall extend a minimum of two feet above local grade and be plugged after completion of test.

The well shall be constructed by the reverse rotary process of drilling whereby the surface waters and the drilled hole are maintained by a balance of hydraulic pressures. All drilling shall be performed in this manner so that all fines within the formation are removed and no clays, muds, or silts may be injected into the formation.

§ 430-21.7.3 Pilot Hole, Cores, Logs

Before the permanent well is constructed, a pilot hole shall be drilled down to the clay bed below the formation to be developed. The pilot hole may be drilled by reverse rotary or straight drilling.

After the pilot hole has been drilled to the proper depth, the hole shall be electrically logged. The electric logging shall be performed by a trained operator so as to give expert interpretation of the logs.

After the hole has been electric logged, cores shall be taken in the water bearing formation as indicated by the electric log. The cores shall be taken from the sides of the hole by means of a side wall coring device. The cores shall be taken with a split spoon core barrel. The cores shall be properly and plainly tabulated and delivered to the engineer. Each core must have at least 80% recovery in order to be acceptable.

Upon completion of the electric logging, it may be desirable to run a caliper log and/or neutron log. The contractor shall perform this work on direction from the engineer.

§ 430-21.7.4 Reaming Hole

When all work has been completed with reference to the pilot hole, the hole shall then be reamed by the reverse rotary process to a diameter of 24 inches from the ground surface to the top of the water bearing formation to be developed.

Casing:

Casings to be used shall be new seamless steel pipe, having the following minimum weights and dimensions:

	O.D.	I.D.	WGT/FT (P.E.)
--	------	------	---------------

Outer Casing	18.000	17.25	70.59
Inner Casing	12.750	12.00	43.77

Pipe joints shall be welded.

Well screen:

Well screen to be furnished and installed shall be a minimum nominal diameter of twelve inches and an active screen length of \_\_\_ feet. The well screen shall be of stainless steel of a type approved for gravel filter well construction and shall be as manufactured by UOP Johnson Division, or approved equal.

The screen shall have adequate strength to resist external forces applied after it is installed and to minimize the likelihood of damage during the installation.

The size of the openings shall suit the character of the water bearing formation and the gravel pack and shall be determined by the contractor and approved by the engineer.

All screen pieces and the inside casing shall be jointed by electric welding. The stainless steel extension piece shall lap a minimum of 100 feet into the outer casing.

Gravel:

The space between the well screen and the wall of the underreamed hole and the space between the outer and inner casings shall be filled with select and approved cap may gravel. The gravel shall be fed around the screen as the well is developed by removing all sand and mud from the screen area.

**§ 430-21.7.5 Grouting and Sealing**

The annular space between the outer casing and the drilled hole shall be filled with cement grout. Grout shall be proportioned of cement and a minimum quantity of water required to give a mixture of such consistency that it can be forced through the group pipes.

The grout mixture must be placed in one continuous mass from the bottom upward to the surface. The contractor shall submit for approval of the engineer the method he proposes to use. Placement of the grout through pipes outside the casing or the placing of grout in the annular space from the surface down will not be permitted.

No drilling operations or other work in the well will be permitted within 72 hours after the grouting of casings. If quick setting cement is used this period may be reduced to 24 hours.

The contractor shall notify the engineer 24 hours in advance of grouting operations.

§ 430-21.7.6 Underream Cavity

After the outside casing is in place, and cemented, and before the screen and inner casing are installed, a large diameter pocket shall be underreamed through the water bearing formation at least thirty-two (32) inches in diameter by means of an underreaming bit to provide a cavity for the injection of a gravel envelope of adequate thickness around the screen to insure low velocity of inflow free from sand.

§ 430-21.7.7 Gravel Filter

After setting the screen in the underreamed cavity, the gravel must be placed hydraulically to insure the removal of any remaining fines with the simultaneous placing of gravel around the screen, feeding the same from the surface as to build up the gravel wall around the screen and the inner casing from the bottom up as the graveling process proceeds. Graded pea gravel having a hard clean smooth surface shall be used, the size to be determined by the contractor in accordance with the character of the formations. The bottom of the screen shall be properly plugged with a plate or cement, in accordance with conditions found.

§ 430-21.7.8 Well Development

The contractor shall furnish all necessary pumps, compressors, plungers or other required equipment and shall develop the well by such approved methods as shall be necessary to give the maximum yield of water per foot of drawdown and extract from the water bearing formation such muds, sands, and fine materials as may, during the life of the well, be drawn through the screen when the well is pumped under maximum conditions of drawdown.

§ 430-21.7.9 Testing for Yield and Drawdown

Following the completion of development, the well shall be cleaned out and the depth of well accurately measured. The contractor shall notify the engineer when he is ready to conduct the well pumping test.

The contractor shall furnish and install necessary pumping equipment capable of pumping the required        GPM but with satisfactory throttling devices so that the discharge may be reduced to 75%        GPM. The pumping unit shall be complete with prime mover of ample power and appurtenances and shall be capable of being operated continuously through the period of the test.

The contractor shall also furnish, install, and maintain equipment of approved size and type for measuring the flow of water and for determining the water level in the well.

The contractor shall operate the test pumping at such rates of discharge and for such periods of time as required to determine the yield with a stabilized water level. When this quantity is determined, the test shall be continued at this rate for a minimum period of 48 hours. Accidental



interruption may, if so agreed upon between the contractor and the engineer, be compensated for by correspondingly extending the completion of the test.

A record of the yield and drawdown shall be kept. Readings of each shall be taken every 15 minutes and recorded. An orifice shall be used to measure the yield and an electrical conductive measuring device shall be used to measure drawdown. After the test is completed and immediately after shutting down the pump, a recovery test shall be run for 2 hours, with reading taken every 15 minutes. Both the pumping test and recovery test shall be plotted and the formation transmissibility. In addition, water levels in the existing well shall be recorded during the entire period of testing.

During the final well test, water samples shall be taken for chemical analysis. The water shall be analyzed by a laboratory certified by the state of new jersey.

#### § 430-21.7.10 Testing for Plumbness and Alignment

All holes shall be constructed and all casing and liners set round, plumb and true to lines as defined here in. To demonstrate the compliance of his work with this requirement, the contractor shall furnish all labor, tools, and equipment and shall make the tests described herein in the manner prescribed by, and to the satisfaction of the engineer. Tests for plumbness and alignment must be made after the complete construction of the well and before its acceptance.

Plumbness and alignment shall be tested by lowering into the well to a depth of required \_\_\_feet a section of pipe 40 feet long or a dummy of the same length. The outer diameter of the plumb shall not be more than ½ inch smaller than the diameter of the part of the casing or hole being tested. If a dummy is used, it shall consist of a rigid spindle with three rings, each ring being 12 inches wide.

Should the dummy fail to move freely through the length of the casing or hole to a depth of required \_\_\_feet, or should the well vary from the vertical in excess of two-thirds, the smallest inside diameter of that part of the well being tested per 100 feet of depth or beyond limitations of this test, the plumbness and alignment of the well shall be corrected by the contractor at his own expense and, should he fail to correct such faulty alignment or plumbness, the engineer may refuse to accept the well.

#### § 430-21.7.11 Disinfection

After the well has been completely constructed, it shall be thoroughly cleaned of all foreign substances, including tools, timbers, rope, debris of any kind, cement, oil, grease, joint dope, and scum. The casing pipe shall be thoroughly swabbed using alkalis, if necessary, to remove oil, grease, or joint dope. The well shall then be disinfected with chlorine solution.

Of at least 50 ppm of chlorine shall be obtained in all parts of the well. Chlorine solution shall be prepared and applied in accordance with the directions of, and to the satisfaction of, the engineer, and shall remain in the well for a period of at least two hours.

In the event that the test pump is installed after the well has been disinfected, all exterior parts of the test pump coming in contact with the water shall be dusted with a chlorine compound as directed by the engineer.

#### § 430-21.7.12 Samples and Records

The contractor shall keep an accurate record of the location of the top and bottom of each stratum penetrated and shall save and deliver to the engineer a sample of material taken from each five feet of drilling and at every change of formation.

The contractor shall keep an accurate record as assembled of the order, number, size, and lengths of the individual pieces of pipe, screen, etc., installed in the well.

Upon completion of the well, the contractor shall furnish to the owner the following information: Drillers log, electric log, drawing of well, chemical analysis of water, including heavy metals, pumping test data, sieve analysis of sand samples and plot of formation transmissibility.

#### § 430-21.7.13 General Description

A section shall be included to present a description of the pumping equipment to be installed.

##### A. Sample Description

The contractor shall furnish and install a high efficiency multi-stage, water lubricated, deep well turbine pump capable of delivering the required gallons per minute against the required total dynamic head, (not including pump inlet, pump column, and discharge head losses). Overall wire to water efficiency of pump and motor, including all losses in pump discharge, column, and shafting, shall not be exceed 1800 rpm.

Diameter of upper (outer) well casing is 18 inches. Well screen and connecting raiser are 12-inches diameter. The pump shall have a setting as shown on the drawings. It shall be the responsibility of the contractor to check the as-built condition of the existing well before ordering the pump in order to assure that the setting of the pump with respect to the 12-inch riser is satisfactory.

The pump, motor, and appurtenances shall conform with the requirements of AWWA E101 Except where modified herein.

#### § 430-21.7.14 Pump

The pump shall consist of the bowl assembly, and adaptor for connection

to the discharge column pipe. The pump shall be made of close grain cast iron and the bowls shall be fitted with removable type zincless phosphor bronze wear rings and bushing. The impellers shall be phosphor bronze (SAE no. 65) fully enclosed, bottom suction and non-overloading. They shall be hand finished and accurately balanced both statically and dynamically. The impellers shall be fastened to the pump shaft with stainless steel collets; lock nuts shall not be used. All water passages shall have smooth resurfaces obtained by filing or polishing. The impeller shaft shall be made of 18-8 stainless steel type 303B of diameter compatible with they drive horsepower made with he same degree of accuracy and quality of workmanship. The pump shaft shall be connected to the line shaft with a solid steel coupling.

Line shaft: The line shaft shall be made of high grade carbon steel, Cumberland or approved equal, cold rolled centerline turned, ground, and polished and shall have straightness alignment within .02 inch of absolute. The shaft shall not be less than 1-3/16 inch diameter and in lengths of not exceeding 10 feet. The shaft couplings shall be made of solid steel accurately machined, balanced, bored, and threaded throughout their entire length and without set screws, bolts, or nuts. The threads on the shafts and couplings shall be cut so that they have a tendency to tighten during normal operation.

Discharge column pipe: The column pipe shall be 12—inch inside diameter. The pipe shall be furnished in interchangeable sections having a nominal length of not over ten (10) feet; shall be of standard weight conforming to specifications in table 3 AWWA E101 and shall be connected by threaded sleeve type couplings.

Discharge head and motor stand: The pump head shall be of the direct connected type with heavy cast iron frame and separate cast iron base plate heavy enough to carry the total base plate load, including the load exerted by connection. Screened vents shall be provided on the pump head. Design shall permit the motor drive shaft to be coupled and uncoupled above the stuffing box.

The discharge head shall also serve as the motor stand without any additional filter pieces, and shall have a top diameter which shall match the diameter of the motor base in order to distribute load uniformly and result in an assembly od discharge load and driver which will create a smooth and pleasing appearance. The base plate of the pump shall have a hole in the center large enough to pull the pump bowls through without disturbing the base plate. The base plate shall be designed to include a sanitary seal.

The head shall also include a relubrication connection to wet the line shaft bearings adequately before starting the pump shall be provided with topped opening to permit installation of drain pipe to carry stuffing box drive to waste: and shall include a cast iron stuffing box.

Stuffing box: A cast iron stuffing box shall be provided containing a bronze bearing, graphite impregnated asbestos packing with bleed off

connection and grease lubricating connection to a bronze cage ring. A bronze split type packing gland shall be employed.

**Prelubrication:** The contractor shall furnish and install a prelubrication system consisting of piping connected to discharge piping downstream of the check valve and to the pump head. The flow shall be controlled by a solenoid valve with a relubrication time delay relay in the motor starter. This system shall be furnished and installed complete with exception of wiring. The system shall also include a valved, normally closed, manually operated bypass for the solenoid valve. Piping and valves shall be minimum ½ inch size.

**Gauges and air line;** In addition to the automatic recorder, the contractor shall furnish a hand pump and 4-1/2 inch dial direct reading altitude gauge, 0-200 feet of water Ashcroft or equal, at the pump head attached to the air line in the well. Air line shall be ¼ inch copper and air valve and fittings shall be furnished. Length of air line shall be sufficient to place lower end at the top of the impeller section. A pump pressure gauge, 4-1/2 inch dial 0-150 psi Ashcroft or equal, shall be furnished and mounted on the discharge of the pump head.

**Data to be submitted:** Standard running test curves shall be submitted for approval before deliver of the unit. Performance curves shall indicate the output, break horsepower and the overall efficiency through the range in head from zero deliver to the cut off point. The contractor shall also furnish completely dimensioned shop drawings and the manufacturer's specifications.

**Pump installation:** shall be made in the presence of the pump manufacturer's qualified representative. Pump shall be set truly plumb and all necessary supports, connections and accessories shall be furnished and installed in accordance with best recognized practice. If the pump is dropped into the well hole for any reason, it shall be removed. If the pump should be started prior to impeller adjustment, causing damage to the impellers, all damage shall be repaired. Impeller adjustment shall be made by or under the supervision of the pump manufacturer's representative.

#### § 430-21.7.15 Motor

The motor for driving the pump shall be of the full voltage starting vertical hollow shaft, squirrel cage induction type. The connection to the pump shaft shall be through a non-reversing ratchet type coupling. The motor shall be of the proper size to drive the pump continuously over the pump operating range. Motor horsepower shall be designed to the appropriate        HP, the motor shall be 40 degrees C rise design with 1.15 service factor. The motor shall be designed to operate on phase, 60 cycle, 240 volt power. The motor shall be weather protected if designed for outdoor-type operation.

Motor bearing shall carry the thrust load of the pump and motor. The thrust bearing shall have adequate capacity to carry continuously the

weight of all rotating parts, plus the maximum thrust load to which the unit will be subjected under any condition of operation. The motor shall be equipped with a non-reversing ratchet.

Motor shall be built in accordance with current NEMA, AIEE and AWWA standards where applicable. Motor shall be General Electric, Westinghouse, Allis-Chalmers, or approved equal.

§ 430-21.7.16 Factory Representatives and Guarantees

A. Guarantees

Equipment furnished shall be guaranteed by the contractor to perform the services required of it, to the full satisfaction of these specifications, for a period of one year from the date of completion.

The word "completion" in the above paragraph shall be defined as the point at which all work on the supply facilities and appurtenances has been completed, tested and formally approved and accepted (in writing) by the Authority-Township.

B. The contractor shall require firms furnishing equipment under this contract to provide services of skilled and experienced representatives for such periods as are in the opinion of the engineer, essential to the proper and satisfactory installation and testing of all equipment items.

C. Nameplates, number plates and stamps

A plate, having the number, the make, horsepower, capacity, speed, and other pertinent data permanently marked on the plate, shall be mounted on each unit. All important parts of equipment shall be stamped for identification and location.

D. Tools

The contractor shall furnish with each item all special tools required by the particular equipment. This requirement is in no way intended to cover the furnishing of readily available tools for mechanical work. A lubrication gun suitable for the particular type of pressure grease fittings used shall be furnished.

§ 430-21.7.17 Site Piping

A. Schedule of pipe and jointing

Pipe and fitting materials, jointing, and pipe linings shall be in accordance with the following schedule. This schedule is set forth as guide to illustrate requirements:

<u>Service</u>	<u>Pipe Material</u>	<u>Jointing</u>	<u>Lining</u>
Water Piping in Buildings	Ductile Iron	Flanged	Cement-Lined
Water Piping Underground	Ductile Iron PVC	Push-On Joint Push-On	Cement-Lined with Bituminous Coating No Lining



Building Drain Piping	PVC	Solvent Needed	No Lining
Instrument Piping	Copper Tubing	Flared Compression	No Lining
Chemical Feed	Plastic	Solvent Welded or Threaded	No Lining
Chlorine	Plastic	Solvent Welded or Threaded	No Lining

#### B. Ductile Iron Pipe

Pipe and fittings: Ductile Iron pipe with rubber gasket joints shall be centrifugally cast, thickness class 2, in conformity with ANSI A21.51.

Fittings shall conform with ANSI A21-10 in all respects. Ductile Iron pipe and fittings for underground installations shall be supplied with push on joints.

Flanged pipe shall be class 150 pipe with American standard 125 LB flanges. If specifically approved by the engineer, flanged nipples may be made up by the use of centrifugally cast pipe as specified above for the bell and spigot pipe with threaded flanges.

If threaded flanges are used, flanges must be mounted on pipe and tightened by machine and flanges faced and drilled after tightening.

No ductile iron pipe thinner than .38 inches may be threaded.

Cement-lining for cast iron pipe shall meet ANTI A 21.4. Pipe shall receive a foundry bituminous coating on the interior and exterior.

Mechanical coupling shall be dresser-style 38, Tyler Union DIP MechJoint C153, or approved equal and shall be securely harnessed or anchored.

Sleeves and mechanical couplings shall be provided when necessary to provide adequate flexibility, not only for convenience in original erection of the lines, but to afford convenience in the event of future removal, alterations, or repairs.

Location of joints shall be such as to provide maximum convenience in assembly of piping and appurtenant equipment, with provisions by sleeves or couplings to minimize strain on equipment or flanges.

Flanged Joints; All flanges, unless otherwise required, shall have standard drillings. Flanges shall be firmly bolted with machine stud or tap bolts of the proper size and thread. The bolts and nuts shall be of the best quality refined bar iron, with good true threads, and shall be so torques as to evenly distribute the stress in the bolts and bring the pipe into uniform alignment.

Bolts shall have standard rough square heads and hexagonal nuts made to American standard rough dimensions, and shall be chamfered and trimmed.

Where required, flanges shall be tapped for stud bolts.

All gaskets shall be rainbow, durable, Garlock, or as approved by the engineer, unless lead or other material is specifically called for.

Gasket eight (8) inches in diameter and smaller shall be 1/16 inches thick and gaskets larger than eight (8) inches in diameter shall be 3/32 inches thick.

Mechanically coupled plain end joints: Where shown on the drawings, or where, in the operation of the engineer, convenience of erection or removal, or particular flexibility to avoid break service so requires, flexible couplings of the dresser or approved equal make shall be furnished and installed.

#### C. Copper Pipe

Copper tubing for underground service shall be type k soft temper, and for installation within structures shall be type L hard temper. Tubing shall conform with the requirements of ASTM B88.

Fittings shall be 250 LB. cast brass sweat fittings, recessed and arranged for solder joints using 50-50 lead-tin solder alloy.

#### D. Sterilization

All new water lines shall be flushed and sterilized upon successful completion of the pressure test in accordance with AWWA C610.

Following Chlorination and after the entire length of line is ready for operation, all treated water shall be flushed thoroughly from the newly laid pipe line, at its extremities, until the replacement water throughout its length will, upon test both chemical and bacteriological, be provided equal to the quality introduced at the permanent source of supply. Should the initial treatment prove ineffective, the chlorination procedure shall be repeated as directed until confirmed tests show that water from the newly laid pipe conforms to the requirements of the preceding section.

### § 430-21.7.18 Valves

#### A. General

All valves shall be of standard manufacture and of the highest quality both as to material and workmanship. They shall in general conform to all pertinent stipulations of the latest specifications for valves and gates of the American water works association. All operating appurtenances shall be installed including valve boxes, hand wheels, extended stems, stem guides, floor stands, as shown on the drawings.

Full data pertaining to the valves, including complete dimension drawings showing details of construction, operation, and installations, shall be submitted for approval.

#### B. Installation

Valves in structures shall be set plumb, and where required, shall be securely supported or hung. Valves shall be packed and adjusted prior to field tests and shall be left in good condition. Buried gate valves shall have 3-piece gate box.

#### C. Gate valves- 4 inches and larger

Gate valves shall be iron body, fully bronze mounted double disc, parallel seat type, with renewable seat type, with renewable seat rings. Valves shall be suitable for a water working pressure of 150 psi and shall be shop tested to a pressure of 300 psi. Valve shall open by turning to the left (counterclockwise)

Gate valves, where required, shall have flanged ends. Flange shall be ASA 125-LB. gate valves and shall have means of operation as shown on the plans. Pump valves and other valves exposed inside structures shall have rising stem, OS&Y with handwheel. Buried valves shall 2-inch square operating nut.

#### D. Check valves – 4 inches and larger

Check valves shall be iron body, fully bronze mounted horizontal single disc, swing type, with full sized removable flanged cover renewable bronze seat rings extended shaft with weight and level and complete with non-corrosive cushion chamber. The cushion chamber shall be attached to the side of the valve body externally and so constructed with a piston operating in a chamber that will effectively permit the valve to be operated without any hammering action. The cushion shall be by air and the cushion chamber shall be so arranged that the closing speed will be adjustable to meet the service requirements. Check valves shall have 125-B ASA flanged ends and shall be suitable for 150 PSI working pressure. Valves shall be as manufactured by Golden-Anderson-Valve specialty company or approved equal.

#### E. Well Air valves

Air valves shall be iron body, stainless steel float with screwed inlet suitable for use as air and vacuum valves on deep well pumps. Air valves shall be furnished with a throttling device to eliminate possible water hammer. Valves shall be as manufactured by Valve and Primer corporation or approved equal.

#### F. Solenoid valves

Solenoid valved for prelubrication lines, pressure tank vents, and pipe drain and when shown on the drawings shall be ½ inch bronze body, packless, normally closed operation, and suitable for maximum pressure of 200 psi. Valves shall be rated to suit the voltage of the controls. Each valve shall be provided with a bronze body "y" strainer with Monel metal mesh mounted ahead of the solenoid valve. Valves and strainers shall be as manufactured by the automatic switch company or approved

equal.

§ 430-21.7.19 Chlorination Equipment

A. The chlorination system shall be vacuum type, solution feed, and shall be the product of a manufacturer regularly engaged in the manufacture of chlorination equipment. The chlorination system shall not require the conveyance of chlorine gas in pressurized piping between source and dispenser nor shall the chlorination system require the conveyance of chlorine solution from dispenser to the points of chlorine solution application. The chlorination system shall provide separate and independent metering of chlorine gas under vacuum pressure.

Two separate and independent chlorine supplies will be provided, such that the chlorination system shall dispense chlorine from one of these supplies while the other supply is held in reserve. A switchover module shall provide means of automatically switching to the reserve chlorine source when the chlorine source in service is depleted. The switchover control shall not require manual reset for proper switchover operation. Such additional control apparatus and booster pumps as may be required to perform the aforementioned function shall also be provided.

Chlorination equipment, appurtenances, and accessories to be provided shall include, but not limited to, the following;

- 1) one chlorine cylinder scale. (non-pit mounted).
- 2) Two chlorinators.
- 3) One switchover module.
- 4) One ejector-diffuser corporation clock assemblies.
- 5) Two centrifugal type booster pumps.
- 6) Two water supply inlet assemblies.
- 7) All necessary water supply hose, chlorine vent and vacuum tubing, hose and tubing adapter and clamps, and gaskets.
- 8) one spare 10 pound per day metering tube.
- 9) one chlorine gas mask with spare cannister.
- 10) Four sets of instruction books and manufacturer's drawings, catalogs, literature, and specifications.

B. Manufacturer's Serviced

Services of the manufacturer for supervising the installation and start-up of the chlorination system shall be provided.

To assure the continuity of technical assistance, proper equipment operation, and the availability of service and parts, the order for this equipment shall be placed by the contractor with the chlorinator manufacturer. The chlorinator manufacturer shall include his warranty on the chlorinators which shall provide no-cost service protection for the three (3) years, extended service protection beyond three years with a maximum service charge which shall be quoted, and any critical parts lifetime guarantee offered.

§ 430-21.7.20 Well House

A complete well house shall be included to adequately house all equipment specified and provide and controlled climate for the pumping facilities. The well house shall be of contemporary architecture with design in conformance with authority Township standards, and shall be formally approved prior to construction.

Included within the specifications shall be sections dealing with the following subjects:

- 1) Site preparation and restoration.
- 2) Chain link fencing.
- 3) Top soil and seeding.
- 5) Formwork for concrete
- 6) Concrete work.
- 7) Structural Steel and Miscellaneous metal work.
- 8) Masonry
- 9) Roofing, insulation, and sheet metal work.
- 10) Door and windows.
- 11) carpentry
- 12) Caulking
- 13) Painting
- 14) Louvers and Fans
- 15) Special equipment.
- 16) Heater
- 17) Electrical work, lighting.
- 18) Emergency generating or pumping equipment
- 19) Landscape.

These sections shall adequately describe the materials and methods required to construct the well house.

#### § 430-21.8 Technical Specifications – Storage Facilities

##### § 430-21.8.1 General

Specification for storage tanks shall include information as to the following items, to be include within the design of the facilities, and delineated within the specifications:

A. A general description of the facility specified, including information on size, shape, type, capacity, water surface elevation, height to overflow, type of construction and loadings expected.

B. Information required in accordance with standard specifications for steel tanks, standpipes, and elevated tanks for water storage of the American water works association (AWWA D100). All steel tanks shall be designed and fabricated in accordance with the above specification, unless circumstances dictate another method. All design methods must meet approval of the engineer. Design basis shall be either that specified under AWWA D100, or that specified in AWWA D100, appendix C.

The appendix C basis of design may only be used by contractors who have designed, furnished, erected, and certified to at least two standard pipes or reservoirs on this basis, to date. If the appendix C basis of



design is adopted by the contractor, he shall so state in the proposal and shall accompany his bid and disinfect one welded steel water storage tank of 250,000 Gallons (US) capacity as measured from the overflow level to the concrete base. ~~The overflow level shall be set at elevation \_\_\_\_\_ and the concrete base (By others) will be set at elevation \_\_\_\_\_.~~ The tank shall have a \_\_\_\_\_ inside diameter.

This contractor shall also design and furnish the tank anchor bolts. A setting plan of anchor bolts shall be provided. This contractor shall deliver the anchor bolts to the foundation contractor and oversee and be responsible for the proper setting of anchor bolts.

The design, fabrication, erection, and testing of the tank shall conform with the requirements of the standard specifications for steel tanks, standpipes, and elevated tanks for water storage of the American water works association.

The entire structure shall be water tight and shall be proportioned to safely withstand all loads which may be anticipated during erection of service, including weight of structure, weight of water, snow load, and wind loads, and shall be unsafe for any combination of loads with the tank full, partly full, or empty.

#### B. Tank shape

The tank shall be cylindrical standpipe with a domed roof. With the names and addresses of the clients for which these tanks were provided

If the appendix C basis of the design is used, the contractor shall adopt the 25 degree F or warmer temperature range requirements for cylindrical shell plates.

### § 430-21.8.2 Miscellaneous Section

Following the general description and design information sections should follow appropriate sections on all equipment proposed and methods to be utilized, including but not limited to:

- A. Fabrication, Erection and Welding
- B. Accessories to be furnished
- C. Testing
- D. Painting.
- E. Disinfection
- F. Equipment Required
- G. Cathodic Protection

### § 430-21.8.3 Sample Specification

The following is representative of a sample specification required for a 250,000 gallon steel storage tank. This specification is intended to indicate minimum specification requirements for a tank of these dimensions. Proposed facilities shall be altered according to detailed requirements of the facilities.

**A. General requirements**

The contractor shall furnish, haul, deliver, erect, test, paint.

**B. Minimum thickness**

The minimum thickness for any part of the structure shall be 3/16 inch for parts not in contact with water and 1/4 inch for parts in contact with water.

**C. Data to be furnished**

Prior to fabrication, the contractor shall submit to the engineer for approval complete design stress analysis together with shop drawings of the structure and appurtenances.

The contractor shall submit shop drawings showing settings and shall deliver all the anchor bolts as soon as possible so that the foundations may be constructed without delay to the tank erection.

**E. Materials**

All materials shall conform to section 2 of the American water works association specification D-100.

If appendix C basis of design is adopted, All materials shall conform to section C2 of Appendix C of AWWA D-100.

**F. Fabrication, Erection and Welding**

Fabrication, erection and welding shall be done in accordance with the provisions of the AWWA specifications previously cited. The contractor shall furnish certified records of welder's qualification tests and all facilities for field inspection of welds. Test segments shall be taken by the contractor at locations designated by the engineer.

In general, joints are to be butt joints rather than lap joints so that smooth exterior surfaces are obtained.

If appendix C basis of design is adopted, the contractor shall conform in detail with the requirements of section C4, inspecting, and shall furnish a sworn certification to the authority Township. The sworn certification shall be in the form as shown in appendix C. In addition, copies of all inspection reports and radiographs shall be furnished to the engineer.

**G. Accessories**

The following accessories shall be furnished and installed:

1. Two (2) 6-inch high curbed and hinged 24-inch square opening access manholes on the tank roof. Hinge pins and Latches shall be either bronze or stainless steel.

2. Two (2) 18-inch by 24-inch watertight shell manholes located approximately 3 feet above the top of the foundations.

3. An 8-inch mushroom screened vent with ventilating fan.

4. An overflow with weir box capable of discharging at the rate of 1500 GPM. The overflow pipe shall be black steel a minimum of 8 inches

in diameter and shall extend down the side of the tank terminating as shown on the drawings.

5. A fixed ladder with six bar safety cage shall extend from 7.5 feet above the ground to the roof line of the tank. The ladder shall be designated with a comfortable and safe transition from safety cage on the vertical to a two-bar double handrail walkway to the access hatch. The ladder and walkway system shall comply with the requirements of the OSHA, and shall be fabricated with intermediate platforms in conformance with federal safety statutes.

6. A bronze plaque approximately 24" x 32" Shall be furnished and installed under this contract. The exact inscription will be furnished at a later date. The plaque shall be 1/4" thick with letters cast integrally in relief. The color and finish of the plaque shall be as selected by the engineer.

7. The contractor shall provide and install a 4-inch high, 12" diameter removable silt stop. The 12" diameter inlet pipe shall be watertight and flush with the tank bottom.

8. The tank shall be provided with sufficient rings and lugs for lashing of painters scaffolding and equipment where necessary to paint the tank. In addition, the tank shall be provided with a painter's track inside the tank.

9. Cathodic protection – an electric rust proofing system shall be furnished and installed as specified in a separate

#### H. Testing

Upon completion of erection and before painting, the tank shall be filled with water to the high water level. Any leaks shall be repaired.

I. Painting (This specification shall be the minimum acceptable standard for painting water tanks)

##### 1. General

All painting shall be done in dry weather. Paint shall not be applied in rain, fog, snow, or mist; or when the surfaces are wet, damp, frosted or ice coated; nor when the relative humidity exceeds 85%; nor when the surrounding air temperature or the surface to be painted is 50 degrees F. or below. In addition, painting shall not be started or continued when there is reasonable indication in the opinion of the engineer, that such temperature may reach 40 degrees F. Within three hours. Manufacturers recommendations shall prevail in all cases.

All paints shall be delivered in their original containers to the site prior to commencing any painting. Paints shall be thoroughly stirred by mechanical means before removal from the original containers and shall be kept stirred until used. There shall be no thinning or other modification of the paint except upon and in accordance with express written stipulation by an authorized representative of the paint manufacturer and

with the specific approval of the engineer.

Where successive coats of a paint are the same general color, that shall be tinted to different shades to facilitate inspection.

## 2. Preparation

All preparation for painting shall be done in the field following reaction. All sharp edges including those from scaffold lugs as well as weld seams shall be ground smooth. All metal surfaces shall be blast cleaned before priming.

A. All tank interior surfaces shall be sand blasted to a near-white metal finish in accordance with steel structures painting council specification SSPC-SP 10.

A near-white blast cleaned surface finish is defined as a surface with 95% gray-white, uniform metallic color, slightly roughened to form a suitable anchor pattern for coatings. The surface, when viewed with out magnification, shall be free of all oil, grease, dirt, visible mill scall, rust corrosion products, oxides, paint, or any other foreign matter. The cleaned surface shall be matched against the Swedish pictorial standards ASTM D2200

B. All tank exterior surfaces shall receive a commercial blast cleaning in accordance with steel structures painting council specification SSPS-SP 6.

A commercial blast cleaned surface finish is defined as one from which all oil, grease, dirt, rust scale, and foreign matter have been completely removed from the surface, and all rust, mill scale, and old paint have been completely removed except for slight shadows, streaks, or discolorations caused by rust stain, mill scale oxides or slight tight residues of paint or coating that may remain; if the surface is pitted, slight residues of rust or paint may be found in the bottom of pits at least two-thirds of each square inch of surface area shall be free of all visible residues and the remainder shall be limited to the light discoloration, slight standing or light residues mentioned above. The cleaned surface shall be matched against the Swedish pictorial standards ASTM D2200

All sand and dust from blasting operations shall be removed from surfaces before paint application is begun. Blasted surfaces shall be coated with one coat of primer during the same day that blasting was done. Primer shall not be applied closer than (6) inches to a non blasted area. Any subsequent blasting operation shall not result in sand particles embedded in the paint film.

## 3. Exterior painting system

A. In the shop, all exterior surfaces shall receive one coat of Tnemec 20-1255 DAI, applied to a rate to achieve a dry film thickness: 2.5 – 3.5 Mils

B. In the field, following erection, welding and necessary surface

preparation, all welds and any areas which have been cleaned down to bare metal shall be touched up with the same material and thickness as the shop coat.

C. For the finish, two coats of Tnemec 70/71/72 Series shall be used, as selected by the engineer. The dry mil thickness per coat shall be 1/5 -2.5 Mills. The total dry minimum film thickness for the exterior surfaces shall be 5.5 Mills.

Total dry film thickness of primer and finish after 5 days dry time shall be not less than 5.5 Mills as measured by an elcometer or mikrotest Gauge.

Finish shall be uniform in hiding and appearance and evidence first-class workmanship.

If there are any areas deficient in thickness or appearance, the contractor will be required to provide an additional coat of paint at no additional cost.

#### 4. Interior paint system.

A. In the shop, all interior surfaces shall receive one coat of Tnemec 20-1255 Dai applied at a rate to achieve a dry film thickness of 2.5 - 3.5 Mills.

B. In the field, following erection, welding and necessary surface preparation, all welds and any areas which have been cleaned down to bare metal shall be painted with the same primer used in the shop, applied at the same coverage, mil thickness as indicated above.

C. In the field, after the paint has dried on the weld seams and other touched-up areas. All interior surfaces shall receive one coat of Tnemec 20-1255 Applied at a fire rate to achieve a dry film thickness of 2.5 – 3.5 mils. A finish coat of Tnemec 20-2000 shall be applied at a rate to achieve a dry film thickness of 4.0 – 6.0 mils. The total dry film for the interior surfaces shall be a minimum of 9.0 mils.

After the finish coat has dried to the extent that it can be walked on without damage, the lining will be checked for pinholes with tinker and razor m-1 holiday detector or equivalent low voltage apparatus. All holidays will be repaired by application of additional coating. All personnel either be in sock feet or will wear clean soft soled shoes to prevent damage to the coating.

Total dry film thickness after 5 days drying time (at 70 degrees F) shall be not less than 9.0 mils as measured by a mikrotest gauge or elcometer.

#### 5. Paint application

All painting work shall be carried out using equipment and methods as recommended by the paint manufacturer.



#### 6. Inspection

The contractor shall furnish all facilities for the inspection of the paint work and shall include, in his bid, an allowance for field inspection trips of a qualified representative of the paint manufacturer to advise on paint application methods and to confirm dry film thickness. The contractor shall advise the engineer at least 24 hours in advance of each scheduled inspection.

#### 7. Safety precautions

All normal precautions must be taken in application of the coatings to the interior of the structure, including the use of adequate exhaust blowers, air masks, explosion proof lights and non-sparking tools. No smoking shall be allowed inside and in the vicinity of the tank.

#### 8. Cleanliness

All operations shall be conducted in a clean and sanitary manner.

#### 9. Disinfection

When the painting has been completed, the tank shall be filled with water to which sufficient chlorine has been added to provide a concentration of 50 PPM in the full tank. The tank shall then be held full for a period of 24 hours, then drained completely and refilled. After refilling, sampled of water shall be examined for bacterial content by an approved testing laboratory. The results of the test shall prove the quality of water in the tank. If the samples indicate contamination of the tank contents for use in a potable water system, the tank shall be again disinfected by the contractor until satisfactory results are obtained.

### § 430-22. Application and Permit Forms

#### § 430-22.1 Application Checklist

The application is located and attached in the appendix as Figure A

#### § 430-22.2 Application For Service Determination

The application is located and attached in the appendix as Figure B

#### § 430-22.3 Application for Preliminary for Preliminary Approval of Water System and Appurtenances

The application is located and attached in the appendix as Figure C

§ 430-22.3.1 Requisites

§ 430-22.3.2 Specific Requirements

§ 430-22.3.2.1 Engineer's Report

§ 430-22.3.2.2 Site Plan

§ 430-22.3.2.3 Construction Specifications

§ 430-22.3.2.4 Engineer's Cost Estimate

~~§ 430-22.3.2.5~~ Performance Guarantee

~~§ 430-22.3.2.6~~ Pinelands Commission Certificate of Filing

~~§ 430-22.4~~ Application for Final Approval of Water System and Appurtenances

The application is located and attached in the appendix as Figure E.

§ 430-23. Standard Details

Standard details are located and attached in the appendix Section 2.

Article VI  
Sewer Connection Rules

§ 430-24. General Information

§ 430-24.1 Purpose

These rules and regulations in connection with sewer connections (hereinafter "Connection Rules") of the Manchester Township Division of Utilities Division of Sewer, set for procedures and standards for applicants who desire are required to obtain initial sewer connections or who desire to change the use associated with existing sewer connections.

§ 430-24.2 Definitions

In these Connection Rules, abbreviations are noted at their first reference and define terms are indicated by an initial capital in each word. Both abbreviations and define terms are applicable to the singular or plural thereof and have the following meaning:

**Applicant.** means Land Owner or duly authorized agent thereof who desires or is required to obtained an initial sewer connection, or desires to change the use associated with the existing sewer connection.

**Connection Rules.** means these rules and regulations in connection with Sewer Connections.

**Construction Plans and Profiles.** means the drawings that show the character and scope of the construction to be performed, as submitted in conjunction with a municipal application and supplemented herein.

**Construction Specifications.** Means written technical descriptions of materials, equipment, construction systems, standards in workmanship as applied to the construction to be performed.

**DOU.** means Division of Utilities. The DOU shall be interpreted to include all personnel, contracted professionals and facilities pertain to the DOU.

**GPD.** means gallons per day.

**Lot.** means designated parcel, tract or area of land established by a plat or otherwise, as penalty law and to be used, developed, or built upon as a unit.

**Maintenance Guarantee.** means surety bonds or cash, or both, posted as security for the maintenance of any extensions to the Sewer System required under these Connection Rules, for Ownership by the Township of Manchester.

**NJDEPE.** means the New Jersey Department of Environmental Protection and Energy.

**OCUA.** means the Ocean County Utilities Authority-Township.

**Off-Trac-Facilities.** means extensions to the Sewer System including Sewer Service Laterals, outside the boundaries of the Applicant's land, in public streets, including public streets adjacent to the Applicant's land, or in land or easements dedicated or to be dedicated to the Township of Manchester.

**On-Tract Private Facilities.** means all sewer facilities inside the boundaries of the Applicant's land, excluding On-tract Public Facilities, but including Sewer Service Lines, individual Sewer Systems and plumbing systems that are usually

located on individual Lots.

**On-Tract Public Facilities.** means extensions to the Sewer System including Sewer Service Laterals, inside the boundaries of the Applicant's land, in land to be dedicated as public streets, or in land or easements to be dedicated to the Township of Manchester.

**Professional Engineer.** means an engineer holding a valid license to practice engineering in the State of New Jersey, issued by the New Jersey Board of Professional Engineers and Land Surveyors.

**Performance Guarantee.** means surety bonds or cash, or both, posted as security for the construction of any extensions to the Sewer System required under these Connection Rules, for Ownership by the Township of Manchester.

**Record Drawings.** (also "As-built Drawings"), means those construction plans and profiles, marked to show the character, and location by reference distance as the construction actually performed, including, but not limited to sewer mains and Sewer Service Laterals.

**Sewer System.** (also "Public Sewer System"); means all sewage pumping stations sewer mains, Sewer Service Laterals and other facilities owned by the Township of Manchester.

**Sewer Service Lateral.** means the sewer pipe owned and maintained by the Township of Manchester, that extends from a sewer main in the Sewer System to a Sewer Service Line.

**Sewer Service Line.** means the building sewer pipe owned and maintained by the Applicant that extends from a building or other structure to the end of the Sewer Service Lateral located at or near the property line.

**Site Plan.** means a development plan of one or more Lots.

**Subdivision.** means a division of a Lot, tract or parcel of land into two or more Lots, tracts, parcels or other subdivisions of land.

**Township.** means Township of Manchester.

**USEPA.** means the United States Environmental Protection Agency.

#### § 430-24.3 Mandatory Connection Ordinances

Township Ordinances 89-387 and 89-388 were adopted. On November 22, 1989, to provide and require mandatory water and sewer connections respectively, where water and sewer service were determined to be available from the Township of Manchester. In regard to sewer service, the inability to install a gravity sewer connection shall not preclude a determination of the DOU that Sewer Services are available from the Township. The National Standard Plumbing Code adopted by the State of New Jersey (NJAC 5.23-3.15) and administered by the Township's Subcode Official provides: "The water distribution and drainage system of any building in which plumbing fixtures installed shall be connected to a water supply system and/or Public Sewer System respectively if available. A Public Sewer System shall be deemed available to a premises used for human occupancy if such premises with such reasonable distance, as determined by the plumbing subcode official and a connection conforming with the standards set for in this National Standard Plumbing Code shall be made thereto." In addition, the DOU Engineer shall be contacted to verify compliance with DOU requirements.

#### § 430-24.4 Ocean County Utilities Authority

In accordance with the provisions of a service agreement dated November 16, 1972, between the Township and the Ocean County Utility Authority (hereinafter "OCUA") for the treatment of sewage, the DOU hereby adopts and shall enforce applicable Rules and Regulations of the OCUA and subsequent revisions thereof. A copy of the current Rules and Regulations of the OCUA is available for examination at the office of the DOU. The DOU shall not be liable for any claims by Applicants resulting from their failure to comply with the Rules and Regulations of the OCUA.

#### § 430-24.5 Detailed Application Requirements

All Applications shall be prepared and submitted in accordance with the general requirements set for this section and the specific requirements set forth elsewhere in this Connection-Rules-Chapter.

##### § 430-24.5.1 Forms

Applications shall be submitted on appropriate form available from the DOU.

##### § 430-24.5.2 Information

Applications shall include the name and legal address of the Applicant and/or the Applicant's agent, if applicable, with appropriate certification thereof the Block and Lot No. of the subject property, conforming with the Township tax map; and the Ownership of the subject property in addition, Applications shall include, but not be limited to, the information as specified for specific types of Applications the Connection-Rules.

##### § 430-24.5.3 Installation Specifications

Materials shall be in accordance with specifications as issued by DOU from time to time.

##### § 430-24.5.4 Signatures

Application shall be signed by the Applicant or duly authorized agent thereof. Application documents shall bear the signature and seal of a Professional Engineer unless otherwise provided for in this Connection Rules-Chapter.

##### § 430-24.5.5 Fees

Applications shall be accompanied by the appropriate Application filing fee, escrow fee, connection fee, and/or other fees in effect-at the time of the Application and as set forth for the specific types of Application in the Schedule of Fees, as duly adopted by the Township from time to time separately from this Connection-Rules-Chapter.

##### § 430-24.5.6 Completeness

Applications will be deemed complete by the DOU, in its sole



determination, when they meet the requirements set forth the Connection. The DOU reserves the right to require additional information and/or submittals as it determines necessary for a complete Application upon which to make its determination.

**§ 430-24.6 Indemnification**

The Township and the DOU assumes no risk or liability by receipt, review or endorsement of any Applications by issuing any permit related thereto.

**§ 430-24.7 Other Permits**

Applicants shall be responsible for obtaining all permits required by the Township County, State and other agencies that might be necessary to achieve sewer connections. The DOU and/or the Township shall not be liable for any damages resulting from failure of Applicant to obtain such permits.

**§ 430-25. Application and Permit Forms**

**§ 430-25.1 Classification of Applicants**

**§ 430-25.1.1 Applicability**

All applicants shall submit an application according to the classification as set forth below

**§ 430-25.1.2 Service Lateral**

Application for Service Lateral shall apply if Applicant's property meets all of the following single-family criteria: (a) that it is a designated Lot; (b) that it requires no subdivision and/or site plan approvals by the Township; (c) that its use is for one existing or proposed single-family dwelling; (d) that it is located where sewer service is available from the DOU Sewer Systems without the need for installation of Off-tract Facilities and/or In-tract Public Facilities other than Sewer Service Lateral; € that it would contribute less than an average of 2,000 gallons daily (hereinafter "GPD") of sewage flow, If applicable.

**§ 430-25.1.3 Service Determination**

Application for Service Determination shall apply in all instances where Applicant's property does not meet the criteria set forth in Section-2.2 §430-25.1.2 of these Connection Rules.

**§ 430-25.2 Application for Service Lateral**

**§ 430-25.2.1 Requisites**

The DOU shall determine if the plan submitted meets the single-family criteria-cited previously and request an Application for Service Lateral with appropriate fee In his instance, the DOU will provide documentation

that service is available in order that the applicant may obtain a building permit from the Township.

§ 430-25.2.2 Specific Requirements

There shall be no additional requirements other than the General Application Requirements of ~~Section 1-10~~ §430-24.5 of these Connection Rules. Submittals for single-family service shall not require signature by a Professional Engineer.

§ 430-25.2.3 Actions

Within three working days following receipt of a complete Application for Service Lateral, DOU will authorize the installation of the Sewer Service Lateral. DOU recommends that Applicants install Sewer Service Lines before installation of Sewer Service Laterals. DOU will coordinate its inspection of Sewer Service Laterals with the Plumbing Subcode Official's inspection of Sewer Service Lines.

§ 430-25.3 Application for Certificate of Compliance

§ 430-25.3.1 Requisites

Applicants shall have a valid inspection approval issued by the Plumbing Subcode Official and submit Application for Certification of Compliance with appropriate fee at least three working days before the date requested by Applicant for issuance by DOU of Certificate of Compliance as required for Applicant to obtain a Certificate of Occupancy from the Township.

§ 430-25.3.2 Specific Requirements

There shall be no specific requirements for submittals in addition to the General Application Requirements of ~~Section 1-10~~ §430-24.5 of the Connection Rules. The Application for Certification of Compliance shall not require signature by a Professional engineer.

§ 430-25.3.3 Actions

Within ten working days following receipt of a complete Application for Certification of Compliance, DOU will issue a Certificate of Compliance.

§ 430-25.4 Application for Service Determination

§ 430-25.4.1 Requisites

Application for Service Determination with appropriate fee should be submitted by all Applicants not classified for single-family service in accordance with Section 2 of these Connection Rules.

§ 430-25.4.2 Specific Requirements

There shall be no additional requirements other than the General Application Requirement of Section 430-24.5 of these Connection Rules. These submittals shall not require signature by a Professional Engineer.

§ 430-25.4.3 Actions

Within ten working days following receipt of a complete Application for Service Determination, the DOU, in its sole determination, will notify the Applicant regarding the DOU's separate determination for sewer service as: (a) Applicant must request a Pre-Application Conference; (b) Applicant may submit an Application for Preliminary Approval; or (c) service is not available. Notifications shall expire 90 calendar days following issuance and shall be subject to a new Application for Service Determination.

§ 430-25.5 Pre-Application Conference

§ 430-25.5.1 Requisites

Request for Pre-application Conference with appropriate fee should be made by Applicants when required by the DOU in response to an Application for Service Determination.

§ 430-25.5.2 Specific Requirements

Requests shall comply with the General Application Requirements of Section 430-24.5 of these Connection Rules. The request shall not require signature by a Professional Engineer.

§ 430-25.5.3 Actions

The DOU will schedule a pre-application conference to review Applicant's proposed project and to advise whether a service agreement would be necessary to provide for: reservation of capacity in the Sewer System; Installation of Off-tract Facilities and/or On-tract Public Facilities; and related items. The DOU also will advise whether beyond Applicant's reasonable needs any extra capacity, connection laterals, lines, taps, appurtenances, or other items would be required in accordance with Township's master plans, or amendments thereto, and will advise regarding reimbursement for the reasonable additional cost thereof.

§ 430-25.6 Application for Preliminary Approval

§ 430-25.6.1 Requisites

Applicants shall have a valid Service Agreement or a notification from the DOU allowing Applicant to proceed to submit an Application for Preliminary Approval with appropriate fee.

§ 430-25.6.2 Specific Requirements

In addition to the General Application Requirements of Section 1-10 §430-24.5 of these Connection Rules, submittals shall be required as specified below.

§ 430-25.6.2.1 Engineer's Report

Engineers Report shall include the following information:  
(a) description of area to be served, population or equivalent thereof; number of proposed and projected ultimate connections, and anticipated schedule of connection;  
(b) projected sewage flows, including estimates of infiltration/inflow, and basis thereof; and description of anticipated sewage characteristics if different from domestic sewage; and  
(c) description and basis for design of proposed facilities. The Engineering Report shall be signed and sealed by a Professional Engineer.

§ 430-25.6.2.2 Site Plan

The Site Plan shall conform to the requirements for Preliminary Site Plan or Subdivision as defined in the Manchester Township Land Use Ordinance, and shall further show, but not be limited to, all details and specific information relating to off-tract and onsite public facilities. The applicant shall submit four (4) copies of the Site Plan with the Preliminary Application.

§ 430-25.6.2.3 Construction Specifications

Construction Specifications shall be in accordance with Section 1-10-3 §430-24.5.3 of these Rules.

§ 430-25.6.2.4 Engineer's Cost Estimate

Engineer's Cost Estimates shall be prepared separately for Off-tract Facilities and On-tract Public Facilities. Each estimate shall be based on items and quantities that are identified on the Site Plan or Subdivision Plan and in the Construction Specifications. Unit prices shall include contractor overhead and profit and shall be based on prevailing prices in the general areas as would be anticipated under public bidding at or about the time of submission of the Application for Preliminary Approval. Unit prices shall not be less than the minimums issued from time to time by the DOU in its cost estimating schedule. These unit prices shall be tabulated as 100 percent prices and, in addition, shall be adjusted and tabulated at 120 percent for bonding purposes. The Engineer's Cost Estimate shall be signed by a Professional Engineer.

§ 430-25.6.3 Actions

Within 60 working days following receipt of a complete Application for

Preliminary Approval, the DOU, in its sole determination, will notify the Applicant regarding determinations, and any special conditions, regarding preliminary approval for sewer service. After examining the entire project, the DOU may grant Preliminary Approval for phases of the project consistent with approvals granted by the Township. Preliminary Approval will be valid for a period of one year from the date of issuance and may be extended for one (1) additional year provided the applicant has complied with any requirements of the DOU.

#### § 430-25.7 Applications for Final Approval

##### § 430-25.7.1 Requisites

Applicants shall have a valid Preliminary Approval. All permits issued by NJDEPE and other agencies that are necessary to initiate conditions of final approval.

##### § 430-25.7.2 Specific Requirements

In addition to the General Application Requirements of ~~Section 4.10~~ §430-24.5 of these Connection Rules, submittals shall be required as specified below.

##### § 430-25.7.2.1 Engineer's Report

Engineer's Report shall comply with requirements of ~~Section 7.2.1~~ §430-25.6.2.1 of these Connection Rules and shall be revised and updated as necessary to comply with requirements of preliminary approval. Engineer's Report shall be signed by a Professional Engineer.

##### § 430-25.7.2.2 Site Plan

Site Plan shall comply with requirements of ~~Section 7.2.2~~ §430-25.6.2.2 of these Connection Rules and shall be revised and updated as necessary to comply with requirements of preliminary approval. Upon notification of final approval, Applicant shall deliver at least five (5) copies of the final Plans which will be identified and marked by the DOU as approved for construction. Three (3) approved copies will be retained by the DOU and the remaining approved copies will be returned to the Applicant. Applicant must have an approved copy available at the project site during construction.

##### § 430-25.7.2.3 Construction Specifications

Construction Specifications shall comply with requirements of ~~Section 7.2.3~~ §430-25.6.2.3 of these Connection Rules.

##### § 430-25.7.2.4 Engineer's Cost Estimate

Engineer's Cost Estimate shall comply with requirements of



~~Section 7-2.4-~~§430-25.6.2.4 of these Connection Rules and shall be revised and updated as necessary to comply with requirements of preliminary approval. Unit prices at 100 and 120 percent shall be projected to the anticipated date of construction which shall be indicated. Upon notification of final approval, the DOU reserves the right to update biennially the Engineer's Cost Estimate for use in conjunction with the amount of Performance Guarantee. Engineer's Cost Estimate shall be signed by a Professional Engineer.

§ 430-25.7.2.5 Performance Guarantee

Performance Guarantee shall be submitted as guarantee of installation of Off-tract Facilities and/or On-tract Public Facilities in accordance with approved Plans and Construction Specifications. Separate Performance Guarantees. Might be required by the DOU in its sole determination, for Off-tract Facilities and for On-tract Public Facilities. Upon release by DOU of the Performance Guarantee, the Applicant shall post a Two-Year Maintenance Bond in the amount often percent (10%) of the total amount of the Performance Guarantee.

§ 430-25.7.3 Actions

Within 30, calendar days following receipt of a complete Application for Final Approval. DOU in its sole determination, will notify the Applicant of the DOU determinations regarding final approval. In instances where no NJDEPE action is required. Final Approval will expire 2 years from the date of issuance unless construction is initiated. Once construction has begun, the permit will expire in accordance with the approved Soil Erosion Permit in effect at the time. And will be subject to renewal at the sole determination of the DOU; or in instances where NJDEPE action is required. Final Approval will expire in accordance with the terms of the applicable NJDEPE permit. In addition, all permits required shall have been granted and all appropriate fees shall have been paid prior to the DOU granting final approval to the applicant.

§ 430-25.8 Application for Operating Permit

§ 430-25.8.1 Requisites

Applicants shall have evidence submitted by the DOU Engineer that construction has been completed and tested in conformance with approved Plans and approved Construction Specifications.

§ 430-25.8.2 Specific Requirements

In addition to the General Application Requirements of Section 4-40 §430-24.5 of these Connection Rules, the Applicant shall submit record as-built plans and profiles of the sewer system and related items.

§ 430-25.8.3

Actions

Within 15 calendar days following receipt of a complete Application for Operating Permit, the DOU, in its sole determination, will notify the Applicant of its determination to issue an Operating Permit, subject to any outstanding requirements of the Township of Manchester with respect to any approvals or bonding requirements necessary to finalize the entire project.

As-builts shall be sized 24" by 32" and provided as AutoCAD, GIS Shape, and paper files. As-builts are to include the following information;

- a. The term 'As-Built' in the title block of each sheet.
- b. Include on each drawing the certification, signature, and seal of the Surveyor who prepared the drawing that the information is correct
- c. Include on each drawing the certification, signature, and seal of the Engineer that the construction of the water and sewer systems, including field revisions, conforms to the requirements of the original design, the Rules and Regulations of the Township Department of Utilities, all permits and approvals issued for the project and all other codes, rules, regulations and ordinances governing the work.
- d. Indicate street names and building addresses.
- e. Indicate block and lot numbers for all properties within and adjacent to the project.
- f. On each sheet of the as-built drawings, indicate a north arrow referenced to the New Jersey State Plane Coordinate System
- g. Indicate all easements granted in conjunction with the project. For each easement indicated the instrument, book and page numbers and the date of recording of the easement by the Ocean County Clerk.
- h. All vertical elevations shall be in North American Vertical Datum 1988 (NAVD 88)
- i. Indicate a permanent benchmark within the project limits and the reference datum.
- j. On each sheet of the as-built drawings, indicate four (4) horizontal control points with x-y coordinates in the New Jersey State Plane Coordinate System. Coordinates shall be expressed in feet with an accuracy of 0.01 feet.
- k. Where profiles are included on the same drawing as the plan view, the profiles shall reflect the as-built conditions.
- l. Indicate the locations and extent of concrete encasements, concrete cradles, and steel pipe casings.

m. At each crossing of water and sewer main and at crossings of water or sewer mains and storm drainage pipes, include a profile indicating the relative locations of the pipes and the vertical clearance between them.

n. Provide one (1) set of black line prints on clear mylar film, four (4) sets of black line prints on white paper and two (2) compact discs containing the AutoCAD electronic drawing file of the as-built drawings approved by the Department.

o. Indicate all manholes for both the on-site and off-site sewers. Number all manholes. Include beneath each manhole number the elevations of the manhole rims and inverts.

p. Indicate along each sewer main the length, nominal diameter, pipe material, and slope of the sewer main.

q. Indicate all building laterals from the sewer mains to the clean outs. Indicate the location of the lateral connections to the mains by stationing them from the downstream manhole of each pipe section. Indicate the location of each deep house connection and the height of the vertical stack from the invert of the sewer main to the invert of the tee at the top of the stack. Indicate the materials utilized in the construction of each deep house connection.

r. As-Built drawings for pump stations shall consist of a complete set of construction plans revised to reflect the as-built elevations of the wet well and the inlet and discharge pipes, the locations of all underground piping.

Each subdivision plan must contain the following approval block on the original reproducible:

WATER SYSTEM FACILITIES  
APPROVED BY THE MANCHESTER TOWNSHIP  
DIVISION OF UTILITIES

\_\_\_\_\_  
Township Water and Sewer Engineer

\_\_\_\_\_  
Date

**§ 430-26.** Schedule of Fees in conjunction with Sewer Connections

**§ 430-26.1** Application Filing Fees.

- a. Fees for filing applications are hereby established as follows:

Application	Filing Fee
-------------	------------

Service Lateral	\$ 50.00-\$100
Service Determination	\$ 100.00
Preliminary Approval	\$ 100.00
Final Approval	\$ 100.00

b. Applicable filing fees are due and payable at the time applications are submitted. Applications shall be deemed to be incomplete and will not be accepted without payment of application filing fees.

c. Application Filing Fees are

#### § 430-26.2 Review Fees

a. The DOU Engineer will be authorized to conduct reviews only if the Applicant has on deposit with the DOU and the amount sufficient to cover the reasonably anticipated review fee for contemplated work. In no case shall the account balance be less than ten percent (10%) of the initial deposit. Fees for reviewing applications shall be paid by the DOU at the same rate as all other work of the same nature performed by the DOU Engineer and shall be based on vouchers from the DOU Engineer stating the hours spent, the hourly rate, and the expenses incurred. Upon request, DOU will provide an accounting to the Applicant regarding such payments and account balances.

Application	Initial Deposit
Preliminary Approval	Five (5) percent of DOU Engineer's estimate of construction cost
Final Approval	Three (3) percent of DOU Engineer's estimate of construction cost

b. Solely for establishing the sufficiency of the initial deposit to be made by the Applicant, the anticipated review fees for contemplated work are hereby established as follows;

c. Whenever the initial deposit exceeds ten thousand dollars (\$10,000), the Applicant may elect to make deposits in installments. Additional installments are due whenever the account balance falls below ten percent (10%) of the initial deposit.

d. Whenever the initial deposit exceeds five thousand dollars (\$5,000), the money shall remain the property of the Applicant and be held by DOU in escrow for the Applicant.

#### § 430-26.3 Inspection Fees

a. The DOU Engineer will be authorized to conduct inspections of construction only if the Applicant has on deposit with the DOU, an amount sufficient to cover the reasonably anticipated inspection fee for contemplated work. In no case shall the account balance be less than ten percent (10%) of the initial deposit. Fees for inspections shall be paid by the DOU at the same rate as all other work

of the same nature by the DOU Engineer, and shall be based on vouchers from the DOU Engineer stating the hours spent, the hourly rate, and the expenses incurred. Upon request, DOU will provide an accounting to the Applicant regarding such payments and account balances.

b. Solely for determining the sufficiency of the initial deposit to be made by the Applicant, the reasonably anticipated inspection fees for initially contemplated work hereby are established at seven (7) percent of DOU Engineer's estimate of the required Performance Guarantee.

c. Whenever the initial deposit otherwise would exceed ten thousand dollars (\$10,000), the Applicant may elect to make deposits in installments. Additional installments are due whenever the account balance falls below ten percent (10%) of the initial deposit.

d. Whenever the initial deposit exceeds five thousand dollars (\$5,000), the money shall remain the property of the Applicant and be held by DOU in escrow for the Applicant.

**§ 430-27. Technical Specifications for Sewer System Construction**

**§ 430-27.1 General Provisions**

1. All work shall be performed in strict accordance with the Township's Rules and Regulations in conjunction with Sewer Connections including, but not specifically limited to, Specifications and Standard Details. In the event of a conflict between any provisions of the Township's Rules and Regulations and the Project Drawings and Specifications, the more restrictive or higher standard shall govern for that provision.

2. The Contractor shall submit for approval initially by the Design Engineer and then by the Manchester Township Division of Utilities (MTDOU) shop drawings and manufacturer's product data for all materials and equipment to be incorporated into the project. Shop drawings and manufacturer's product data submitted to MTDOU shall bear the prior approval of the Design Engineer. The Contractor shall submit sufficient copies to the Design Engineer to provide to MTDOU six (6) copies bearing the Design Engineer's approval. MTDOU will return to the Contractor two (2) copies of each submittal marked to indicate the disposition of MTDOU's review. The Contractor shall submit new or revised shop drawings and manufacturer's product data for all items marked by the Design Engineer or MTDOU to require revision and resubmission until both the Design Engineer and MTDOU approve all items.

**§ 430-28. Technical Specifications – Sanitary Sewer and Force Main**

**§ 430-28.1 Excavation**

Excavation shall be of sufficient width to permit work to be done safely and competently. In no cases shall excavation be carried out below grade and backfill. Be used to bring foundations to the grade of bottom slabs, footings, or pipelines.



In all excavations for pipe, boulders, rock masonry, or other similar materials shall be excavated to a level at least six inches below the invert of the pipe, and carefully refilled with clean ¾" broken stone. Rock of Boulders shall be removed from sides of trenches to a plane 12 inches outside the inside wall of the pipe, unless written permission to do otherwise is expressly given by the DOU Engineer.

The trench width just above the top of the pipe shall be maintained as narrow as possible and shall not exceed that shown on the standard details.

#### § 430-28.2 Unauthorized Excavation

If any excavation is caused by the Contractor's error, or wherever the excavation is carried beyond or below the lines and grades, the Contractor shall, at his own expense, refill all such excavated space with such material and in such manner as may be directed in order to insure the stability of the various structures. Space excavated beneath all structures without Authority-Township shall be filled with ¾" broken stone by the Contractor at his own expense.

#### § 430-28.3 Sheeting and Bracing

Where necessary, particularly to prevent disturbance, damage or settlement of adjacent structures, pipelines, utilities, improvements or paving, excavation shall be adequately sheeted and braced. Sheeting and bracing of all excavation shall comply with the latest requirements of OSHA Governing Safety of Workers in the Construction Industry.

Any damage to new or existing structures occurring through settlement, water or earth pressure, or other causes due to inadequate bracing, or through negligence or fault of the Contractor in any other manner, shall be repaired by the Contractor at his own expense.

#### § 430-28.4 Draining and Dewatering

The Contractor shall control grading in a manner to prevent water running into excavations. Obstruction of surface drainage will not be permitted, and means shall be provided whereby stormwater can flow uninterruptedly in existing gutters, other surface drains or temporary drains. Material for backfill or for protection of excavation in public roads from surface drainage shall be neatly placed and kept shaped so as to cause the least possible interference with public travel. Free access must be provided to all fire hydrants, water gate valves, meters; and private drives.

Dewatering shall be accomplished by methods which shall insure that the groundwater will be drawn down to an elevation two (2) below the bottom of the bedding. Upon removal of well points, deep wells or other dewatering equipment, the contractor shall backfill, compact and pave (in road) all holes. Well point and deep well holes shall be compacted for the full depth to a density equal to in situ soils.

Dewatering for the structures and pipelines shall commence when groundwater is first encountered and shall be continued until such time as the backfill

operation has been completed. The engineer may direct the Contractor to continue dewatering operations for an additional two (2) days after backfilling has been completed. No concrete footings or floors shall be laid in water nor shall water be allowed to rise over them until the concrete or mortar has set at least eight (8) hours. Water shall not be allowed to rise unequally against walls for a period of 28 days. Groundwater shall not be allowed to rise around the pipe until the trench is backfilled.

#### § 430-28.5 Topsoil

In unpaved areas all topsoil shall be carefully removed from the site of the work over the entire width of the Contractor's operations, including areas used for stockpiling excavated material and over which equipment will be driven. Topsoil shall be stored separately and replaced in the final grading and embankments to the designated -lines and grades.

"Suitable Backfill" shall be used where the material previously excavated is not deemed suitable for backfill by the DOU Engineer, and shall be used within the limits indicated on the drawings "Suitable Backfill" shall be either previously excavated excess material which has been stockpiled and is free from refuse, broken road pavement, moist stiff clay, organic material or other materials considered deleterious by the DOU Engineer or bank-run sand. "Suitable Backfill" shall not have fines in excess of ten percent passing a 200 sieve or have coarse gravels larger than 1 ½"

#### § 430-28.6 Trench Widths

Trench widths for gravity sewers and stubs shall be as follows:

Polyvinyl Chloride Pipe/Ductile Iron Pipe

Stable Bedding – Outside diameter of pipe plus two feet

Unstable Trench – Five times the pipe inside diameter centered over the pipe.

#### § 430-28.7 Unauthorized Excavation

##### § 430-28.7.1 Depth

Where the Contractor, inadvertently over excavate below the pipe bedding or structure crushed stone foundation course, he shall be required, in order to reestablish adequate soil bearing capacity, to conform to the following requirements.

##### § 430-28.7.1.1 Polyvinyl Chloride Pipe

Overdepth excavation from 4" to 12" below the bottom of the pipe shall be rectified by backfilling with "Suitable Backfill" to a minimum 90% standard proctor density. For any area inadvertently overexcavated beyond 12" below the bottom of the pipe, the Contractor shall place crushed stone (choked). The crushed stone shall be placed from the bottom of the

overexcavation to the top of the pipe.

§ 430-28.7.1.2 Ductile Iron Pipe

Overdepth excavation shall be rectified by backfilling with Number 57 coarse aggregate, compacted to provide a firm and unyielding subgrade.

§ 430-28.7.1.3 Structures

Overdepth excavation below the 12" stone (choked foundation course for the structure shall be rectified with additional crushed stone (choked). The crushed stone (choked) shall be placed from the bottom of the overexcavation to the bottom of the structure.

§ 430-28.7.2 Width

Where the contractor inadvertently overexaggerates to a greater width than the pipe trench width limits (within the bedding area) he shall be required to conform to the following requirements.

§ 430-28.7.2.1 Polyvinyl Chloride Pipe

For the Stable Bedding Foundation (O.D. +2')  
The Contractor shall be required to excavate the trench to a minimum width of six pipe inside diameters centered over the pipe. "Suitable Backfill" shall then be placed and compacted in courses as described under the section for bedding to the new trench width.

For Unstable Trench (Five Pipe Inside Diameters)  
The Contractor shall provide additional crushed stone and "Suitable Backfill" to the overexcavated trench walls.

§ 430-28.7.2.2 Ductile Iron Pipe

The Contractor shall provide a higher class of bedding and replace the overexcavated material above the bedding with suitable backfill.

§ 430-28.7.2.3 Structures

The contractor shall provide additional "Suitable Backfill" to the trench walls and compact to a minimum of 90% standard proctor density.

§ 430-28.8 Buried Utilities and Structures

The Contractor shall accurately locate all utilities, structures and appurtenances in the field. The Contractor shall also make all arrangements and liaisons with the utility companies concerned to mark their lines, structures and appurtenances by

coded symbols on the pavement or marked stakes. All of the above shall be done well in advance of any construction.

#### § 430-28.9 Excavation and Protection of Property

Excavations shall be shored, braced, supported, or sheeted as conditions may warrant. The Contractor shall support and protect all existing property, pavement, sidewalk, curb, pipes, poles and structures of any kind that lie outside of the Trench limits. The Contractor shall also support and protect all utilities, house laterals and drains that cross the trench. If the Contractor elects to remove, replace or relocate any of the pole, utilities or structures, he shall be responsible to make all arrangements and obtain all necessary permits and approvals from the Owners of the facility involved. The Contractor shall be responsible to restore any damaged or displaced property to the pre-existing condition, all with the full knowledge and approval of the Owners of the property. This applies equally to all above and below ground properties, utilities, structures and appurtenances involved.

The Contractor shall backfill the trench in 12 inch layers to the same lift level as the bottom of any partially or totally exposed utility line that is within or adjacent to the trenching operations. Thereupon, the Contractor shall compact the material beneath and around the utility to achieve a bedding condition at least equivalent to the in-situ condition. The utility must be properly supported during the entire trenching operations, backfilling, and utility bedding operation.

#### § 430-28.10 Backfill in Trench

The strict requirements of this section to backfill in 12" layers to the original surface of the ground are intended to apply to existing public roads. In new developments, backfill shall be placed in strict conformance with the bedding requirements but above the bedding area, backfilling and tamping is a matter between the Owner and Contractor, however, the DOU will not accept the sanitary system where settlement has occurred over sewer trenches or around manholes until properly repaired.

As soon as practicable after the pipe has been bedded; the backfilling shall begin and shall continue without delay.

Backfilling shall proceed as promptly as is consistent with non-injury to the pipe or structures. Where the trench is in a paved area or an area to be paved or in an unpaved vehicular or pedestrian traveled way, or the shoulder of a paved roadway, backfill shall be placed and compacted in 12" lifts. The final 24 inches of trench backfill shall be compacted; to a minimum 95% standard proctor density as specified in Section 40-17§430-21.6.13

Care shall be taken in the use of mechanical tampers not to injure or move the pipe or to cause the pipe to be supported unevenly.

Large masses of backfill material shall not be dropped into the trench in such a manner as to endanger the pipe.

Frozen material shall not be placed in backfill, nor shall backfill be placed upon

frozen material. Previously frozen material shall be removed before backfill is placed.

No compacting shall be done when the material is too wet to be compacted properly, at such times the work shall be suspended until the previously placed and new materials have dried out sufficiently to permit proper compaction, or such other precautions shall be taken as may be necessary to obtain proper compaction.

#### § 430-28.11 Disposal of Material

This paragraph is intended to apply to existing public roads. In new developments, disposal of excess material shall be done so by the Contractor pursuant to the approved site plan.

Material excavated shall be disposed of in building embankments, making fills, and grading around the work as may be directed, and to the lines and grades established by the approved site plan.

Excess material shall be directly loaded on the trucks and disposed of by the contractor in approved locations outside of the working area.

In streets or adjacent to private property, material shall be stored at such locations as will not unduly interfere with traffic of any nature and in no case shall material be stored in locations which will cause damage to existing improvements.

#### § 430-28.12 Temporary Bridges and Crossings

The contractor shall, where required to expedite the work, or where required to maintain traffic, or where otherwise ordered by the DOU Engineer, construct temporary bridges, or walkways, of adequately sized members to safely carry the loads which may reasonably be anticipated.

#### § 430-28.13 Work in Lawn Areas

Where the work is in easements located within privately owned lawn areas, rear yards, etc., the Contractor shall make every effort to minimize disturbance to the area. All trees shall be boxed or otherwise protected. Excavated material shall be stored on tarpaulins or other means used to prevent it from being spread on the ground. Backfill shall be completed on the same day. Only under unusual circumstances shall a trench be allowed to remain open overnight. Top soil shall be removed and stored separately, and upon completion of backfill shall be evenly spread over the disturbed area. If settlement occurs, the Contractor shall bring in additional topsoil to bring the trench up to grade.

All disturbed lawn, tree, shrubs, bushes, planting, fences, walls, driveways, walkways, etc., shall be restored to the satisfaction of the Owner. Claims made by affected owners shall be withheld from payments due the Contractor until such claims are settled. It is suggested the Contractor take "Before and After" photographs of all such areas.



§ 430-28.14 Bedding

§ 430-28.14.1 Reference Specifications

ASTM D 698 – Test for Moisture-Density Relations of Soils, using 5.5 lb. rammer and 12-inch drop.

ASTM 2321 – Recommended Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe.

§ 430-28.14.2 Materials

Bedding materials shall be broken stone, free from silt, clay and organic materials and shall conform to the requirements of the New Jersey State Department of Transportation Standards for Number 27 Coarse Aggregate.

§ 430-28.14.3 Concrete Cradle

Where existing storm or-gravity sewer pipe cross over and within six (6) inches of the gravity sewer pipe, the Contractor shall when directed by the DOU Engineer, support the existing pipe on a 3000 psi concrete cradle extending from the springline of the gravity sewer pipe to the springline of the existing pipe. The cradle shall have a length equal to the outside diameter of the existing pipe plus two (2) feet and a width equal to the outside diameter of the gravity sewer pipe plus one (1) foot, centered on the respective pipes. All concrete work shall conform to the requirements of Section 10.21 §430-28.18 Cast-in-Place Concrete

§ 430-28.15 Pipe Materials

§ 430-28.15.1 Scope of Work

Pipe material shall include all types of pipe necessary for construction as indicated and as specified.

§ 430-28.15.2 Reference Specification

ASTM D 3034 – Standard for Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings.

ASTM D 1784 – Standard Specification for rigid Polyvinyl Chloride (PVC) compounds and Chlorinated Polyvinyl Chloride (CPVC) Plastic Pipe (SDR-PR)

§ 430-28.15.3 PVC Sewer Pipe

All PVC pipe, shall meet the requirements of ASTM D 3034 (SDR-35). In addition to straight pipe, the Contractor shall furnish all fittings, test plugs, adapters, elbows, tees, wye-tees, wyes, caps and plugs of the same material as the pipe required to complete the work. Each pipe and fitting shall be clearly marked on the outside surface with the trade name, pipe size, and class designation. Stubs shall be furnished in nominal

lengths of five feet. Gravity Sanitary Sewer Main shall be manufactured as Diamond Plastic Sani-21 or approved equal.

§ 430-28.15.4 PVC Service Lateral

All PVC service lateral pipes and fittings shall conform to the requirements of the section of PVC pipe. All PVC service lateral pipe shall be a minimum for four inch diameter.

Clean outs shall be 4in diameter PVC pipe with SDR 35 or approved equal. Clean out caps shall be manufactured as B&T Cleanout Cover #8250

Where deep house connections are required, as per standard details, deep service connections shall be manufactured as Atlantic Concrete Deep House Structure, or approved equal.

§ 430-28.15.5 Ductile-Iron Pipe

Ductile-iron pipe shall be manufactured in accordance with ANSI A21.51 and shall be thickness Class 52 except where otherwise specified. Mechanical joint or push-on type joints shall conform to ANSI A21.11. Ductile-iron pipe and fittings shall be cement mortar lined in accordance with ANSI 21.4.

All joints shall be push-on type except at changes in direction. Where changes in direction occur, joints shall be super-lock as manufactured by Clow Corporation, Bensenville, Illinois, Lok-Type as manufactured by US Pipe and Foundry Co. Birmingham, Alabama, Lok-Fast as manufactured by American Cast Iron Pipe Co., Birmingham, Alabama or equal. Restrained length shall be as indicated on the detail drawings.

The pipe shall be furnished with the necessary rubber gaskets.

Pipe shall be lined in accordance with ANSI A21.4 and the section on pipe linings and coatings.

§ 430-28.15.6 Flexible Couplings

The flexible couplings to polyvinyl chloride pipe to existing pipe at special manholes shall be steel transition couplings. Transition couplings between different pipes shall be ~~Style 162 as manufactured by Dresser Industries, Style 443 as manufactured by Smith-Blair or equal Hymax,~~ or approved equal. Bolts and nuts shall be high strength stainless steel.

§ 430-28.15.7 Steel Casing Pipe

Steel casing pipe shall be manufactured in accordance with ASTM A 139 or A 252. Casing pipe shall have a diameter at least eight inches larger than the greatest diameter of the carrier pipe, joint or coupling. The thickness of the casing pipe shall be as indicated on the detail drawings.

§ 430-28.15.8 Bulkheads

Where required, the Contractor shall install watertight bulkheads. Bulkhead to be installed shall include a 4 inch C.I. flanged nipple and a 4 inch gate valve with invert matching that of the pipe, suitable for dewatering the pipe.

§ 430-28.15.9 Fittings and Specials

Beveled pipes, bends and tees, and other special pipes shall conform to the specifications for straight pipe. Where special design or construction is necessary for such pipe, the design and construction shall be subject to the approval of the DOU engineer.

When the radius of the line is less than the minimum specified by the manufacturer for laying straight lengths of pipe, bends of the proper deflection shall be used. Sanitary Sewer Fittings shall be manufactured as SDR-35 by Harco or approved equal

§ 430-28.16 Pipe Linings and Coatings

§ 430-28.16.1 Reference Specifications

ASTM A21.4 – Cement mortar lining for cast-iron pipe and fittings for water.

ASTM A21.5 – Polyethylene encasement for gray and ductile cast-iron piping for water and other liquids.

§ 430-28.16.2 Ductile-Iron Pipe

All ductile-iron pipe and fittings shall be cement lined inside in conformance to ANSI A21.4. The lining shall be double thickness (1/8 inch) to the ends of the pipe and shall be provided with a bituminous seal coat. Pipe shall receive a standard bituminous foundry dip on the outside and inside. The weight and class shall be conspicuously indicated by the manufacturer on the outside of the pipe. Ductile iron pipe installed in corrosive soils shall be wrapped with polyethylene in accordance with ANSI A21.5.

§ 430-28.17 Pipe Tests and Inspection

§ 430-28.17.1 Control Test

The DOU Engineer shall observe all control tests and must receive a minimum of a 48 hour notification before any tests are performed.

The DOU Engineer may sample and test any pipe after delivery and to reject all pipe represented by any sample which fails to comply with the specified requirements.

The DOU Engineer shall check any pipe for pits, blisters, rough spots, breakage or other imperfections. Any pipe which has been rejected

because of the above shall be conspicuously identified and immediately removed from the construction site.

§ 430-28.17.2 Visual Inspection

Each section of the installed sewer will be visually inspected by the DOU Engineer prior to testing.

The contractor shall provide all facilities the DOU Engineer will need to inspect the construction.

The pipe shall be true to both line and grade, shall contain no broken pipe, shall show no leaks, shall show neither obstructions nor the projection of connecting pipes into the main pipe, and shall contain no debris or other deposits which will in any way reduce the full cross-section area of the pipe.

Any section of sewer pipe which does not comply with these inspection criteria, shall be promptly corrected and replaced or repaired by the Contractor. Such methods as are employed for the correction shall be reviewed by the DOU engineer.

Upon completion of the correction of any and all defects uncovered in the inspection, the Contractor may proceed with the necessary infiltration and exfiltration testing of the gravity sewer portions of the contract.

§ 430-28.17.3 Infiltration and Exfiltration Tests for Gravity Sewers

Prior to testing for watertightness, the Contractor shall remove all debris from manholes and shall thoroughly flush sewers in such a manner as to permit no sand, sediment, stones, or other foreign materials from entering completed sections of the pipeline. All sewers, fittings and manholes shall be tested and shall satisfactorily meet the "test"-requirements prior to final acceptance of the work. The Contractor shall furnish all labor, weirs, pumps, valves, gauges, testing materials and equipment and shall perform the tests to the satisfaction of the DOU Engineer.

The rate of infiltration/exfiltration shall not exceed 100 gallons per inch of inside diameter per mile of pipe per 24 hours. Repairs to pipe shall be made in kind. Chemical grouting or repair clamps will not be permitted. If leakage exceeds the specified amount, the Contractor shall make the necessary repairs or replacements required to permanently reduce the leakage to within the specified limit, and the test shall be repeated until the infiltration conforms to the requirements specified herein.

§ 430-28.17.4 Procedure

Where low pressure air testing of sewer lines is allowed by the DOU, the following procedure shall be followed. The test shall be observed by the DOU Engineer.

a. Clean the pipe to be tested by a method approved by the DOU Engineer.

b. Plug all pipe outlets with suitable test plugs. Brace each plug securely.

c. If the pipe to be tested is below the groundwater level, determine the difference between the groundwater level and the pipe to be tested by a method approved by the DOU Engineer. All gauge pressure (psig) in the test shall be increased by an amount equal to the back pressure of the water over the pipe, (i.e., 0.036 times the difference in elevations in inches.)

d. Add air slowly to the plugged pipe to be tested until the internal pressure is raised to 4.0 psi above the groundwater pressure.

e. Check exposed pipes and plugs for abnormal leakage and make any necessary repairs. Do not loosen the plugs until the internal pressure has been relieved.

f. After an internal pressure of 4.0 psig is obtained, allow at least two minutes for air temperature to stabilize, adding only the amount of air required to maintain pressure.

g. After the two-minute period, completely disconnect the air supply from the pipe to be tested.

h. When the pressure decreased to 3.5 psig start stop-watch, determine the time in seconds that is required for the pressure to reach 2.5 psig. This time interval must be greater than the allowable time computed for the pipe section being tested.

i. Minimum allowable times shall be computed according to the formula:

If  $C = 0.0003882 (D_p L_p + D_L L_L)$  is less than 1.0

$T_a = K$  in which  $K = 0.011 (D_p^2 L_p + D_L^2 L_L)$

If  $C = 0.0003882 (D_p L_p + D_L L_L)$  is greater than 1.0

$T_a = 28.35 (D_p^2 L_p + D_L^2 L_L) / (D_p L_p + D_L L_L)$

Where

$D_p$  = Diameter of pipe section being tested in inches

$L_p$  = Length of pipe section being tested in feet

$D_L$  = Diameter of laterals in the section being tested in inches

$L_L$  = Total length of laterals in the section being tested in feet.

$T_a$  = Minimum allowable time in seconds.

At the DOU Engineer's option, the laterals may be deleted from the above calculation and the section tested considering only the time pressure drop for the pipe section.

j. Sample results of the above equation are:



Pipe Lengths						
Pipe Lengths	100'	200'	300'	400'	500'	600'
4"	20	40	44	70	90	115
6"	40	80	120	160	175	170
8"	70	140	215	230	230	230
10"	110	220	290	290	290	290
12"	160	320	340	340	340	340

k. The pipe shall be considered acceptable if there are no obstructions in the pipe, if the pipe is at the required line and grade, and if the time for the internal pressure drop from 3.5 psig above back pressure to 2.5 psig above back pressure is equal to or greater than the calculated number of seconds. If the observed interval is less than the required interval, the leaks shall be located, repaired according to the above test procedure.

l. The contract shall furnish all equipment, plugs, compressor, hoses, valves, gauges, etc. Gauges shall be of the recalibration type having a maximum range of 0 to 20 psig over and a minimum range of 0 to 5 psig over a 120 degree arc and such that the pressures to be measured fall in the venter 50 percent of the scale. All gauges shall be accurate to within +1 percent of full scale range. All equipment shall be tested for alignment and settlement by rolling a steel ball between manholes.

#### § 430-28.18 Pipe Installation

##### § 430-28.18.1 Materials

Rubber gaskets shall conform to the requirements specified under pipe materials.

Gasket lubricant shall conform to the gasket manufacturer's recommendations.

##### § 430-28.18.2 Installation

Pipe and accessories shall be handled with care and shall not be dropped or bumped against pipe or accessories already on the ground or against any other object on the ground. The Contractor's methods for the handling of pipe and fittings shall conform to the pipe manufacturer's recommendations.

##### § 430-28.18.3 Cleaning

The interior of all pipe and fittings shall be thoroughly cleaned of all foreign matter before being installed and shall be kept clean until the work has been accepted. All joint contact surfaces shall be kept clean until the jointing is completed.

Every precaution shall be taken to prevent foreign material from entering the pipe during installation.

Groundwater shall not be allowed to rise around the pipe until the trench is backfilled. Dewatering operations must be continuous for as long as the trench is open.

Whenever pipe laying is stopped, the open end of the pipe shall be closed with a snug fitting plug.

**§ 430-28.18.4 Alignment**

Pipe shall be laid to the lines and grades shown on the plans. No deviation shall be made from the required line or grade except with the written consent of the DOU Engineer.

**§ 430-28.18.5 Laying Pipe**

Pipe shall be protected from lateral displacement by pipe bedding material. Under no circumstances shall pipe be laid in water and no pipe shall be laid under unsuitable weather or unstable trench conditions.

Pipe shall be laid from downstream to upstream with the bell ends facing the upstream direction except when reverse laying is specifically permitted by the DOU Engineer.

**§ 430-28.18.6 Jointing**

Jointing pipe shall be performed in accordance with manufacturer's recommendations. Methods and equipment shall be utilized which are capable of making joints without damage to the pipe.

**§ 430-28.18.7 Connection to Existing Line**

Where connections are made between new work and existing pipe, such connections shall be made using fittings or adapters as recommended by the pipe manufacturer.

**§ 430-28.18.8 Cutting Ductile Iron Pipe**

Cutting shall be done in a neat manner, without damage to the pipe or to the cement lining. Cuts shall be smooth, straight, and at right angles to the pipe axis. After cutting, the end of the pipe shall be dressed with a file to remove all roughness and sharp edges.

**§ 430-28.18.9 Mechanical Joints and Restrained Joints**

Mechanical joints and restrained joints shall be carefully assembled in accordance with the manufacturer's recommendations. If effective sealing is not obtained, the joint shall be disassembled thoroughly cleaned and reassembled. Overtightening bolts to compensate for poor

installation practice will not be permitted.

#### § 430-28.19 Manhole

##### § 430-28.19.1 Scope of Work

This section covers precast, cast-in-place, drop and special manholes. Manholes shall be constructed complete with all covers, steps, fittings and appurtenances in accordance with the detail drawings.

##### § 430-28.19.2 Reference Specifications

ASTM A 48 – Standard Specifications for gray iron castings  
ASTM C 32 – Standard Specification for sewer and manhole brick (made from clay or shale)  
ASTM C 139 – Concrete masonry units for construction of catch basins and manholes  
ASTM C 150 – Standard Specifications for sewer for Portland Cement.  
ASTM C 207 – Standard specification for hydrated lime for masonry purposes  
ASTM C 478 – Standard Specification for precast reinforced concrete manhole sections

##### § 430-28.19.3 Materials

Precast sections shall conform to the size and shape indicated on the detail drawings. Precast sections shall conform to ASTM C 478. Base slab and top slab design calculations signed by a professional engineer licensed in the State of New Jersey, must be submitted for all precast manholes. All concrete shall be 4,000 psi. Precast concrete tops shall be eccentric cone or flat slab top conforming to the detail drawings. Inlet openings of all existing manholes in which stubs have not been provided for the connection will be made by the Contractor with a coring machine. Jackhammers or similar devices shall not be accepted. The Contractor may core a circular opening (maximum diameter equal to outside diameter of the pipe plus two inches) and fill annular-space with quick setting non-shrink grout. For all other connections, the manufacturer shall cast flexible manhole sleeves into the wall of the manhole base for all manholes. ~~Flexible manhole sleeves shall be lock joint flexible manhole sleeves by Interpace Corporation, Parsippany, NJ, or Press Wedge II by Press Seal Gasket Corporation, Fort Wayne, IN, or equal.~~ Manhole frame and cover shall be Campbell flared frame #1202B and Heavy Duty #1486 or approved equal.

Portland cement shall conform to ASTM C 150, for Type II cement.

Hydrated lime shall conform to ASTM C 207 and shall be Type S.

Sand shall be a fine aggregate concrete sand passing on eight mesh screen.

Mortar shall be one part cement, ½ part lime and three parts sand.

Brick for manhole construction shall conform to ASTM C 32 Grade SA.

Gaskets for manholes shall conform the ASTM C 361.

All manhole castings shall meet the requirements of ASTM A 48 for Class 30 B castings. Standard manhole frame and cover shall be Campbell-Foundry Company Number 1202 or Flockhart Foundry Company Drawing Number 18590 or equal. Watertight manhole frame and cover shall be bolted and gasketed conforming to Campbell Foundry Company Number 1539-B-W.T. or Flockhart Foundry Company Drawing Number 24876, or equal. All casting for manhole covers and frames shall be close grained, tough gray iron free from cracks holes, swells, and shrinkage distortion. All manhole castings shall be made accurately to the pattern and to the dimensions specified with carefully machined bearing -surfaces; Allowances shall be made in the patterns so that specified thicknesses shall not be reduced. All lids which "Rock" and do not lie solid after construction is finished will be rejected and shall be replaced by adequate lids at no additional cost to the Owner. No plugging, burning-in of filling will be allowed. All castings shall be carefully coated, both inside and out, with coal-tar-pitch varnish. All covers shall be solid design and shall be supplied with special nonpenetrating, watertight pick-holes. Cast letters shall appear as shown on detail drawings.

Manhole steps shall be 6061-TB aluminum alloy, drop front design, built into the walls and set in a straight alignment so as to form a continuous ladder with a maximum distance of 12 inches between steps. The portion of the aluminum steps and ladder anchor bolts which are embedded in the concrete shall be coated with coal-tar-pitch varnish.

Manholes up to 15 feet shall have embedded aluminum manhole steps. For depth greater than 15 feet, an aluminum ladder shall be bolted to the structure wall by means of anchor bolts.

#### § 430-28.19.4 Vertical Ladder

The ladder shall be 606 I-T6 aluminum alloy and shall be rigid, strong, and suitable for easy climbing. The side rails shall be 2-112 x 3/8 inch aluminum bar stock. The rungs shall be 3/4 inch diameter and shall be inserted in punched holes and welded to the side rails. The mounting angles shall be 9 x 4 x 1/2 x 2-inch-long aluminum angles with 3/4 inch anchors inserted four inches into the wall. Aluminum mounting angles shall be welded to the side rails.

#### § 430-28.19.5 Expansion Bolts

Wherever compound anchors such as 'cinch" anchors or expansion bolts are evidently required to secure members, pans of equipment. cinch. anchors as made by the National Lead Company, the Star Expansion Bolts Co., the Phillips Drill Co., or equal shall be furnished and used. The number of units shall be as required by the stress on the bolt. Bolts shall

be hot dipped galvanized, after which the threads shall be run down. No wooden plugs in concrete or masonry shall be used for attachment of metals.

§ 430-28.19.6 Anchor Bolts

For mounting items on concrete, anchor bolts shall be low-carbon steel unless specified otherwise elsewhere herein, with standard threads and bent to the shape indicated on the drawings to provide secure anchorage in the concrete. Ferrous anchor bolts and nuts used outside the building shall have a heavy hot-dipped galvanized coating.

§ 430-28.20 Cast-in Place Concrete

§ 430-28.20.1 Reference Specification

Following specifications shall be considered part of these specifications. Reference to the published standard shall, in all cases, be the latest edition of such standards.

ACI Manual 301 – Specification for Structural Concrete for Buildings

ACI Manual 304 – Recommended Practice on Measuring, Mixing, Transporting and Placing Concrete

ACI 318 – Building Code Requirements for Reinforced Concrete

ACI 211.1 – Recommended practice for Selecting Proportions for Concrete

ACI 305 – Recommended Practice for Hot Weather Concreting

ACI 306 – Recommended practice for Cold Weather Concreting

ACI 347 – Recommended Practice for Concrete Formwork

ACI 503 – Guide for use of Epoxy Compound with Concrete

ACI 214 – Recommended Practice for the Evaluation of Compression Test Results of Field Concrete

ACI 315 – Manual of Standard Practice for Detailing Reinforced Concrete Structures

§ 430-28.20.2 Materials

§ 430-28.20.2.1 Reinforcing

Reinforcing steel shall meet the requirements of ASTM Specification A-15 and ASTM A-305 for deformed steel bars of intermediate grade billet steel.

§ 430-28.20.2.2 Cement

Cement shall conform to ASTM Designation C-150 as revised, Type II. An air entraining agent approved by the DOU Engineer shall be added to the concrete mix.

§ 430-28.20.2.3 Aggregates

Aggregates shall conform to the standard specifications for

concrete aggregates, ASTM Designation C-33. Sand shall be medium gradation with fineness modulus of 2.60-2.90. Coarse aggregate shall not exceed 1-1/2 inch for mass concrete and 3/4 inch for reinforced slabs.

#### § 430-28.21 Pumping Stations

##### § 430-28.21.1 General

Specifications for pumping stations shall include information as to the following required items, to be include within the design of the station and delineated within the specifications. In general, pumping stations shall be of similar design to those constructed by the DOU.

- a. Protection against clogging of pump to be provided either by a bar screen, comminutor or by pump design.
- b. Standby power, either through the use of emergency drive units or thought the use of emergency generating facilities shall be provided.
- c. Adequate automatic alarms compatible with DOU Systems shall be provided.
- d. All pumping stations shall be adequately protected against flooding and have a means of accessibility of vehicle at all times.
- e. Adequate lighting shall be provided. Explosion proof fixtures shall be used in the wet well.
- f. Water facilities shall be provided to allow wash down of the pumping facility. However under no circumstances will be possible cross connection be permitted.
- g. All pumping units shall as a minimum be provided in duplicate.
- h. Combination of pumping units or a separate pumping unit shall provide for a maximum anticipated flows.
- i. Flanged gate valves on the discharge side of a pump shall be provided. Flanged check valves shall be provided on the discharge side of the pump.
- j. Adequate drainage of valve pits through the use of drains or sump pumps shall be provided.
- k. Adequate means shall be included for access to wet wells and for the removal of all equipment.
- l. Electrical equipment, including motors, shall be protected from flooding and shall comply with Fire Underwriter's Regulations and Nation Electrical Codes.



m. Suitable landscaping, fencing and vehicle gates shall be provided around all pumping stations unless directed otherwise by the DOU Engineer.

n. Provide for by-pass connection in vicinity of wet well.

§ 430-28.21.2 General Description – Specifications

A section shall be included to present a description of the facility proposed, to include referenced to equipment to be installed.

§ 430-28.21.2.1 Example Description

The Contractor shall furnish and install one complete automatic underground sewage pumping station, including, but not limited to, all required equipment and accessories, installed shown on the drawings. The principal items of equipment in the pumping station shall include a minimum of two pumps specified as required, valves, piping, central control panel and transfer switches with circuit breakers, motor starters and automatic pumping level controllers, generator, lighting, sump pump, dehumidifier, and wiring. Work shall include wet wells and appurtenances, electric and water services, excavation, dewatering, sheeting, backfill, concrete base slab, clean-up, landscaping; painting and testing, and cathodic protection if required, all complete and ready to operate and as shown on the contract drawings.

§ 430-28.21.3 Operating Conditions

Included in this section should be all pertinent data as to design conditions for which the pumping plant will be capable of handling. Included should be the following:

	Present	Future	Units
A. Capacity			GMP
B. Max. Static Head			Feet
C. Min. Static Head			Feet
D. Total Dynamic Head			Feet
E. Shut-off Head			Feet
F. Min. Efficiency			%
G. Min Motor Size			HP
H. Operating Speed			RPM
I. Min. Solids Capacity			Inches
J. Min. Discharge Size			Inches

Also included should be an appropriate wet well program for the initial

control period and the future control period similar to the following:

Wet Well Program (Initial)					
Level Rising			Level Falling		
Elev. In.	Lead	Lag	Elev. In.	Lead	Lag
Wet Well	Pump	Pump	Wet Well	Pump	Pump
(Low Water)					
(Low Water)					
High Water Alarm					

Wet Well Program (Future)					
Level Rising			Level Falling		
Elev. In.	Lead	Lag	Elev. In.	Lead	Lag
Wet Well	Pump	Pump	Wet Well	Pump	Pump
(Low Water)					
(Low Water)					
High Water Alarm					

§ 430-28.21.4 Miscellaneous Section

Following the general description and operating condition, section should follow appropriate section on all equipment proposed, including:

- A. Controls
- B. Station Construction
- C. Station Painting, Inside and Out
- D. Spare Parts to be Included.
- E. Electrical Wiring
- F. Water and Electrical Service
- G. Sewage Pumps
- H. Motors
- I. Ventilation System
- J. Dehumidifier
- K. Sump Pump
- L. Station Piping
- M. Lightning Cleanup of Site
- O. Wet Well Screening, Commutation, Etc.
- P. Emergency Generating Equipment

§ 430-28.21.5 Field Tests

Upon completion of the field installation, a field test shall be performed utilizing DOU water, and a check made to determine that the pump performance conforms with the pump characteristics curve for as long as operating period as is deemed necessary by the DOU Engineer. Pumps shall operate quietly, without vibrating, without motor overload and without overheating of bearings.

§ 430-28.22 Requirements of Wastewater Discharged into the Sewerage System

Wastewater delivered into the facilities of the DOU shall not:

a. Be of such a strength quantity or quality as to impair the operation or lower the efficiency of the processes of wastewater treatment and sludge handling and disposal, such as excessive bio-chemical oxygen demand, suspended solids, or chlorine demand. Substance inhibitory to the biological processes such as excessive heavy metal, phenols and their derivatives, strong oxidizing agents or strong reducing agents.

b. Be of such a nature as to prevent the effluent from the plant from meeting all present or future requirements of any governing agency having jurisdiction over the receiving water, such as standards for biochemical oxygen demand, chemical oxygen demand, suspended solids, color, heavy metals, dissolved oxygen in both effluent and receiving waters, bacterial counts, etc.

c. Contain any gasoline, benzene, naphtha, fuel oil, or other flammable or explosive liquid, solid, or gas which by reason of its nature or quality may cause fire or explosion or which, in any other way, may be injurious to personnel or facilities within the sewerage system;

or substances which either singularly or through interaction with other wastes or substances found in wastewater treatment processes create a public nuisance, hazard to life, or prevent entry into any portion of the sewerage system for operational duties, maintenance or repair;

d. Be of such nature as to, in any manner, impair the strength, function, or durability of any portion of the sewerage facilities, such as compounds producing hydrogen sulfide or any other substances corrosive to any measurable degree to any materials used in the trunk system

e. Be of such a nature and in such a quantity as to impair the hydraulic capacity of such facilities, normal and reasonable wear, and usage excepted; such wastes would include uncomminted garbage animal entrails, tissues or blood, paunch manure, bone, hair, hides, flashings, feathers, sand, cinders, ashes, spent lime, stone or marble dust, metal, glass, straw, shavings, grass clippings, rags, spent grain, waste paper, wood, plastic, gas, tar, asphalt residues, etc.

f. Include any radioactive substance;

g. Include any garbage other than that received directly into public sewers from residences;

h. Have a pH value lower than 5.5 or higher than 9.5;

i. Have a temperature higher than 150 degrees F;

j. Have a flash point lower than 235 degrees F as determined by the Tagliabue (TAG) closed cup method;

k. Contain fats, wax, grease, or oils, whether emulsified or not, in excess of 100 milligrams per liter or containing substances which may solidify or become viscous at temperatures between 32 degrees F and 150 degrees F;

l. Be discharged by tank trucks into manholes or appurtenances of the sewerage system without written consent of the DOU;

m. Be delivered in a "slug" manner by which is meant that the normal hydraulic or organic loadings shall not be exceeded by more than 4.0 factor for any 60 minute period.

All connections to the sewerage system and local collection sewerage system for garages or other buildings in which grease or oil is handled must be equipped with a suitable mechanism to trap and collect all such oils and greases.

The DOU reserves the right to make whatsoever changes in its discharge requirements as may be necessary for the operation, maintenance, and protection of its sewerage system, for meeting revised standards of influent or effluent quality of regulatory agencies having jurisdiction in this regard, or for any other reason the DOU deems is desirable or necessary for performing its stated functions.

**§ 430-28.23 Standard Details**

Standard details are located and attached in the appendix Section 2.

**Article VII**

**Water and Sewer Rates**

**§ 430-29. Schedule of water and sewer rates for Eastern Service Area.**

The water and sewer rates for the Division of Utilities, Eastern Service Area, shall be as set forth in the following schedule:

**A. Equivalent service units.**

(1) Each water and sewer customer shall be classified and assigned equivalent service units (ESUs) according to usage classes as follows:

(a) Class I: Residential (base ESU). Each single-family dwelling, single-dwelling unit in a multiple-dwelling or multiple-purpose structure, single-dwelling unit serviced by a common meter, or mobile home, shall be assigned 1.00 ESU.

(b) Class II: Nonresidential (ESU by designated use).

[1] The total ESUs shall be the sum of ESUs assigned for primary and ancillary uses of the customer property. Primary uses are as follows:

[a] School. Each classroom in a public or private school shall be assigned 1.00 ESU.

[b] Hotel, motel and rooming house. Each rental room in a hotel, motel or rooming house shall be assigned 0.50 ESU.

[c] Recreational campsite. Each 25 recreational campsites shall be assigned 1.00 ESU.

[d] Hospital and nursing home. Each bed in a hospital or nursing home shall be assigned 0.50 ESU.

[e] Other. The Division of Utilities, in its sole determination, shall establish additional categories of designated uses as necessary in providing service to new customers.

[2] Additional ESUs shall be assigned for ancillary uses that are not included in the basis for counting primary uses, such as cafeterias, restaurants, banquet and meeting rooms, and public shower facilities. The assignment of additional ESUs shall be made in accordance with provisions of usage classes applicable to the ancillary uses.

(c) Class III: Commercial (ESU by water meter size). All usages not included in Class I and Class II shall be assigned ESUs based on the size of the water meter serving the customer. In the case of Class III customers with more than one meter, each meter shall be counted separately, with the exception of water meters approved by the Division of Utilities solely for irrigation uses.

(2) If there is no existing water meter, or no separate water meter serving an ancillary use of a customer in Class II, the Division of Utilities shall determine the size of water meter that would be required to serve the customer or the ancillary use. In making this determination, the Division of Utilities will utilize criteria published by the American Water Works Association, and the National Plumbing Code, as adopted and amended by the New Jersey Uniform Construction Code. Notwithstanding the actual size of any existing meter or any previous determination of required meter size, the Division of Utilities shall have the right at any time to examine the number and type of plumbing fixtures installed by a customer to determine the required meter size and, if necessary, to assign or reassign ESUs accordingly. ESUs shall be assigned to all Class III customers, and to certain ancillary uses by Class II customers as follows: [Amended 2-13-2023 by Ord. No. 23-02]

Water Meter	ESU
5/8-inch	1.0
¾-inch	1.4
1-inch	1.8

1 ½-inch	3.5
2-inch	5.4
3-inch	9.7
4-inch	12.6
6-inch	25.0
9-inch	50.0

**B. Connection fees.**

(1) In accordance with N.J.S.A. 40A:31-11, the initial fees to connect directly or indirectly to the Township's Eastern Service Area water supply system shall include a connection fee, which shall be set at \$1,260 per ESU. In the case of affordable housing units, the connection fee shall be 50% per ESU.

(2) In accordance with N.J.S.A. 40A:26A-11, the initial fees to connect directly or indirectly to the Township's Eastern Service Area sanitary sewer system shall include a connection fee, which shall be set at \$1,685 per ESU. In the case of affordable housing units, the connection fee shall be 50% ESU.

(3) Connection fees for the reconnection of a disconnected unit shall be calculated according to the following schedule:

(a) A credit, applicable to the connection fee, to be charged for a reconnection of a disconnected property that was previously connected to the Township's Eastern Service Area water and sanitary sewerage system, shall be given, provided that:

[1] The property has been connected to the Township's Eastern Service Area water and sanitary sewerage system for at least 20 years; and

[2] Service charges have been paid for the property in at least one of the last five years.

(b) The credit required under Subsection B(3)(a) shall be calculated as follows:

[1] If the reconnection does not require any new physical connection or does not increase the nature or size of the service or the number of units, or does not expand the use of the Township's Eastern Service Area water and sanitary sewerage system, the credit shall be equal in amount to the new connection fee.

[2] If the reconnection requires a new physical connection, increases the nature or size of the service or the number of service units, or expands the use of the Township's Eastern Service Area water and sanitary



sewerage system, the credit shall be equal in amount to any connection fee previously paid for the property, and the Township shall charge the difference between the credit and the connection fee for the new use.

[3] If no connection fee was ever paid for the property, but all service charges due and owing on the property have been paid for at least 20 years, the credit shall be equal in the amount to new connection fee; provided, however, that any charges due and owing pursuant to Subsection B(3)(b) of this section shall be paid.

(c) If no connection fee was ever paid for a disconnected property that is to be reconnected and which was previously connected to the Township's Eastern Service Area water and sanitary sewerage system for at least 20 years, the Township shall charge, in addition to amount due and owing after application of a credit pursuant to this section, a connection fee equal to the lesser of:

[1] Twenty percent of the service charges that would have been paid based upon the usage for the last full year that the property was connected to the Township's Eastern Service Area water and sanitary sewerage system for the period from the date of the disconnection from the Township's Eastern Service Area water and sanitary sewerage system to the date of the new connection; or

[2] The new connection fee.

(d) A credit shall not be allowed under this section for a property that has been disconnected from the Township's Eastern Service Area water and sanitary sewerage system for more than five years.

(e) As used in this section, "disconnected property" means a property that has been physically disconnected from the Township's Eastern Service Area water and sanitary sewerage system or a property not physically disconnected but to which service has been discontinued without payments being made. A disconnected property shall not include a property that has been temporarily disconnected from the Township's Eastern Service Area water and sanitary sewerage system or to which service has been discontinued without payments being made for less than 12 consecutive months and is being reconnected as it existed, prior to the temporary disconnection or discontinuance of service.

(f) For a property connected to the Township's Eastern Service Area water and sanitary sewerage system for less than 20 years, the Township may charge an additional connection fee for an addition, alteration, or change in use that materially increases the level of use and imposes a greater demand on the Township's Eastern Service Area water and sanitary sewerage system, but does not involve a new physical connection of

the property to the Township's Eastern Service Area water and sanitary sewerage system.

(g) The connection fee authorized by Subsection B(3)(f) of this section shall be equal to the amount by which the increased use and demand on the Township's Eastern Service Area water and sanitary sewerage system exceeds the use and demand that existed prior to such addition, alteration or change in use.

(h) Nothing in this section shall be construed to preclude the Township from charging a new or additional connection fee for any new or additional connections of a property to the Township's Eastern Service Area water and sanitary sewerage system, or for any increase in the size of an existing connection or for any new construction or additional service units connected to the Township's Eastern Service Area water and sanitary sewerage system that materially increases the level of use or demand on the Township's Eastern Service Area water and sanitary sewerage system.

(i) As used in this section, "disconnected property" means a property that has been physically disconnected from the Township's Eastern Service Area water and sanitary sewerage system or a property not physically disconnected but to which service has been discontinued without payments being made. A disconnected property shall not include a property that has been temporarily disconnected from the Township's Eastern Service Area water and sanitary sewerage system or to which service has been discontinued without payments being made for less than 12 consecutive months and is being reconnected as it existed, prior to the temporary disconnection or discontinuance of service.

(j) As used in this section, "materially increases" means any increase in the number of service units; or any other change which increases the level of use or demand on the Township's Eastern Service Area water and sanitary sewerage system by 15% or more over the highest actual annual use and demand that existed prior to the ten-year period immediately preceding the addition, alteration or change in use; provided, however, that, if the property has been connected to the Township's Eastern Service Area water and sanitary sewerage system for less than 10 years, the average level of use and demand shall be calculated based on the actual period of connection.

(4) All connection fees are to be paid in full at the time of application. However, existing homeowners in Class I, limited to those who desire or are required to connect an existing single-family dwelling, and upon an initial payment of not less than \$500 towards the applicable connection fee, may arrange to make equal monthly installment payments on the unpaid balance over a period not to exceed one year, provided that current charges are paid as accrued. These provisions for installment payments shall be applied separately to water and to sewer connection fees.

(5) Said connection fees shall also apply to facilities installed by residential developers who

convey, at no cost to the Township, all mains, service lines, and laterals as defined and described in applicable Township ordinances.

(6) All applicants who desire or are required to obtain initial water or sewer connections, or who desire to change the use associated with existing water or sewer connections, shall proceed in accordance with standards set forth in rules and regulations for water or sewer connections as adopted by Township ordinances.

**C. Water service line installation fees.**

(1) In addition to the connection fee, applicants shall pay the cost of actual physical connections to the Township's water supply system.

(2) For a connection to an active water main where the service line is two inches or smaller and is not located in a New Jersey State Highway (NJSH) right-of-way, the Division of Utilities will install the service line and the applicant shall pay a water service line installation fee, as follows:

Size	Fee
¾-inch	\$2,400
1-inch	\$2,400
1 ½-inch	\$2,550
2-Inch	\$2,625

(3) These fees include the water main tap, the service line from the main to the curb and the curb valve.

(4) For a connection to an active water main where the service line is larger than two inches or is located in a NJSH right-of-way, the applicant shall employ a private contractor, preapproved by the Division of Utilities, to perform the required work, at the expense of the applicant. The cost of all permits and approvals applicable to the service line installation shall be fully borne by the applicant. For these connections, a fee of \$100 per service line installation is required for inspection by the Division of Utilities.

(5) Applicants whose projects include the construction of water main extensions shall install all water service lines that connect to the new water mains. The water service lines shall be installed prior to the new mains being tested and placed into service.

(6) The water service line installation fee is due in full with the application for service.

**D. Sewer lateral installation fees.**

(1) In addition to the connection fee, applicants shall pay the cost of actual physical connections to the Township's sewage collection system, and shall employ a private contractor, preapproved

by the Division of Utilities, to perform the required work. The cost of all permits and approvals applicable to the sewer lateral installation shall be fully borne by the applicant.

(2) A fee of \$100 per lateral installation is required for inspection by the Division of Utilities for applicants installing a sewer connection for a single-family dwelling meeting the criteria set forth in Section 2.2 of the Rules and Regulations for Sewer Connections.

(3) The sewer lateral installation fee is due in full with the application for service.

**E. Water meter fees.**

(1) Meters shall be purchased and installed by the applicant. A fee of \$100 per meter is required for inspection and sealing by the Division of Utilities.

(2) All water meters must be installed by the applicant and inspected by the Division of Utilities within 30 days of meter pickup. All installed meters and appurtenances are the property of the Division of Utilities.

(3) All water meter fees are due in full with the application for service.

F. Fixed service charges. Quarterly fixed service charges shall be based on the ESUs or meter size as determined under provisions of Subsection A. Service charges shall be paid separately for water and sewer service. No water gallonage allowance shall be included in the water service charge. Fixed service charges will take effect upon installation of the water meter, nine months after the installation of the water service line, or 12 months after payment of the connection fee. Fixed service charges shall be prorated for the number of days in the quarters of initial establishment and permanent discontinuance of service. Fixed service charges shall apply during any periods of temporary discontinuance of service. Quarterly fixed service charges are as follows:

	Water	Sewer
Class I: Residential, per ESU	<del>\$11.60</del> \$13.75	<del>\$82.00</del> \$89.67
Class II: Nonresidential, per ESU	<del>\$11.60</del> \$13.75	<del>\$82.00</del> \$89.67
Class III: Commercial, per meter:		
5/8-inch	<del>\$11.60</del> \$13.75	<del>\$82.00</del> \$89.67
¾-inch	<del>\$16.25</del> \$19.26	<del>\$115.00</del> \$125.75
1-inch	<del>\$20.95</del> \$24.84	<del>\$440.00</del> \$161.84
1 1/2-inch	<del>\$40.65</del> \$48.19	<del>\$286.00</del> \$312.74
2-inch	<del>\$62.70</del> \$74.33	<del>\$440.00</del> \$481.14
3-inch	<del>\$112.60</del> \$133.49	<del>\$792.00</del> \$866.05
4-inch	<del>\$146.25</del> \$173.38	<del>\$1,028.00</del> \$1,124.12
6-inch	<del>\$290.00</del> \$343.80	<del>\$2,041.00</del> \$2,231.83
8-inch	<del>\$580.25</del> \$688.00	<del>\$4,081.00</del> \$4,462.57

**G. Water consumption and sewage collection and treatment charges.**



(1) In addition to the fixed service charges as set forth above, separate water consumption and sewage collection and treatment charges, per 1,000 gallons, shall be paid as follows:

	Water (Before 7/1/2010)	Water (7/1/2010 and After)	Sewage
Class I: Residential	<del>\$2.025</del> \$2.49	<del>\$2.10</del>	None
Class II:	<del>\$2.025</del> \$2.49	<del>\$2.10</del>	None
Class III:	<del>\$2.025</del> \$2.49	<del>\$2.10</del>	<del>\$3.65</del> \$4.33

(2) Water consumption charges shall be based on all water usage as registered by water meters, including water meters authorized for irrigation by the Division of Utilities.

(3) Sewage collection and treatment charges for Class III customers shall be based on water usage as registered by water meters, excluding water meters authorized for irrigation by the Division of Utilities. For sewer customers without Township water service and without an approved water meter, the Division of Utilities shall estimate the water usage or require the installation of approved water meters.

H. Fire protection service charges.

(1) The rates provided in this subsection shall be available only for water service connections used exclusively for the extinguishment of fires and the testing of private fire-service connections. A fire protection service line shall be an individual, dedicated line, detached from the water service line, and subject to a separate connection fee. Fire service connections shall not be utilized for other purposes. Quarterly charges, in advance, for private fire protection facilities are as follows:

	Before 7-1-2010	7-1-2010 and After
For each 2-inch service or smaller	\$40.25	\$41.50
For each 3-inch service	\$80.55	\$83.00
For each 4-inch service	\$161.10	\$165.95
For each 6-inch service	\$402.80	\$414.90
For each 8-inch service	\$805.60	\$829.80
For each 10-inch service	\$1,327.65	\$1,367.50
For each 12-inch service	\$1,611.20	\$1,659.55

(2) No additional charge shall be made for sprinkler heads, fire hydrants, or other fire-fighting facilities which may be attached to a private fire service connection, and no charge shall be made for water used in extinguishing fires or for conducting underwriters' tests.

- I. Utility permit and final inspection fees. A utility permit from the Division of Utilities is required for each new water and sewer connection and to revise water service, sewer lateral, and water meter sizes. In addition, for Class II (Nonresidential) and Class III

(Commercial) customers, a utility permit modification is required to add water supply or drainage fixtures to the water service or sewer lateral serving the property. The following utility permit fees are due in full at time of application and, where applicable, include a final inspection of the completed installations by the Division of Utilities:

	Water	Sewer
<b>Class I (Residential)</b>		
New connections and water service, sewer lateral and water meter revisions	\$50	\$50
<b>Class II (Nonresidential) and Class III (Commercial)</b>		
New connections and water service, sewer lateral and water meter revisions (based upon water meter size)		
Water meters up to 3/4-inch	\$75	\$75
Water meters 1-inch and larger	\$100	\$100
Permit modification		
Water meters up to 3/4-inch	\$25	\$25
Water meters 1-inch and larger	\$50	\$50

J. Water and sewer reinspection fees. After completion of the water and sewer services, installation of the water meter and construction of the improvements upon the property that is being served, and prior to the Division of Utilities' approval of a certificate of occupancy or certificate of approval for the property, the applicant shall request the Division of Utilities to inspect the completed water and sewer services and the water meter. In the event the installations are determined to be incomplete or otherwise unacceptable, requiring reinspection by the Division of Utilities or its authorized representatives, the applicant/permittee must pay to the Township a reinspection fee of \$25 for each reinspection, which must be paid prior to scheduling the reinspection.

K. Irrigation meters.

(1) An "irrigation service" is an existing, separately metered water service that supplies water exclusively to an underground piped irrigation system and is connected to a water service line or water main prior to the water meter that serves the property. There shall be no new irrigation services. A new connection of an irrigation system to a water service line must occur after the water meter. Where water service is required to exclusively serve an irrigation system for a property that is not otherwise connected to the water system, the service shall be classified as Class III (Commercial), subject to the fixed service and consumption charges set forth in Subsections F and G of this section.



(2) Existing irrigation services may remain in service. They will be billed for water consumption charges as set forth in Subsection G and are exempt from fixed service charges. Accounts that are not used for four successive quarters, as evidenced by no water use recorded through a properly functioning irrigation meter, will be subject to an annual service charge of \$25.

(3) The customer is responsible for the cost of repairing or replacing water meters that exclusively serve irrigation systems. The cost of repair shall be as set forth in Subsection L(6), Repair of damaged or frozen meters.

L. Special services. All special services shall be requested at least three business days before needed. Business hours are between 9:00 a.m. and 3:30 p.m., Monday through Friday. Fees are payable at the time requested. Services and fees are as follows:

(1) Meter removal/replacement.

(a) This service includes removal of water meter and replacement of meter or disconnection and capping of an existing water service.

[1] If done during business hours: \$75; outside business hours: \$150.

(b) Water meters are to be removed and replaced by Division of Utilities personnel only. Any unauthorized removal and/or replacement will be subject to fines as indicated herein.

(2) Interim read on transfer of ownership. No charge for remote reads. Meter readings inside of dwelling unit require a service call and a charge of \$50.

(3) Call-out services. For any service call which results from a malfunction or blockage in a customer water or sewer system caused by a faulty meter, valve or other appurtenance owned or controlled by the Utility, there will be no service charge or charge for labor and materials. In all other instances there will be a service fee of \$75 during normal business hours and \$150 outside business hours, plus labor and material charges.

(4) Damage to Utility property. Any damage caused to any part of the water or sewer system by the customer, its agent or employees or third parties shall be the responsibility of the customer and, in case of third parties, such third parties. Each such service call to remedy damage shall be in the amount of \$50, plus labor and materials.

(5) Water meter certification. If a verification of the accuracy of a water meter is requested, the testing shall be done by an independent certified testing facility at a cost of \$75. In the event the meter is found to be defective, the meter shall be replaced or repaired and an adjustment shall be made in the billing of usage and no charge shall be made.

(6) Repair of damaged or frozen meters. The customer is responsible to protect the water meter from freezing during cold and freezing weather. Fees for repair and/or replacement by the Division of Utilities are as follows (not including parts and labor):

Meter Size	Fee
1-inch and smaller	\$50
1 1/2-inch	\$100
2-inch	\$200
3-inch	\$250
4-inch to 6-inch	\$300

(7) Shutoff of water service. This service provides for the shutoff of water service at the curb valve by the Division of Utilities at a cost of \$50. Fixed service charges shall remain in effect during the period of discontinuance of service. Restoration of water service will be provided at no charge. Under no circumstances is the water service line to be shut off, or the curb valve operated, except by Division of Utilities personnel.

(8) Use of hydrants. In the interest of public safety, and to eliminate possible back-siphonage and contamination of the water supply system, the use of fire hydrants for construction, landscaping and other related uses is prohibited. Unauthorized use of hydrants will be subject to a fine not to exceed \$500 for the first offense, and \$1,000 for the second offense.

(9) Meter tampering, illegal connections and theft of water. In the event a water meter and/or water service line has been adjusted, damaged, removed, bypassed or tampered with, or the curb valve operated, the customer on whose premises said meter is located shall be subject to a fine not to exceed \$500 for the first offense, and \$1,000 for the second offense.

(10) Surcharges. In the event the Division of Utilities receives any surcharges from the Ocean County Utilities Authority (OCUA) due to a particular quantity or quality of sewage delivered to the OCUA for treatment, said surcharge shall be the responsibility of the customer responsible for the same. The billing to such customer by the Division of Utilities shall include a 5% administrative fee based upon the amount of the surcharge.

(11) Other. Charges for special services not set forth above shall not exceed the actual cost incurred by the Division of Utilities, including labor, materials, equipment and administrative costs.

**M. Fees for engineering review and inspection.**

	Water	Sewer
Application for service determination		
Fee	\$100	\$100

<b>Application for preliminary approval (1)</b>		
Filing fee	\$100	\$100
Initial escrow	5%	5%
<b>Application for final approval<sup>2</sup></b>		
Filing fee	\$100	\$100
Initial escrow	3%	3%
Inspection fees	5%	5%
Performance bond	120%	120%
Maintenance bond	2-year at 15%	2-year at 15%

**NOTES:**

(1) Preliminary approval: initial escrow fees shall be 5% of the Division of Utilities' estimated cost of construction with a minimum fee of ~~\$500~~-\$1500

(2) Final approval:

Initial escrow fees shall be 3% of the Division of Utilities' estimated cost of construction with a minimum fee of ~~\$500~~-\$1000

Inspection fees shall be at the rate of 5% of the Division of Utilities' estimated cost of construction, with a minimum fee of ~~\$500~~-\$1000, and shall be paid at time approval is granted, and prior to the start of construction.

Performance bond of 120% of the Division of Utilities' estimated cost of construction shall be posted at the time approval is granted and prior to the start of construction.

A two-year maintenance bond of 15% of the Division of Utilities' estimated cost of construction (minimum \$1,000) shall be posted at the completion of, and prior to, the acceptance of the work.

**§ 430-30. Schedule of water and sewer rates for Western Service Area.**

The water and sewer rates for the Department of Public Works, Division of Utilities, Western Service Area, shall be as set forth in the following schedule:

**A. Equivalent service units.**

(1) Each water and sewer customer shall be classified and assigned equivalent service units (ESUs) according to usage classes as follows:

(a) Residential (base ESU). Each single-family dwelling, single-dwelling unit in a multiple-dwelling or multiple-purpose structure, single-dwelling unit serviced by a common meter, or mobile home, shall be assigned 1.00 ESU.

(b) Commercial (ESU by water meter size). All commercial users shall be assigned ESUs based on the size of the water meter serving the customer. In the case of commercial customers with more than one meter, each meter shall be counted separately with the exception of water meters approved by the Division of Utilities solely for irrigation uses.

(2) If there is no existing water meter, or no separate water meter serving an ancillary use, the Division of Utilities shall determine the size of water meter that would be required to serve the customer or the ancillary use. In making this determination, the Division of Utilities will utilize criteria published by the American Water Works Association, and the National Plumbing Code, as adopted and amended by the New Jersey Uniform Construction Code. Notwithstanding the actual size of any existing meter or any previous determination of required meter size, the Division of Utilities shall have the right at any time to examine the number and type of plumbing fixtures installed by a customer to determine the required meter size and, if necessary, to assign or reassign ESUs accordingly. ESUs shall be assigned as follows:

Water Meter	ESU
5/8-inch	1.0
3/4-inch	1.4
1-inch	1.8
1 1/2-inch	3.5
2-inch	5.4
3-inch	9.7
4-inch	12.6
6-inch	25.0
8-inch	50.0

**B. Connection fees.**

(1) In accordance with N.J.S.A. 40A:31-11, the initial fees to connect directly or indirectly to the Township's Western Service Area water supply system shall include a connection fee, which shall be set at \$1,507 per ESU. In the case of affordable housing units, the connection fee shall be 50% per ESU.

(2) In accordance with N.J.S.A. 40A:26A-11, the initial fees to connect directly or indirectly to the Township's Western Service Area sanitary sewer system shall include a connection fee, which shall be set at \$504 per ESU. In the case of affordable housing units, the connection fee shall be 50% per ESU.

(3) Connection fees for the reconnection of a disconnected unit shall be calculated according to the following schedule:

(a) A credit, applicable to the connection fee to be charged for a reconnection of a disconnected property that was previously connected to the Township's Western Service Area water and sanitary sewerage system, shall be given, provided that:

[1] The property has been connected to the Township's Western Service Area water and sanitary sewerage system for at least 20 years; and

[2] Service charges have been paid for the property in at least one of the last five years.

(b) he credit required under Subsection B(3)(a) shall be calculated as follows:

[1] If the reconnection does not require any new physical connection or does not increase the nature or size of the service or the number of units, or does not expand the use of the Township's Western Service Area water and sanitary sewerage system, the credit shall be equal in amount to the new connection fee.

[2] If the reconnection requires a new physical connection, increases the nature or size of the service or the number of service units, or expands the use of the Township's Western Service Area water and sanitary sewerage system, the credit shall be equal in amount to any connection fee previously paid for the property, and the Township shall charge the difference between the credit and the connection fee for the new use.

[3] If no connection fee was ever paid for the property, but all service charges due and owing on the property have been paid for at least 20 years, the credit shall be equal in the amount to new connection fee; provided, however, that any charges due and owing pursuant to Subsection B(3)(b) of this section shall be paid.

(c) If no connection fee was ever paid for a disconnected property that is to be reconnected and which was previously connected to the Township's Western Service Area water and sanitary sewerage system for at least 20 years, the Township shall charge, in addition to amount due and owing after application of a credit pursuant to this section, a connection fee equal to the lesser of:

[1] Twenty percent of the service charges that would have been paid based upon the usage for the last full year that the property was connected to the Township's Western Service Area water and sanitary sewerage system for the period from the date of the disconnection from the Township's Western Service Area water and sanitary sewerage system to the date of the new connection; or

[2] The new connection fee.

(d) A credit shall not be allowed under this section for a property that has been disconnected from the Township's Western Service Area water and sanitary sewerage system for more than five years.

(e) As used in this section, "disconnected property" means a property that has been physically disconnected from the Township's Western Service Area water and sanitary

sewerage system or a property not physically disconnected but to which service has been discontinued without payments being made. A disconnected property shall not include a property that has been temporarily disconnected from the Township's Western Service Area water and sanitary sewerage system or to which service has been discontinued without payments being made for less than 12 consecutive months and is being reconnected as it existed, prior to the temporary disconnection or discontinuance of service.

(f) For a property connected to the Township's Western Service Area water and sanitary sewerage system for less than 20 years, the Township may charge an additional connection fee for an addition, alteration, or change in use that materially increases the level of use and imposes a greater demand on the Township's Western Service Area water and sanitary sewerage system, but does not involve a new physical connection of the property to the Township's Western Service Area water and sanitary sewerage system.

(g) The connection fee authorized by Subsection B(3)(f) of this section shall be equal to the amount by which the increased use and demand on the Township's Western Service Area water and sanitary sewerage system exceeds the use and demand that existed prior to such addition, alteration or change in use.

(h) Nothing in this section shall be construed to preclude the Township from charging a new or additional connection fee for any new or additional connections of a property to the Township's Western Service Area water and sanitary sewerage system, or for any increase in the size of an existing connection or for any new construction or additional service units connected to the Township's Western Service Area water and sanitary sewerage system that materially increases the level of use or demand on the Township's Western Service Area water and sanitary sewerage system.

(i) As used in this section, "disconnected property" means a property that has been physically disconnected from the Township's Western Service Area water and sanitary sewerage system or a property not physically disconnected but to which service has been discontinued without payments being made. A disconnected property shall not include a property that has been temporarily disconnected from the Township's Western Service Area water and sanitary sewerage system or to which service has been discontinued without payments being made for less than 12 consecutive months and is being reconnected as it existed, prior to the temporary disconnection or discontinuance of service.

(j) As used in this section, "materially increases" means any increase in the number of service units; or any other change which increases the level of use or demand on the Township's Western Service Area water and sanitary sewerage system by 15% or more over the highest actual annual use and demand that existed prior to the ten-year period immediately preceding the addition, alteration or change in use; provided, however,



that, if the property has been connected to the Township's Western Service Area water and sanitary sewerage system for less than 10 years, the average level of use and demand shall be calculated based on the actual period of connection.

(4) All connection fees are to be paid in full at the time of application. However, existing homeowners, limited to those who desire or are required to connect an existing single-family dwelling, and upon an initial payment of not less than \$500 towards the applicable connection fee, may arrange to make equal monthly installment payments on the unpaid balance over a period not to exceed one year, provided that current charges are paid as accrued. These provisions for installment payments shall be applied separately to water and to sewer connection fees.

(5) The said connection fees shall also apply to facilities installed by residential developers who convey, at no cost to the Township, all mains, service lines, and laterals as defined and described in applicable Township ordinances.

(6) All applicants who desire or are required to obtain initial water or sewer connections, or who desire to change the use associated with existing water or sewer connections, shall proceed in accordance with standards set forth in rules and regulations for water or sewer connections as adopted by Township ordinances.

C. Water service line installation fees.

(1) In addition to the connection fee, applicants shall pay the cost of actual physical connections to the Township's Western Service Area water supply system.

(2) For a connection to an active water main where the service line is two inches or smaller and is not located in a New Jersey State Highway (NJSH) right-of-way, the Division of Utilities will install the service line and the applicant shall pay a water service line installation fee, as follows:

Size	Fee
3/4-inch	\$2,400
1-inch	\$2,400
1 1/2-inch	\$2,550
2-inch	\$2,625

(3) These fees include the water main tap, the service line from the main to the curb and the curb valve.

(4) For a connection to an active water main where the service line is larger than two inches or is located in a NJSH right-of-way, the applicant shall employ a private contractor, preapproved by the Division of Utilities, to perform the required work, at the expense of the applicant. The cost of all permits and approvals applicable to the service line installation shall be fully borne by the

applicant. For these connections, a fee of \$100 per service line installation is required for inspection by the Division of Utilities.

(5) Applicants whose projects include the construction of water main extensions shall install all water service lines that connect to the new water mains. The water service lines shall be installed prior to the new mains being tested and placed into service.

(6) The water service line installation fee is due in full with the application for service.

**D. Sewer lateral installation fees.**

(1) In addition to the connection fee, applicants shall pay the cost of actual physical connections to the Township's Western Service Area sewage collection system, and shall employ a private contractor, preapproved by the Division of Utilities, to perform the required work. The cost of all permits and approvals applicable to the sewer lateral installation shall be fully borne by the applicant.

(2) A fee of \$100 per lateral installation is required for inspection by the Division of Utilities for applicants installing a sewer connection for a single-family dwelling meeting the criteria set forth in Section 2.2 of the Rules and Regulations for Sewer Connections. [1] Editor's Note: Said rules and regulations are on file in the Township Clerk's office.

**E. Water meter fees.**

(1) Meters shall be purchased and installed by the applicant. A fee of \$100 per meter is required for inspection and sealing by the Division of Utilities.

(2) All water meters must be installed by the applicant and inspected by the Division of Utilities within 30 days of meter pickup. All installed meters and appurtenances are the property of the Division of Utilities.

(3) All water meter fees are due in full with the application for service.

**F. Fixed service charges.** Quarterly fixed service charges shall be based on the meter size. Service charges shall be paid separately for water and sewer service. No water gallonage allowance shall be included in the water service charge. Fixed service charges will take effect upon installation of the water meter, nine months after the installation of the water service line, or 12 months after payment of the connection fee. Fixed service charges shall be prorated for the number of days in the quarters of initial establishment and permanent discontinuance of service. Fixed service charges shall apply during any periods of temporary discontinuance of service. Quarterly fixed service charges are as follows:

	<b>Water</b>	<b>Sewer</b>
Residential	<del>\$25.57</del> \$30.30	<del>\$51.08</del> \$57.93
Commercial, per meter:		

5/8-inch	\$25.57 \$30.30	\$31.58 \$35.81
3/4-inch	\$38.38 \$45.48	\$47.37 \$53.72
1-inch	\$63.98 \$75.81	\$78.95 \$89.54
1 1/2-inch	\$127.96 \$151.62	\$157.90 \$179.07
2-inch	\$204.74 \$242.64	\$252.64 \$286.52
3-inch	\$383.91 \$454.91	\$473.70 \$537.22
4-inch	\$639.87 \$758.18	\$789.50 \$895.37
6-inch	\$1,279.75 \$1,516.38	\$1,579.00 \$1,790.74
8-inch	\$2,047.62 \$2,426.22	\$2,526.40 \$2,865.18

G. Water consumption and sewage collection and treatment charges.

(1) In addition to the fixed service charges as set forth above, separate water consumption and sewage collection and treatment charges, per 1,000 gallons, shall be paid as follows:

	Water	Sewage
Residential	\$2.74 \$3.25	None
Commercial*	\$2.74 \$3.25	\$2.02 \$2.29

\*NOTE: For sewer customers without Township water service and without an approved water meter, charges will apply on a per-fixture basis as follows:

Up to two fixtures: \$101.44- \$115.04 each

Additional fixtures: \$5.64 \$6.40 each

(2) Water consumption charges shall be based on all water usage as registered by water meters, including water meters authorized for irrigation by the Division of Utilities.

(3) Sewage collection and treatment charges for commercial customers shall be based on water usage as registered by water meters, excluding water meters authorized for irrigation by the Division of Utilities.

H. Fire protection service charges.

(1) The rates provided in this subsection shall be available only for water service connections used exclusively for the extinguishment of fires and the testing of private fire-service connections. A fire protection service line shall be an individual, dedicated line, detached from the water service line, and subject to a separate connection fee. Fire service connections shall not be utilized for other purposes. Quarterly charges, in advance, for private fire protection facilities are as follows:

For each 2-inch service or smaller	\$7.12
For each 3-inch service	\$16.93
For each 4-inch service	\$27.08
For each 6-inch service	\$71.41
For each 8-inch service	\$159.10

For each 10-inch service	\$189.52
--------------------------	----------

(2) No additional charge shall be made for sprinkler heads, fire hydrants, or other fire-fighting facilities, which may be attached to a private fire service connection, and no charge shall be made for water used in extinguishing fires or for conducting underwriters' tests.

I. Utility permit and final inspection fees. A utility permit from the Division of Utilities is required for each new water and sewer connection and to revise water service, sewer lateral, and water meter sizes. In addition, for commercial customers, a utility permit modification is required to add water supply or drainage fixtures to the water service or sewer lateral serving the property. The following utility permit fees are due in full at time of application and, where applicable, include a final inspection of the completed installations by the Division of Utilities:

	Water	Sewer
<b>Residential</b>		
New connections and water service, sewer lateral and water meter revisions	\$50.00	\$50.00
<b>Commercial</b>		
<i>New connections and water service, sewer lateral and water meter revisions (based upon water meter size)</i>		
Water meters up to 3/4-inch	\$75.00	\$75.00
Water meters 1-inch and larger	\$100.00	\$100.00
<b>Permit modification</b>		
Water meters up to 3/4-inch	\$25.00	\$25.00
Water meters 1-inch and larger	\$50.00	\$50.00

J. Water and sewer reinspection fees. After completion of the water and sewer services, installation of the water meter and construction of the improvements upon the property that is being served, and prior to the Division of Utilities' approval of a certificate of occupancy or certificate of approval for the property, the applicant shall request the Division of Utilities to inspect the completed water and sewer services and the water meter. In the event the installations are determined to be incomplete or otherwise unacceptable, requiring reinspection by the Division of Utilities or its authorized representatives, the applicant/permittee must pay to the Township a reinspection fee of \$25 for each reinspection, which must be paid prior to scheduling the reinspection.

K. Irrigation meters.

(1) A connection of an irrigation system to a water service line must occur after the water meter. Where water service is required to exclusively serve an irrigation system for a property that is not otherwise connected to the water system, the service shall be classified as commercial

subject to the fixed service and consumption charges set forth in Subsections F and G of this section.

(2) The customer is responsible for the cost of repairing or replacing water meters that exclusively serve irrigation systems. The cost of repair shall be as set forth in Subsection L(6), Repair of damaged or frozen meters, of this section.

L. Special services. All special services shall be requested at least three business days before needed. Business hours are between 9:00 a.m. and 3:30 p.m., Monday through Friday. Fees are payable at the time requested. Services and fees are as follows:

(1) Meter removal/replacement.

(a) This service includes removal of water meter and replacement of meter or disconnection and capping of an existing water service.

[1] If done during business hours: \$75; outside business hours: \$150.

(b) Water meters are to be removed and replaced by Division of Utilities personnel only. Any unauthorized removal and/or replacement will be subject to fines as indicated herein.

(2) Interim read on transfer of ownership. No charge for remote reads. Meter readings inside of dwelling unit require a service call and a charge of \$50.

(3) Call-out services. For any service call which results from a malfunction or blockage in a customer water or sewer system caused by a faulty meter, valve or other appurtenance owned or controlled by the Utility, there will be no service charge or charge for labor and materials. In all other instances there will be a service fee of \$75 during normal business hours and \$150 outside business hours, plus labor and material charges.

(4) Damage to Utility property. Any damage caused to any part of the water or sewer system by the customer, its agent or employees or third parties shall be the responsibility of the customer and, in case of third parties, such third parties. Each such service call to remedy damage shall be in the amount of \$50, plus labor and materials.

(5) Water meter certification. If a verification of the accuracy of a water meter is requested, the testing shall be done by an independent certified testing facility at a cost of \$75. In the event the meter is found to be defective, the meter shall be replaced or repaired and an adjustment shall be made in the billing of usage and no charge shall be made.

(6) Repair of damaged or frozen meters. The customer is responsible to protect the water meter from freezing during cold and freezing weather. Fees for repair and/or replacement by the Division of Utilities are as follows (not including parts and labor):

Meter Size	Fee
1-inch and smaller	\$50
1 1/2-inch	\$100
2-inch	\$200
3-inch	\$250
4-inch to 6-inch	\$300

(7) Shutoff of water service. This service provides for the shutoff of water service at the curb valve by the Division of Utilities at a cost of \$50. Fixed service charges shall remain in effect during the period of discontinuance of service. Restoration of water service will be provided at no charge. Under no circumstances is the water service line to be shut off, or the curb valve operated, except by Division of Utilities personnel.

(8) Use of hydrants. In the interest of public safety, and to eliminate possible back-siphonage and contamination of the water supply system, the use of fire hydrants for construction, landscaping and other related uses is prohibited. Unauthorized use of hydrants will be subject to a fine not to exceed \$500 for the first offense, and \$1,000 for the second offense.

(9) Meter tampering, illegal connections and theft of water. In the event a water meter and/or water service line has been adjusted, damaged, removed, bypassed or tampered with, or the curb valve operated, the customer on whose premises the said meter is located shall be subject to a fine not to exceed \$500 for the first offense, and \$1,000 for the second offense.

(10) Surcharges. In the event the Division of Utilities receives any surcharges from the Ocean County Utilities Authority (OCUA) due to a particular quantity or quality of sewage delivered to the OCUA for treatment, said surcharge shall be the responsibility of the customer responsible for the same. The billing to such customer by the Division of Utilities shall include a 5% administrative fee based upon the amount of the surcharge.

(11) Other. Charges for special services not set forth above shall not exceed the actual cost incurred by the Division of Utilities, including labor, materials, equipment and administrative costs.

**M. Fees for engineering review and inspection.**

	Water	Sewer
Application for service determination		
Fee	\$100	\$100
Application for preliminary approval (1)		
Filing fee	\$100	\$100
Initial escrow	5%	5%
Application for final approval <sup>2</sup>		
Filing fee	\$100	\$100



Initial escrow	3%	3%
Inspection fees	5%	5%
Performance bond	120%	120%
Maintenance bond	2-year at 15%	2-year at 15%

NOTES:

(1) Preliminary approval: initial escrow fees shall be 5% of the Division of Utilities' estimated cost of construction with a minimum fee of ~~\$500~~ \$1500.

(2) Final approval:

Initial escrow fees shall be 3% of the Division of Utilities' estimated cost of construction with a minimum fee of ~~\$500~~ \$1000.

Inspection fees shall be at the rate of 5% of the Division of Utilities' estimated cost of construction, with a minimum fee of \$500-\$1000, and shall be paid at time approval is granted, and prior to the start of construction.

Performance bond of 120% of the Division of Utilities' estimated cost of construction shall be posted at the time approval is granted and prior to the start of construction.

A two-year maintenance bond of 15% of the Division of Utilities' estimated cost of construction (minimum \$1,000) shall be posted at the completion of, and prior to, the acceptance of the work.

Article VIII  
Use of Existing Private Wells

**§ 430-31. ~~§-430-26~~ Applicability**

This article shall apply to all properties serviced by the Township's public water supply on which a private service well is located.

**§ 430-32. ~~§-430-27~~ Use of existing private service wells for nondrinking purposes.**

All existing private service wells shall be used for irrigation systems only. The owner of the real property on which any private service well is located shall have a separate and distinct piping system from the well to the irrigation system. The piping system must be clearly and permanently labeled "Not for Drinking."

**§ 430-33. ~~§-430-28~~ Laboratory testing of well water required for issuance of certificate of occupancy.**

Prior to the sale of any real property within the groundwater impact area on which a private service well is located, the owner of the real property shall have the water tested by a certified laboratory. The groundwater impact area consists of those blocks and lots set forth in Schedule A [1] hereto as well as any additional blocks and lots resulting from the redesignation, consolidation and/or subdivision of the above-referenced blocks and lots. The testing criteria to be utilized are set forth in Schedule B hereto. The property

owner shall provide the Township Building Official with a laboratory certification verifying that the well water is not hazardous as a condition of the issuance of a certificate of occupancy.

[1] Editor's Note: Schedules A and B may be found at the end of this chapter

**§ 430-34. ~~§-430-29~~ Frequency of testing.**

Notwithstanding the provisions of ~~§-430-28~~ § 430-33, a laboratory test of well water, as described in said section, shall be performed in every fifth year commencing with 2005 or, in the event of installation of a well for irrigation purposes taking place after the effective date of this article, such testing shall be done at least once every five years following the installation of the irrigation well.

**§ 430-35. ~~§-430-30~~ Plumber certification required for issuance of certificate of occupancy.**

Prior to the sale of any real property on which a private service well is located, the owner of the real property shall provide the Township Building Official with a certification of a licensed plumber verifying that he has inspected the well and that there is no cross-connection between the municipal water system and the property owner's private well. The receipt of such a certification shall be a condition of the issuance of a certificate of occupancy.

**§ 430-36. ~~§-430-31~~ Amnesty period for owners of real property with existing private service wells.**

The owners of real property on which a private service well is located as of the effective date of this article [1] shall be required to register with the Township Building Official and comply with the requirements set forth in ~~§-430-27~~ § 430-32 herein no later than six months from the date on which this article becomes effective.

**§ 430-37. ~~§-430-32~~ Time for compliance by owners of real property installing new private service wells.**

The owners of real property installing a new private service well after the effective date of this article shall comply with the requirements set forth in ~~§-430-27~~ § 430-32 herein no later than 30 days from the date of the installation of the new well.

**§ 430-38. ~~§-430-33~~ Violations and penalties.**

Any real property owner who shall violate this article by failing to comply with any of its provisions may be subject to a fine of \$500 for the first noncompliance and a fine of \$1,000 for each noncompliance thereafter.

**§ 430-39. ~~§-430-34~~ Enforcement.**

The provisions of this article shall be enforceable by the Township through its designee(s), which shall include but not be limited to the Township Clerk

Article IX  
Water Restrictions

**§ 430-40. §-430-35 Purpose**

The purpose of this article is to limit the watering or irrigation of property on a temporary basis until the need for such limit or restriction is no longer necessary.

**§ 430-41. §-430-36 Authority to declare water emergency.**

The Mayor is hereby granted the authority to declare a water emergency within the municipality after consulting with the Township Department of Division of Utilities.

**§ 430-42. §-430-37 Water restriction as necessary.**

Water limitation or restriction shall be in effect when it is necessary to preserve the ability of the Township to deliver the proper amount of sanitary and safe water for each user within the Township water service area and for fire protection service within the Township.

**§ 430-43. §-430-38 Water and irrigation by street address.**

Those sites having an odd-number street address as determined by the United States Postal Service may water or irrigate property only on odd calendar days. Those sites having an even-number street address as determined by the United States Postal Service may water or irrigate property only on even calendar days.

**§ 430-44. §-430-39 Times when watering is restricted.**

No watering shall be permitted between the hours of 10:00 a.m. and 5:00 p.m.

**§ 430-45. §-430-40 Definitions.**

As used in this article, the following terms shall have the meanings indicated:

**WATERING OR IRRIGATING PROPERTY**

The sprinkling, watering, or irrigation of shrubbery, trees, lawns, grass, ground covers, plants, blinds, gardens, vegetables, flowers, or any vegetation.

**§ 430-46. §-430-44 Applicability; exceptions.**

These restrictions shall apply to all residential and commercial properties except for golf courses, public parks and recreational areas, hanging plants in any location, any newly seeded or sod lawns area for up to 30 days after initial seeding or sodding, nurseries and any commercial site where watering is an entangled component for goods provided by

such commercial business.

**§ 430-47. ~~§-430-42~~ Alternative watering schedule for age-restricted communities.**

Age-restricted communities with lawn irrigation sprinkler systems that are owned and operated by the community may obtain approval from the Mayor or the Mayor's designated representative of an alternative watering schedule when the location and the configuration of the sprinkler system make watering on an odd- and even-calendar-day-basis impractical, provided the alternative watering schedule limits irrigation of a lawn area to every other day for not more than 30 minutes.

**§ 430-48. ~~§-430-43~~ Exceptions.**

These restrictions do not apply to federal, state and county public utilities and their agencies.

**§ 430-49. ~~§-430-44~~ Public water utilities and privately owned wells.**

The provisions of this article shall apply to sites served by public water utilities and privately owned wells.

**§ 430-50. ~~§-430-45~~ Enforcement.**

This article may be enforced by any authorized employee of the Department of Public Works, Division of Utilities, the Code Enforcement Officer, any member of the Police Department who shall observe any person using or withdrawing water in violation of this article.

**§ 430-51. ~~§-430-46~~ Effective upon declaration of emergency.**

Provisions of this article shall be in effect upon the declaration of the emergency by the mayor and will continue until the Mayor has removed the emergency.

**§ 430-52. ~~§-430-47~~ Notification of emergency.**

Notification of the emergency will be done through public service announcements in the news media and public advertisements announcing the water emergency and reciting the provisions of this article as to odd/even watering or irrigation dates.

**§ 430-53. ~~§-430-48~~ Violations and penalties.**

Anyone found guilty of violating this article shall be fined for a first offense not more than \$500; for a second or subsequent offense, not more than \$1,000 and/or 30 days' community service.

1. Figures.
  - a. Application Checklist
  - b. Application for Serviced Determination
  - c. Application for Preliminary Approval of Water System and Appurtenances
  - d. Application for Preliminary Approval of Sanitary Sewer System and Appurtenances
  - e. Application for Final Approval of Water System and Appurtenances
  - f. Application for Final Approval of Sanitary Sewer System and Appurtenances
  - g. Manchester Township Department of Utilities Utility Cost Sheet
2. Standard Details

**SECTION 2.** All ordinances or parts of ordinances inconsistent herewith are hereby repealed to the extent of such inconsistency.

**SECTION 3.** Pursuant to the provisions of N.J.S.A. 40:69A-181(b), this Ordinance shall take effect twenty (20) days after its final passage by the Township Council and approval by the Mayor where such approval is required by law.

#### NOTICE

PUBLIC NOTICE is hereby given that the foregoing ordinance was introduced at a meeting of the Township Council of the Township of Manchester, in the County of Ocean and State of New Jersey on the 26<sup>th</sup> day of February, 2024, and was then read for the first time. The said ordinance will be further considered for final passage by the Township Council in the Town Hall at 6:00 p.m. on March 11, 2024. At such time and place or any time or place to which said meeting may be adjourned, all persons interested will be given an opportunity to be heard concerning said ordinance.

  
Teri Giercyk, RMC/CMC  
Municipal Clerk



**APPLICATION CHECKLIST**  
MANCHESTER TOWNSHIP DEPARTMENT OF UTILITIES  
1 COLONIAL DRIVE  
MANCHESTER, NJ 08759

PRELIMINARY APPLICATION

- ( ) Application – 3 copies bearing original signature of applicant
- ( ) Agent authorization if someone other than Property Owner is making application – Original plus 2 copies.
- ( ) Application fee
- ( ) Initial review escrow deposit and completed IRS Form W-9
- ( ) 5 copies of Engineer’s report (one (1) copy not bound)
- ( ) 5 sets of plans of proposed water and sewer facilities
- ( ) 5 sets of specifications (one (1) copy not bound)
- ( ) 5 copies of Engineer’s construction cost estimate (one (1) copy not bound)
- ( ) 5 copies of The Pinelands Commission Certificate of Filing or CAFRA Permit, as applicable

FINAL APPLICATION

- ( ) Application – 3 copies bearing original signature of applicant
- ( ) Application fee
- ( ) Initial review escrow deposit
- ( ) 5 copies of Engineer’s report (one (1) copy not bound)
- ( ) 5 sets of plans of proposed water and sewer facilities
- ( ) 5 sets of specifications (one (1) copy not bound)
- ( ) 5 copies of all approvals of all other agencies having jurisdiction over the work (OCUA, NJDEP, NJDOT, Ocean County Soils Conservation District, et al)
- ( ) 5 copies of Easement Agreements
- ( ) Performance guarantee
- ( ) Initial inspection escrow deposit

Note: All Engineer’s reports, plans, specifications, and cost estimates must bear Engineer’s Original signature and seal



**APPLICATION FOR SERVICE DETERMINATION**  
MANCHESTER TOWNSHIP DIVISION OF UTILITIES  
1 COLONIAL DRIVE  
MANCHESTER, NJ 08759

**Indicate Type of Service (Check each that applies):**

**WATER**        (Fee: \$100.00)

**SEWER**        (Fee: \$100.00)

1. Location of premises to be connected:

Lot(s) and Block(s): \_\_\_\_\_

Number and Street: \_\_\_\_\_

2. Name of Applicant: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Telephone: ( \_\_\_\_\_ ) \_\_\_\_\_                      Fax: ( \_\_\_\_\_ ) \_\_\_\_\_

Name and Title of Contact Person: \_\_\_\_\_

3. Name of Property Owner: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Telephone: ( \_\_\_\_\_ ) \_\_\_\_\_                      Fax: ( \_\_\_\_\_ ) \_\_\_\_\_

Name and Title of Contact Person: \_\_\_\_\_

4. Property is Existing  or Proposed  (Check One)

5. Description of Existing Property or Proposed Development (Check applicable type and provide requested information):

**A. Residential:**

Single Family Dwellings:                      Total number of units: \_\_\_\_\_

Multiple Family Dwellings (Duplexes, etc.):                      Total number of units: \_\_\_\_\_

Apartments:                      Total number of units: \_\_\_\_\_

Briefly describe the residential property/project including the size of the units and number of bedrooms:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**B. Non-Residential:**

\_\_\_ School: Number of Classrooms: \_\_\_\_\_  
\_\_\_ Hotel-Motel: Number of Bedrooms: \_\_\_\_\_  
\_\_\_ Recreational Campsite: Number of Campsites: \_\_\_\_\_  
\_\_\_ Hospital Or Nursing Home: Number of Beds \_\_\_\_\_

Briefly describe the non-residential property/project and provide the total building square footage

(proposed and existing): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**C. Commercial/Industrial:**

\_\_\_ Restaurant: Number of Seats: \_\_\_\_\_  
\_\_\_ Dinner Theater: Number of Seats: \_\_\_\_\_  
\_\_\_ Catering/Banquet Hall: Number of Persons: \_\_\_\_\_  
\_\_\_ Office Building: Number of Square Feet: \_\_\_\_\_  
\_\_\_ Retail Stores/Shopping Center: Number of Square Feet: \_\_\_\_\_  
\_\_\_ Warehouse: Number of Employees: \_\_\_\_\_  
\_\_\_ Factory: Number of Employees: \_\_\_\_\_  
Process Water Requirements: \_\_\_\_\_  
\_\_\_ Laundromat: Number of Washing Machines: \_\_\_\_\_  
\_\_\_ Bowling Alley: Number of Alleys: \_\_\_\_\_  
\_\_\_ Assembly Hall: Number of Seats: \_\_\_\_\_  
\_\_\_ Theater: Number of Seats: \_\_\_\_\_  
\_\_\_ Church: Number of Seats: \_\_\_\_\_

Briefly describe the commercial/industrial property/project and provide the total building square footage

(proposed and existing): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**D. Other:**

For uses not listed above, describe use and provide information regarding the water and sewage requirements including square footage of buildings and estimated maximum number of occupants: \_\_\_\_\_

---

---

---

---

---

---

6. Provide three (3) sets of plans of the proposed project (concept, subdivision or site plans/sketches as are applicable and available).

7. Signature of Applicant: \_\_\_\_\_ Date: \_\_\_\_\_

Name: \_\_\_\_\_ Title: \_\_\_\_\_

**APPLICATION FOR PRELIMINARY APPROVAL OF SANITARY SEWER SYSTEM AND  
APPURTENANCES**

MANCHESTER TOWNSHIP DIVISION OF UTILITIES  
1 COLONIAL DRIVE  
MANCHESTER, NJ 08759

**APPLICATION MUST BE FILED IN TRIPLICATE WITH DIVISION OF UTILITIES**

Fees paid w/Application (See Schedule): Filing Fee \$ 100.00 Initial Escrow \$ \_\_\_\_\_

Application is hereby made to Manchester Township Division of Utilities, Manchester Township, NJ for preliminary approval of the Plan of Sanitary Sewer System and Appurtenances.

1. Applicant \_\_\_\_\_  
Address \_\_\_\_\_  
Authorized Representative \_\_\_\_\_  
Telephone No. (\_\_\_\_\_) \_\_\_\_\_ Fax No. (\_\_\_\_\_) \_\_\_\_\_

2. Property Owner \_\_\_\_\_  
Address \_\_\_\_\_  
Authorized Representative \_\_\_\_\_  
Telephone No. (\_\_\_\_\_) \_\_\_\_\_ Fax No. (\_\_\_\_\_) \_\_\_\_\_

(If Applicant is not the current Property Owner, provide Property Owner's notarized authorization for Applicant to submit this Application.)

3. Project/Subdivision:  
Project/Subdivision Name \_\_\_\_\_  
Block(s) and Lot(s) \_\_\_\_\_

4. Dates of Approvals:  
Planning Board Resolutions of Approval: Preliminary \_\_\_\_\_ Final \_\_\_\_\_

5. Name and Address of Person Designing Plan \_\_\_\_\_  
\_\_\_\_\_  
Profession & License No. \_\_\_\_\_  
Telephone No. (\_\_\_\_\_) \_\_\_\_\_ Fax No. (\_\_\_\_\_) \_\_\_\_\_

6. Does Applicant agree to convey by Deed to Manchester Township easements and right-of-way to all areas on the Plan showing the Sanitary Sewer System and all Rights to the Sanitary Sewer System?  
Yes \_\_\_\_\_ No \_\_\_\_\_

7. List Plans, Specifications, Reports, Permits, Easements and Other Materials Accompanying Application (Itemize List of Plans) (Attach separate schedule if additional space is required).

Item	Number	Date	Latest Revision
A _____	_____	_____	_____
B _____	_____	_____	_____
C _____	_____	_____	_____
D _____	_____	_____	_____
E _____	_____	_____	_____
F _____	_____	_____	_____

8. Attach (5) Blue/Black on White Prints of Final Plans, (5) copies of Construction Specifications, (5) copies of Engineer's Report and Cost Estimate (all signed and sealed by a Professional Engineer); (5) copies of all Permits, Approvals or Exemptions from all other agencies having jurisdiction over the work; and (5) copies of Deeds of Easement and Right-of-Way for each portion of system outside of Applicant's property and Township Road Right-of-Ways.

9. Signature of Applicant \_\_\_\_\_ Date \_\_\_\_\_  
Name \_\_\_\_\_ Title \_\_\_\_\_

DO NOT WRITE BELOW THIS LINE - FOR DEPARTMENT USE ONLY

1. Date Application Received and Fees Collected:

Date Application Received \_\_\_\_\_ Initials \_\_\_\_\_  
Filing Fee - Amount Paid \$ 100.00 Date \_\_\_\_\_ Initials \_\_\_\_\_  
Initial Escrow Fee - Amount Paid \$ \_\_\_\_\_ Date \_\_\_\_\_ Initials \_\_\_\_\_

2. Action of the Division of Utilities:

Approved \_\_\_\_\_ Disapproved \_\_\_\_\_ Comment \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**This Approval is subject to the terms and conditions set forth in the letter from Manchester Township to \_\_\_\_\_, dated \_\_\_\_\_, copy attached.**

Date \_\_\_\_\_ Signature \_\_\_\_\_

Albert D. Yodakis, PE, PP, CME, CPWM, Director of Public Works

INFORMATION FOR APPLICANT

SCHEDULE OF FEES - REVIEW AND INSPECTION - PRELIMINARY SANITARY SEWER

- (1) Filing Fee - \$ 100.00 - Due at time of application.
- (2) Initial Escrow - 5% of the Design Engineer's estimated cost of construction (\$1,500.00 minimum) - Due at time of application.
- (3) All outstanding fees shall be paid prior to the Division of Utilities granting approval of the Application.



**APPLICATION FOR PRELIMINARY APPROVAL OF WATER SYSTEM AND  
APPURTENANCES**

MANCHESTER TOWNSHIP DIVISION OF UTILITIES  
1 COLONIAL DRIVE  
MANCHESTER, NJ 08759

**APPLICATION MUST BE FILED IN TRIPLICATE WITH DIVISION OF UTILITIES**

Fees paid w/Application (See Schedule): Filing Fee \$ 100.00 Initial Escrow \$ \_\_\_\_\_

Application is hereby made to Manchester Township Division of Utilities, Manchester Township, NJ for preliminary approval of the Plan of Water System and Appurtenances.

1. Applicant \_\_\_\_\_  
Address \_\_\_\_\_  
Authorized Representative \_\_\_\_\_  
Telephone No. (\_\_\_\_\_) \_\_\_\_\_ Fax No. (\_\_\_\_\_) \_\_\_\_\_

2. Property Owner \_\_\_\_\_  
Address \_\_\_\_\_  
Authorized Representative \_\_\_\_\_  
Telephone No. (\_\_\_\_\_) \_\_\_\_\_ Fax No. (\_\_\_\_\_) \_\_\_\_\_

(If Applicant is not the current Property Owner, provide Property Owner's notarized authorization for Applicant to submit this Application.)

3. Project/Subdivision:  
Project/Subdivision Name \_\_\_\_\_  
Block(s) and Lot(s) \_\_\_\_\_

4. Dates of Approvals:  
Planning Board Resolutions of Approval: Preliminary \_\_\_\_\_ Final \_\_\_\_\_

5. Name and Address of Person Designing Plan \_\_\_\_\_  
\_\_\_\_\_  
Profession & License No. \_\_\_\_\_  
Telephone No. (\_\_\_\_\_) \_\_\_\_\_ Fax No. (\_\_\_\_\_) \_\_\_\_\_

6. Does Applicant agree to convey by Deed to Manchester Township easements and right-of-way to all areas on the Plan showing the Water System and all Rights to the Water System?  
Yes \_\_\_\_\_ No \_\_\_\_\_

7. List Plans, Specifications, Reports, Permits, Easements and Other Materials Accompanying Application (Itemize List of Plans) (Attach separate schedule if additional space is required).

Item	Number	Date	Latest Revision
A _____	_____	_____	_____
B _____	_____	_____	_____
C _____	_____	_____	_____
D _____	_____	_____	_____
E _____	_____	_____	_____
F _____	_____	_____	_____

8. Attach (5) Blue/Black on White Prints of Final Plans, (5) copies of Construction Specifications, (5) copies of Engineer's Report and Cost Estimate (all signed and sealed by a Professional Engineer); (5) copies of all Permits, Approvals or Exemptions from all other agencies having jurisdiction over the work; and (5) copies of Deeds of Easement and Right-of-Way for each portion of system outside of Applicant's property and Township Road Right-of-Ways.

9. Signature of Applicant \_\_\_\_\_ Date \_\_\_\_\_  
Name \_\_\_\_\_ Title \_\_\_\_\_

**DO NOT WRITE BELOW THIS LINE - FOR DEPARTMENT USE ONLY**

1. Date Application Received and Fees Collected:

Date Application Received \_\_\_\_\_ Initials \_\_\_\_\_  
Filing Fee - Amount Paid \$ 100.00 Date \_\_\_\_\_ Initials \_\_\_\_\_  
Initial Escrow Fee - Amount Paid \$ \_\_\_\_\_ Date \_\_\_\_\_ Initials \_\_\_\_\_

2. Action of the Division of Utilities:

Approved \_\_\_\_\_ Disapproved \_\_\_\_\_ Comment \_\_\_\_\_

\_\_\_\_\_

**This Approval is subject to the terms and conditions set forth in the letter from Manchester Township to \_\_\_\_\_, dated \_\_\_\_\_, copy attached.**

Date \_\_\_\_\_ Signature \_\_\_\_\_

Albert D. Yodakis, PE, PP, CME, CPWM, Director of Public Works

INFORMATION FOR APPLICANT  
SCHEDULE OF FEES - REVIEW AND INSPECTION - PRELIMINARY WATER

- (1) Filing Fee - \$ 100.00 - Due at time of application.
- (2) Initial Escrow - 5% of the Design Engineer's estimated cost of construction (\$1,500.00 minimum) - Due at time of application.
- (3) All outstanding fees shall be paid prior to the Division of Utilities granting approval of the Application.

**APPLICATION FOR FINAL APPROVAL OF SANITARY SEWER SYSTEM AND  
APPURTENANCES**

MANCHESTER TOWNSHIP DIVISION OF UTILITIES  
1 COLONIAL DRIVE  
MANCHESTER, NJ 08759

**APPLICATION MUST BE FILED IN TRIPLICATE WITH DIVISION OF UTILITIES**

Fees paid w/Application (See Schedule): Filing Fee \$ 100.00 Initial Escrow \$ \_\_\_\_\_

Application is hereby made to Manchester Township Division of Utilities, Manchester Township, NJ for final approval of the Final Plan of Sanitary Sewer System and Appurtenances.

1. Applicant \_\_\_\_\_  
Address \_\_\_\_\_  
Authorized Representative \_\_\_\_\_  
Telephone No. (\_\_\_\_\_) \_\_\_\_\_ Fax No. (\_\_\_\_\_) \_\_\_\_\_

2. Property Owner \_\_\_\_\_  
Address \_\_\_\_\_  
Authorized Representative \_\_\_\_\_  
Telephone No. (\_\_\_\_\_) \_\_\_\_\_ Fax No. (\_\_\_\_\_) \_\_\_\_\_

(If Applicant is not the current Property Owner, provide Property Owner's notarized authorization for Applicant to submit this Application.)

3. Project/Subdivision:  
Project/Subdivision Name \_\_\_\_\_  
Block(s) and Lot(s) \_\_\_\_\_

4. Dates of Approvals: Division of Utilities Preliminary Approval \_\_\_\_\_  
Planning Board Resolutions of Approval: Preliminary \_\_\_\_\_ Final \_\_\_\_\_  
Ocean County Utilities Authority: Project No. \_\_\_\_\_ Date \_\_\_\_\_  
NJDEP Treatment Works Approval: Permit No. \_\_\_\_\_ Date \_\_\_\_\_

5. Name and Address of Person Designing Final Plan \_\_\_\_\_  
\_\_\_\_\_  
Profession & License No. \_\_\_\_\_  
Telephone No. (\_\_\_\_\_) \_\_\_\_\_ Fax No. (\_\_\_\_\_) \_\_\_\_\_

6. Does Applicant agree to convey by Deed to Manchester Township easements and right-of-way to all areas on the Final Plan showing the Sanitary Sewer System and all Rights to the Sanitary Sewer System?  
Yes \_\_\_\_\_ No \_\_\_\_\_

7. List Plans, Specifications, Reports, Permits, Easements and Other Materials Accompanying Application (Itemize List of Plans) (Attach separate schedule if additional space is required).

Item	Number	Date	Latest Revision
A _____	_____	_____	_____
B _____	_____	_____	_____
C _____	_____	_____	_____
D _____	_____	_____	_____
E _____	_____	_____	_____
F _____	_____	_____	_____

8. Attach (5) Blue/Black on White Prints of Final Plans, (5) copies of Construction Specifications, (5) copies of Engineer's Report and Cost Estimate (all signed and sealed by a Professional Engineer); (5) copies of all Permits, Approvals or Exemptions from all other agencies having jurisdiction over the work; and (5) copies of Deeds of Easement and Right-of-Way for each portion of system outside of Applicant's property and Township Road Right-of-Ways.

9. Signature of Applicant \_\_\_\_\_ Date \_\_\_\_\_  
 Name \_\_\_\_\_ Title \_\_\_\_\_

**DO NOT WRITE BELOW THIS LINE - FOR DEPARTMENT USE ONLY**

1. Date Application Received and Fees Collected:

Date Application Received \_\_\_\_\_ Initials \_\_\_\_\_  
 Filing Fee - Amount Paid \$ 100.00 Date \_\_\_\_\_ Initials \_\_\_\_\_  
 Initial Escrow Fee - Amount Paid \$ \_\_\_\_\_ Date \_\_\_\_\_ Initials \_\_\_\_\_

2. Action of the Division of Utilities:

Approved \_\_\_\_\_ Disapproved \_\_\_\_\_ Comment \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Approved Estimated Cost of Construction \$ \_\_\_\_\_  
 Inspection Escrow Amount (5% of Estimated Cost of Construction) \$ \_\_\_\_\_  
 Performance Bond Amount (120% of Estimated Cost of Construction) \$ \_\_\_\_\_

**This Approval is subject to the terms and conditions set forth in the letter from Manchester Township to \_\_\_\_\_, dated \_\_\_\_\_, copy attached.**

Date \_\_\_\_\_ Signature \_\_\_\_\_

Albert D. Yodakis, PE, PP, CME, CPWM, Director of Public Works

INFORMATION FOR APPLICANT

SCHEDULE OF FEES - REVIEW AND INSPECTION - PRELIMINARY SANITARY SEWER

- (1) Filing Fee - \$ 100.00 - Due at time of application.
- (2) Initial Escrow - 3% of the Design Engineer's estimated cost of construction (\$1,000.00 minimum) - Due at time of application.
- (3) Inspection Escrow - 5% of the Division of Utilities approved estimated cost of construction - Due prior to the Department granting approval of the Application for Final Approval.
- (4) Performance Guarantee - One hundred twenty percent (120%) of the Division of Utilities approved estimated cost of construction - Due prior to the Department granting approval of the Application for Final Approval.
- (5) All outstanding fees shall be paid prior to the Division of Utilities granting approval of the Application.
- (6) Two (2) year Maintenance Guarantee - Fifteen percent (15%) of the value of the work (\$1,000.00 minimum maintenance guarantee) - Due prior to the acceptance of the completed sanitary sewer system improvements by the Township.



**APPLICATION FOR FINAL APPROVAL OF WATER SYSTEM AND  
APPURTENANCES**  
MANCHESTER TOWNSHIP DIVISION OF UTILITIES  
1 COLONIAL DRIVE  
MANCHESTER, NJ 08759

**APPLICATION MUST BE FILED IN TRIPLICATE WITH DIVISION OF UTILITIES**

Fees paid w/Application (See Schedule): Filing Fee \$ 100.00 Initial Escrow \$ \_\_\_\_\_

Application is hereby made to Manchester Township Division of Utilities, Manchester Township, NJ for final approval of the Final Plan of Water System and Appurtenances.

1. Applicant \_\_\_\_\_  
Address \_\_\_\_\_  
Authorized Representative \_\_\_\_\_  
Telephone No. (\_\_\_\_\_) \_\_\_\_\_ Fax No. (\_\_\_\_\_) \_\_\_\_\_

2. Property Owner \_\_\_\_\_  
Address \_\_\_\_\_  
Authorized Representative \_\_\_\_\_  
Telephone No. (\_\_\_\_\_) \_\_\_\_\_ Fax No. (\_\_\_\_\_) \_\_\_\_\_

(If Applicant is not the current Property Owner, provide Property Owner's notarized authorization for Applicant to submit this Application.)

3. Project/Subdivision:  
Project/Subdivision Name \_\_\_\_\_  
Block(s) and Lot(s) \_\_\_\_\_

4. Dates of Approvals: Division of Utilities Preliminary Approval \_\_\_\_\_  
Planning Board Resolutions of Approval: Preliminary \_\_\_\_\_ Final \_\_\_\_\_  
Ocean County Utilities Authority: Project No. \_\_\_\_\_ Date \_\_\_\_\_  
NJDEP Treatment Works Approval: Permit No. \_\_\_\_\_ Date \_\_\_\_\_

5. Name and Address of Person Designing Final Plan \_\_\_\_\_  
\_\_\_\_\_  
Profession & License No. \_\_\_\_\_  
Telephone No. (\_\_\_\_\_) \_\_\_\_\_ Fax No. (\_\_\_\_\_) \_\_\_\_\_

6. Does Applicant agree to convey by Deed to Manchester Township easements and right-of-way to all areas on the Final Plan showing the Water System and all Rights to the Water System?  
Yes \_\_\_\_\_ No \_\_\_\_\_

7. List Plans, Specifications, Reports, Permits, Easements and Other Materials Accompanying Application (Itemize List of Plans) (Attach separate schedule if additional space is required).

Item	Number	Date	Latest Revision
A _____	_____	_____	_____
B _____	_____	_____	_____
C _____	_____	_____	_____
D _____	_____	_____	_____
E _____	_____	_____	_____
F _____	_____	_____	_____

8. Attach (5) Blue/Black on White Prints of Final Plans, (5) copies of Construction Specifications, (5) copies of Engineer's Report and Cost Estimate (all signed and sealed by a Professional Engineer); (5) copies of all Permits, Approvals or Exemptions from all other agencies having jurisdiction over the work; and (5) copies of Deeds of Easement and Right-of-Way for each portion of system outside of Applicant's property and Township Road Right-of-Ways.

9. Signature of Applicant \_\_\_\_\_ Date \_\_\_\_\_  
 Name \_\_\_\_\_ Title \_\_\_\_\_

**DO NOT WRITE BELOW THIS LINE - FOR DIVISION USE ONLY**

1. Date Application Received and Fees Collected:

Date Application Received \_\_\_\_\_ Initials \_\_\_\_\_  
 Filing Fee - Amount Paid \$ 100.00 Date \_\_\_\_\_ Initials \_\_\_\_\_  
 Initial Escrow Fee - Amount Paid \$ \_\_\_\_\_ Date \_\_\_\_\_ Initials \_\_\_\_\_

2. Action of the Division of Utilities:

Approved \_\_\_\_\_ Disapproved \_\_\_\_\_ Comment \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Approved Estimated Cost of Construction \$ \_\_\_\_\_  
 Inspection Escrow Amount (5% of Estimated Cost of Construction) \$ \_\_\_\_\_  
 Performance Bond Amount (120% of Estimated Cost of Construction) \$ \_\_\_\_\_

**This Approval is subject to the terms and conditions set forth in the letter from Manchester Township to \_\_\_\_\_, dated \_\_\_\_\_, copy attached.**

Date \_\_\_\_\_ Signature \_\_\_\_\_

Albert D. Yodakis, PE, PP, CME, CPWM, Director of Public Works

INFORMATION FOR APPLICANT  
SCHEDULE OF FEES - REVIEW AND INSPECTION - PRELIMINARY WATER

- (1) Filing Fee - \$ 100.00 - Due at time of application.
- (2) Initial Escrow - 3% of the Design Engineer's estimated cost of construction (\$1,000.00 minimum) - Due at time of application.
- (3) Inspection Escrow - 5% of the Division of Utilities approved estimated cost of construction - Due prior to the Department granting approval of the Application for Final Approval.
- (4) Performance Guarantee - One hundred twenty percent (120%) of the Division of Utilities approved estimated cost of construction - Due prior to the Department granting approval of the Application for Final Approval.
- (5) All outstanding fees shall be paid prior to the Division of Utilities granting approval of the Application.
- (6) Two (2) year Maintenance Guarantee - Fifteen percent (15%) of the value of the work (\$1,000.00 minimum maintenance guarantee) - Due prior to the acceptance of the completed water system improvements by the Township.

**Manchester Township Department of Utilities  
Utility Cost Sheet**

**PROJECT:**  
**APPLICANT:**  
**DATE:**

<b>WATER SYSTEM</b>				
<b>QTY</b>	<b>UNIT</b>	<b>ITEM</b>	<b>UNIT COST</b>	<b>TOTAL PRICE</b>
	EA	6" Gate Valve & Valve Box	\$1,520.00	\$ -
	EA	8" Gate Valve & Valve Box	\$1,820.00	\$ -
	EA	10" Gate Valve & Valve Box	\$2,840.00	\$ -
	EA	12" Gate Valve & Valve Box	\$3,230.00	\$ -
	EA	16" Gate Valve & Valve Box	\$6,800.00	\$ -
	EA	20" Gate Valve & Valve Box	\$9,650.00	\$ -
	LF	6" Ductile Iron Pipe	\$57.00	\$ -
	LF	8" Ductile Iron Pipe	\$68.00	\$ -
	LF	10" Ductile Iron Pipe	\$80.00	\$ -
	LF	12" Ductile Iron Pipe	\$99.00	\$ -
	LF	16" Ductile Iron Pipe	\$100.00	\$ -
	LF	20" Ductile Iron Pipe	\$122.00	\$ -
	LF	6" PVC Pipe	\$50.00	\$ -
	LF	8" PVC Pipe	\$57.00	\$ -
	LF	10" PVC Pipe	\$67.00	\$ -
	LF	12" PVC Pipe	\$78.00	\$ -
	LF	16" PVC Pipe	\$84.00	\$ -
	LF	20" PVC Pipe	\$93.00	\$ -
	EA	6" x 6" Tee	\$100.00	\$ -
	EA	8" X 4" Tee	\$100.00	\$ -
	EA	8" x 6" Tee	\$750.00	\$ -
	EA	8" x 8" Tee	\$750.00	\$ -
	EA	10" x 10" Tee	\$100.00	\$ -
	EA	12" x 8" Tee	\$750.00	\$ -
	EA	12" x 12" Tee	\$100.00	\$ -
	EA	16" x 16" Tee	\$100.00	\$ -
	EA	20" x 20" Tee	\$100.00	\$ -
	EA	3" Bend	\$600.00	\$ -
	EA	4" Bend	\$600.00	\$ -
	EA	6" Bend	\$600.00	\$ -
	EA	8" Bend	\$600.00	\$ -
	EA	10" Bend	\$600.00	\$ -
	EA	12" Bend	\$600.00	\$ -
	EA	16" Bend	\$600.00	\$ -
	EA	20" Bend	\$600.00	\$ -
	EA	6" End Cap	\$750.00	\$ -
	EA	8" End Cap	\$750.00	\$ -
	EA	10" End Cap	\$750.00	\$ -
	EA	12" End Cap	\$1,000.00	\$ -
	EA	16" End Cap	\$1,000.00	\$ -
	EA	20" End Cap	\$1,000.00	\$ -

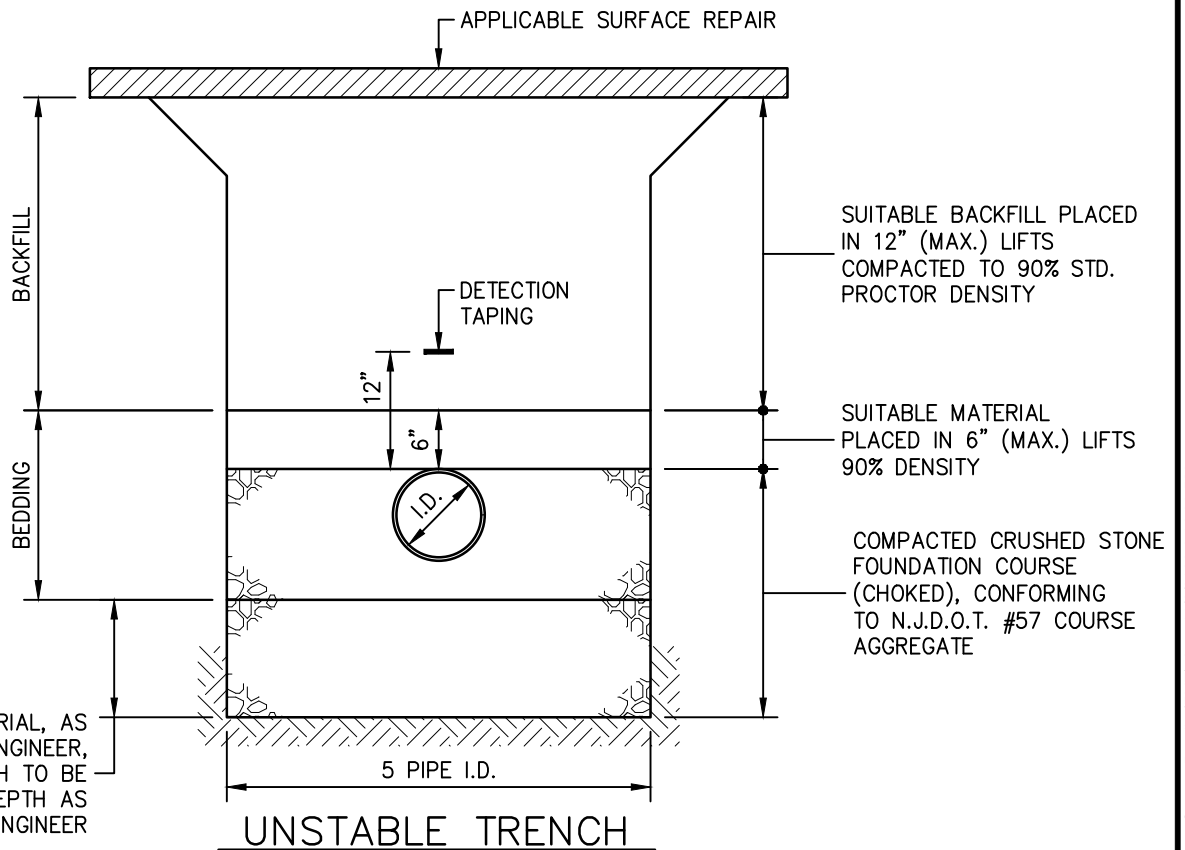
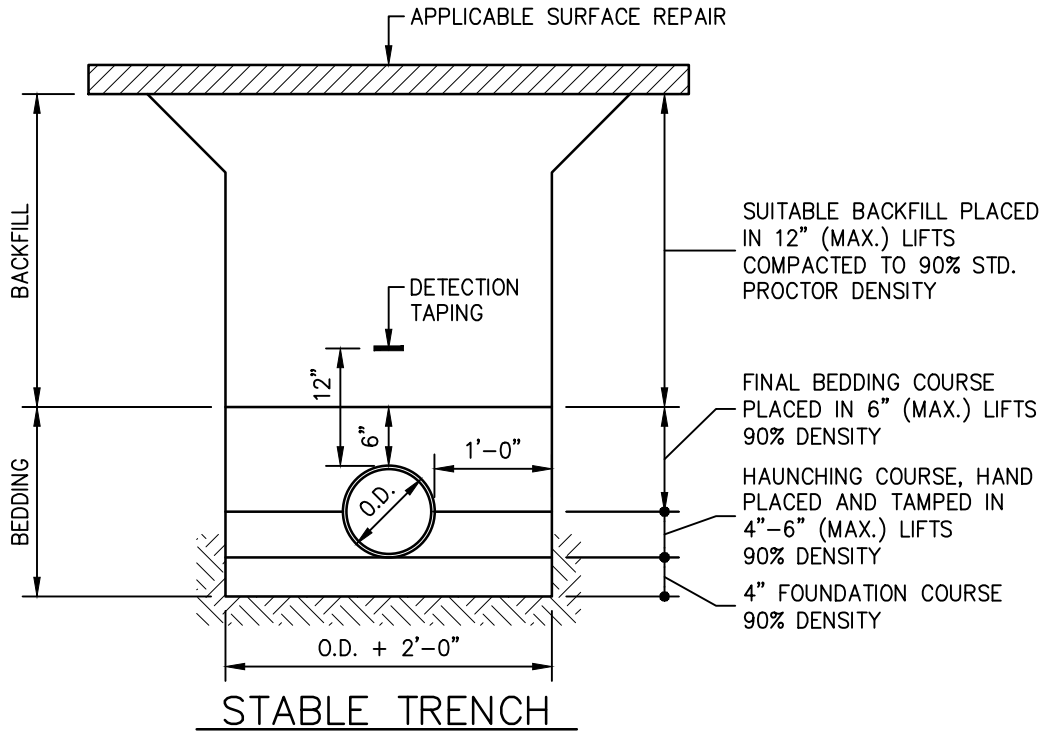
EA	3/4" Water Service	\$1,170.00	\$	-
EA	1" Water Service	\$1,470.00	\$	-
EA	1-1/4" Water Service	\$1,880.00	\$	-
EA	2" Water Sevice	\$3,210.00	\$	-
EA	Fire Hydrant with Valve Assembly	\$6,010.00	\$	-
EA	Blow-off Hydrant	\$3,170.00	\$	-
LS	Dewatering<10'	\$60.00	\$	-
LS	Dewatering >10'	\$78.00	\$	-
EA	Air Release Manhole	\$4,960.00	\$	-
SY	Municipal Road Pavement Restoration	\$79.00	\$	-
SY	County Road Pavement Restoration	\$103.00	\$	-
LF	Concrete Curb	\$10.00	\$	-
EA	Connection to Existing Water Main	\$2,100.00	\$	-
EA	Engineering Stakeout (5%)		\$	-
EA	Traffic Control (10%)		\$	-
SY	Municipal Shloulder & Easement Rest.	\$23.00	\$	-
SY	County Shoulder & Easement Rest.	\$40.00	\$	-
EA	Test Pits	\$1,400.00	\$	-
EA	As-Built Record Drawings (3%)		\$	-
<b>TOTAL COST:</b>			\$	-

<b>SANITARY SEWER SYSTEM</b>				
<b>QTY</b>	<b>UNIT</b>	<b>ITEM</b>	<b>UNIT COST</b>	<b>PRICE</b>
	EA	6" PVC Lateral, with Cleanout, up to 30'	\$1,400.00	\$ -
	EA	6" PVC Deep House Lateral	\$1,900.00	\$ -
	LF	Laterals Longer than 30 '	\$66.00	\$ -
	LF	Add \$8.00 per LF for DIP	\$8.00	\$ -
	LF	8" PVC, Gravity Pipe 0'-8' deep	\$59.00	\$ -
	LF	8" PVC, Gravity Pipe 8.01'-10' deep	\$72.00	\$ -
	LF	8" PVC, Gravity Pipe 10.01'-12' deep	\$82.00	\$ -
	LF	8" PVC, Gravity Pipe 12.01'-14' deep	\$99.00	\$ -
	LF	8" PVC, Gravity Pipe 14.01'-16' deep	\$118.00	\$ -
	LF	8" PVC, Gravity Pipe 16.01'-18' deep	\$146.00	\$ -
	LF	8" PVC, Gravity Pipe 18.01'-20' deep	\$160.00	\$ -
	LF	8" PVC, Gravity Pipe 20.01'-22' deep	\$181.00	\$ -
	LF	10" PVC Gravity Pipe 0'-8' deep	\$68.00	\$ -
	LF	10" PVC Gravity Pipe 8.01'-10' deep	\$81.00	\$ -
	LF	10" PVC, Gravity Pipe 10.01'-12' deep	\$98.00	\$ -
	LF	10" PVC, Gravity Pipe 12.01'-14' deep	\$105.00	\$ -
	LF	10" PVC, Gravity Pipe 14.01'-16' deep	\$120.00	\$ -
	LF	10" PVC, Gravity Pipe 16.01'-18' deep	\$146.00	\$ -
	LF	10" PVC, Gravity Pipe 18.01'-20' deep	\$160.00	\$ -
	LF	10" PVC, Gravity Pipe 20.01'-22' deep	\$181.00	\$ -
	LF	12" PVC Gravity Pipe 0'-8' deep	\$75.00	\$ -
	LF	12" PVC Gravity Pipe 8.01'-10' deep	\$90.00	\$ -
	LF	12" PVC, Gravity Pipe 10.01'-12' deep	\$100.00	\$ -
	LF	12" PVC, Gravity Pipe 12.01'-14' deep	\$118.00	\$ -
	LF	12" PVC, Gravity Pipe 14.01'-16' deep	\$137.00	\$ -
	LF	12" PVC, Gravity Pipe 16.01'-18' deep	\$157.00	\$ -
	LF	12" PVC, Gravity Pipe 18.01'-20' deep	\$176.00	\$ -
	LF	12" PVC, Gravity Pipe 20.01'-22' deep	\$199.00	\$ -
	LF	15" PVC Gravity Pipe 0'-8' deep	\$82.00	\$ -
	LF	15" PVC Gravity Pipe 8.01'-10' deep	\$99.00	\$ -
	LF	15" PVC, Gravity Pipe 10.01'-12' deep	\$108.00	\$ -

LF	15" PVC, Gravity Pipe	12.01'-14' deep	\$123.00	\$	-
LF	15" PVC, Gravity Pipe	14.01'-16' deep	\$143.00	\$	-
LF	15" PVC, Gravity Pipe	16.01'-18' deep	\$154.00	\$	-
LF	15" PVC, Gravity Pipe	18.01'-20' deep	\$166.00	\$	-
LF	15" PVC, Gravity Pipe	20.01'-22' deep	\$179.00	\$	-
LF	18" PVC Gravity Pipe	0'-8' deep	\$93.00	\$	-
LF	18" PVC Gravity Pipe	8.01'-10' deep	\$11.00	\$	-
LF	18" PVC, Gravity Pipe	10.01'-12' deep	\$121.00	\$	-
LF	18" PVC, Gravity Pipe	12.01'-14' deep	\$134.00	\$	-
LF	18" PVC, Gravity Pipe	14.01'-16' deep	\$159.00	\$	-
LF	18" PVC, Gravity Pipe	16.01'-18' deep	\$202.00	\$	-
LF	18" PVC, Gravity Pipe	18.01'-20' deep	\$224.00	\$	-
LF	18" PVC, Gravity Pipe	20.01'-22' deep	\$254.00	\$	-
LF	21" PVC Gravity Pipe	0'-8' deep	\$100.00	\$	-
LF	21" PVC Gravity Pipe	8.01'-10' deep	\$119.00	\$	-
LF	21" PVC, Gravity Pipe	10.01'-12' deep	\$130.00	\$	-
LF	21" PVC, Gravity Pipe	12.01'-14' deep	\$143.00	\$	-
LF	21" PVC, Gravity Pipe	14.01'-16' deep	\$169.00	\$	-
LF	21" PVC, Gravity Pipe	16.01'-18' deep	\$169.00	\$	-
LF	21" PVC, Gravity Pipe	18.01'-20' deep	\$180.00	\$	-
LF	21" PVC, Gravity Pipe	20.01'-22' deep	\$195.00	\$	-
LF	Concrete Encasement of an 8" main		\$23.00	\$	-
LF	Concrete Encasement of an 10" main		\$42.00	\$	-
LF	Concrete Encasement of an 12" main		\$47.00	\$	-
LF	Concrete Encasement of an 15" main		\$51.00	\$	-
LF	Concrete Encasement of an 18" main		\$62.00	\$	-
LF	Concrete Encasement of an 21" main		\$70.00	\$	-
EA	Standard Manhole, 0'-8' deep		\$4,200.00	\$	-
EA	Standard Manhole, 8.01'-10' deep		\$4,600.00	\$	-
EA	Standard Manhole, 10.01'-12' deep		\$5,300.00	\$	-
EA	Standard Manhole, 12.01'-14' deep		\$5,900.00	\$	-
EA	Standard Manhole, 14.01'- 16' deep		\$6,400.00	\$	-
EA	Standard Manhole, 16.01'-18' deep		\$7,600.00	\$	-
EA	Standard Manhole, 18.01'-20' deep		\$8,800.00	\$	-
EA	Cored Manhole		\$3,200.00	\$	-
EA	Drop Manhole		\$1,020.00	\$	-
EA	Cleanout Manhole		\$4,460.00	\$	-
EA	Air Release Manhole		\$5,090.00	\$	-
LF	4" DIP Force Main		\$48.00	\$	-
LF	6" DIP Force Main		\$61.00	\$	-
LF	8" DIP Force Main		\$67.00	\$	-
LF	10" DIP Force Main		\$76.00	\$	-
LF	12" DIP Force Main		\$86.00	\$	-
GAL	Grease Trap		\$3.00	\$	-
SY	Municipal Road Pavement Restoration		\$62.00	\$	-
SY	County Road Pavement Restoration		\$78.00	\$	-
SY	Municipal Shoulder & Easement Rest.		\$23.00	\$	-
SY	County Shoulder & Easement Rest.		\$39.00	\$	-
SF	Decorative Block Retaining Wall		\$50.00	\$	-
LF	Decorative Fence		\$50.00	\$	-
LF	Line Painting		\$0.50	\$	-
LF	Line Painting - Road		\$0.25	\$	-
EA	Pavement Markings, Symbols		\$50.00	\$	-
SF	Pavement Markings		\$5.00	\$	-
EA	Engineering Stakeout (5%)		\$	\$	-



EA	Traffic Control (10%)		\$	-
EA	As-Built Record Drawings (3%)		\$	-
EA	Concrete Wheel Stops	\$150.00	\$	-
<b>TOTAL COST:</b>			\$	-



# P.V.C. PIPE BEDDING / BACKFILL DETAILS

N.T.S.

**WATER SYSTEM DETAIL**

**MANCHESTER TOWNSHIP  
OCEAN COUNTY, NEW JERSEY**



**REMINGTON & VERNICK ENGINEERS**

9 ALLEN STREET, TOMS RIVER, NJ 08753  
(732) 286-9220, FAX (732) 505-8416, WWW.RVE.COM  
Certificate of Authorization: 24 GA 28003300

*Excellence • Innovation • Service*

SCALE:

N.T.S.

DATE:

11 / 2023

DRAWN BY:

BK

CHECKED BY:

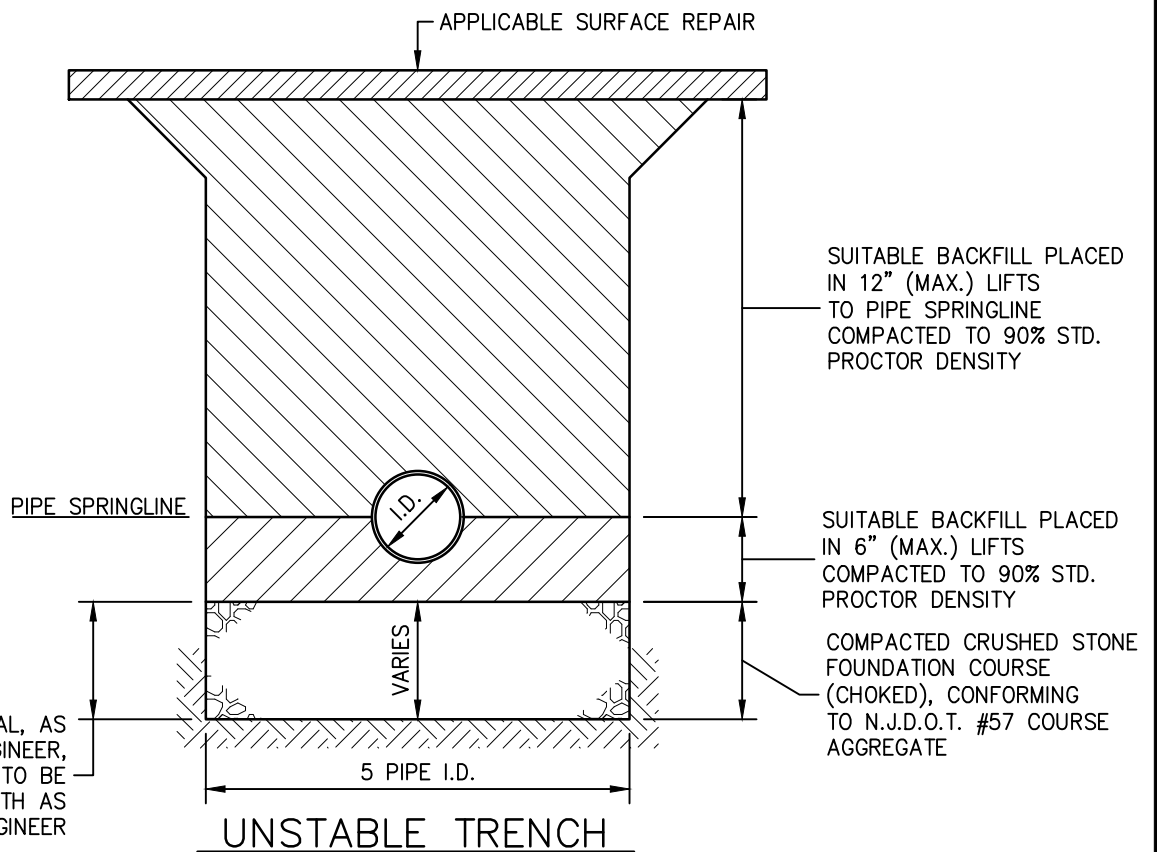
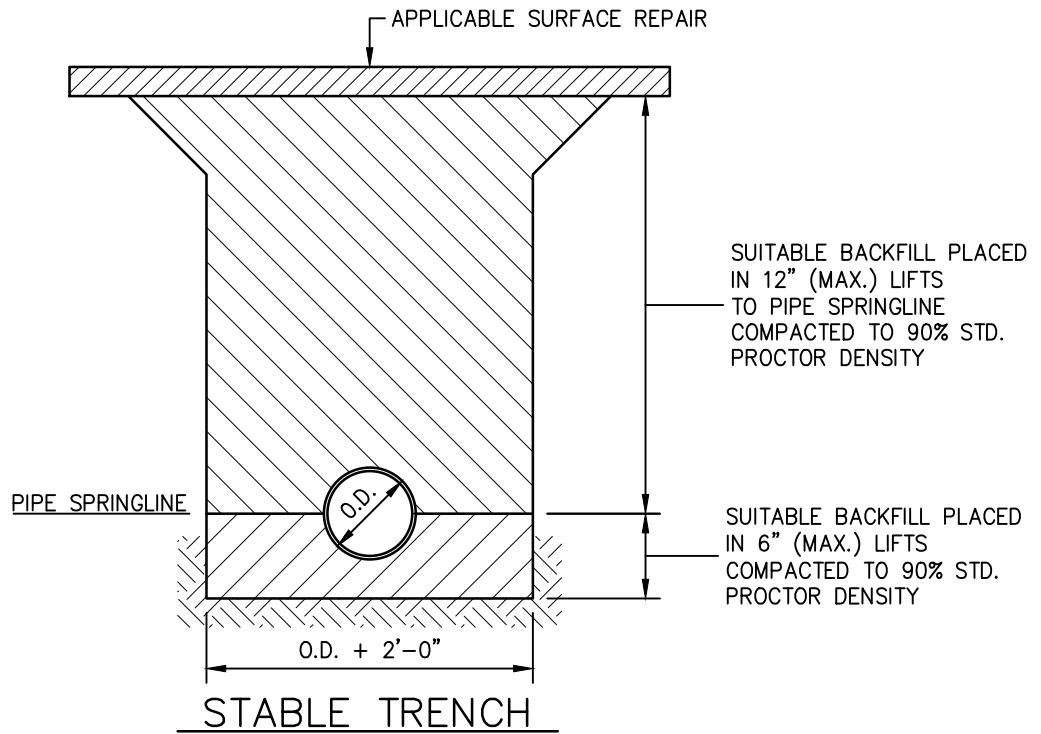
PH

JOB No.: -

FILE: 1519 - Water System Details (RVE).dwg

DETAIL

W-1



## D.I.P. BEDDING / BACKFILL DETAILS

N.T.S.

**WATER SYSTEM DETAIL**

**MANCHESTER TOWNSHIP  
OCEAN COUNTY, NEW JERSEY**



**REMINGTON & VERNICK ENGINEERS**

9 ALLEN STREET, TOMS RIVER, NJ 08753  
(732) 286-9220, FAX (732) 505-8416, WWW.RVE.COM  
Certificate of Authorization: 24 GA 28003300

*Excellence • Innovation • Service*

SCALE:

N.T.S.

DATE:

11 / 2023

DRAWN BY:

BK

CHECKED BY:

PH

JOB No.: -

FILE: 1519 - Water System Details (RVE).dwg

DETAIL


W-2

MINIMUM LENGTH (FT) TO BE RESTRAINED ON EACH SIDE OF FITTING(S)									
TYPE	PIPE SIZE								
	4"	6"	8"	10"	12"	14"	16"	18"	20"
TEES, VALVES AND DEAD ENDS	34	49	54	78	92	106	120	134	148
90° BEND	27	37	49	59	69	79	89	97	107
45° BEND	12	16	21	25	29	33	37	41	45
22-1/2° BEND	6	8	10	12	14	16	18	20	22
11-1/4° BEND	3	4	5	6	7	8	9	10	11

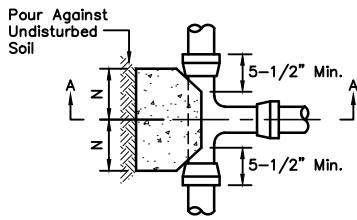
**NOTES:**

1. ALL FITTINGS SHALL BE MECHANICAL JOINT TYPE AND SHALL BE INSTALLED WITH TYLER UNION C153 (OR APPROVED EQUAL).
2. RESTRAIN ALL PIPE WITHIN THE LENGTH SHOWN ON THE TABLE MEASURED FROM THE POINT OF CONNECTION.
3. WHERE TWO OR MORE FITTINGS ARE TOGETHER, USE FITTINGS WHICH YIELD THE GREATEST LENGTH OF RESTRAINED PIPE.
4. FOR PIPE ENCASED IN POLYETHELENE, INCREASE THE GIVEN VALUE BY A FACTOR OF 1.5.
5. USE TWO 45 DEGREE BENDS FOR A 90 DEGREE BEND WHERE POSSIBLE. INCREASE THE GIVEN VALUE BY A FACTOR OF 1.5.
6. ISOLATION VALVES SHALL BE TREATED AS DEAD ENDS WITH RESTRAINT ON BOTH SIDES OF THE VALVE.
7. IF LARGER PIPES ARE PROPOSED, THEN DESIGN ENGINEER SHALL PROVIDE CALCULATIONS FOR PROPER RESTRAINT LENGTH.

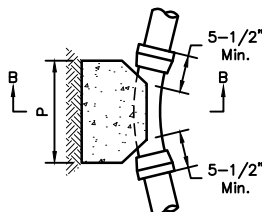
## JOINT RESTRAINT SCHEDULE

<b>WATER SYSTEM DETAIL</b>		<b>REMINGTON &amp; VERNICK ENGINEERS</b> 9 ALLEN STREET, TOMS RIVER, NJ 08753 (732) 286-9220, FAX (732) 505-8416, WWW.RVE.COM Certificate of Authorization: 24 GA 28003300 <i>Excellence • Innovation • Service</i>				
<b>MANCHESTER TOWNSHIP OCEAN COUNTY, NEW JERSEY</b>	SCALE: N.T.S.	DATE: 11 / 2023	DRAWN BY: BK	CHECKED BY: PH	JOB No.: - FILE: 1519 - Water System Details (RVE).dwg	DETAIL W-3

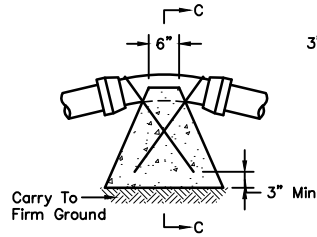
N:\DRAWING\Manchester\Details\Water\1519 - Water System Details (RVE).dwg 11/19/2023 3:06:25 PM



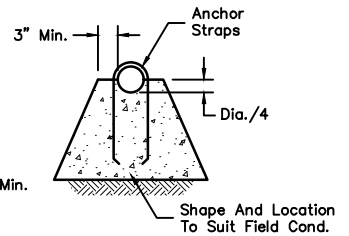
PLAN



PLAN

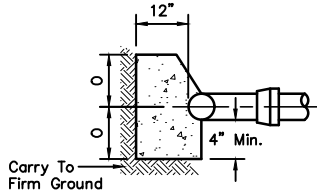


ELEVATION

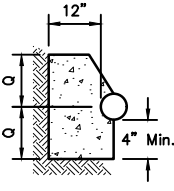


SECTION C-C

VERTICAL DOWNWARD BENDS



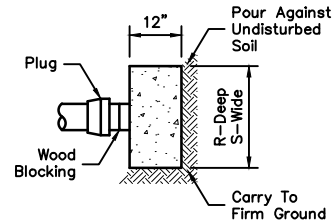
SECTION A-A



SECTION B-B

TEES

HORIZONTAL AND VERTICAL UPWARD BENDS



PLUGS

THRUST BLOCKS FOR TEES, HORIZONTAL & VERTICAL BENDS, AND PLUGS							
DESCRIPTION	DIMENSION	4"φ	6"φ	8"φ	10"φ	12"φ	14"φ
Tees	N	0'-6"	0'-9"	1'-0"	1'-5"	1'-8"	1'-11"
	O	0'-6"	0'-8"	0'-10"	1'-0"	1'-2"	1'-5"
Horizontal & Vertical Upward 90° Bends	P	1'-4"	2'-0"	2'-10"	3'-4"	3'-8"	4'-6"
	Q	0'-6"	0'-8"	0'-10"	1'-2"	1'-6"	1'-8"
Horizontal & Vertical Upward 45° Bends	P	0'-10"	1'-3"	1'-8"	2'-2"	2'-6"	3'-0"
	Q	0'-6"	0'-8"	0'-10"	1'-0"	1'-2"	1'-4"
Horizontal & Vertical Upward 22-1/2° Bends	P	0'-9"	0'-10"	1'-0"	1'-4"	1'-10"	2'-0"
	Q	0'-6"	0'-7"	0'-8"	0'-10"	0'-10"	1'-0"
Horizontal & Vertical Upward 11-1/4° Bends	P	0'-6"	0'-8"	0'-8"	0'-10"	1'-0"	1'-0"
	Q	0'-6"	0'-7"	0'-8"	0'-9"	0'-10"	1'-0"
Vertical Downward 45° Bends	*Min. Concrete Anchorage	16 c.f.	32 c.f.	56 c.f.	92 c.f.	130 c.f.	178 c.f.
Vertical Downward 22-1/2° Bends	*Min. Concrete Anchorage	8 c.f.	16 c.f.	28 c.f.	46 c.f.	65 c.f.	89 c.f.
Vertical Downward 11-1/4° Bends	*Min. Concrete Anchorage	4 c.f.	8 c.f.	14 c.f.	23 c.f.	33 c.f.	45 c.f.
Plugs	R	1'-0"	1'-6"	1'-10"	2'-0"	2'-4"	2'-10"
	S	1'-0"	1'-4"	1'-10"	2'-10"	3'-4"	3'-10"
Anchor Strap Size	-	#3	#4	#5	#6	#7	#8

THRUST BLOCKS DESIGNED FOR 150 P.S.I. TEST PRESSURE AND 3000 P.S.F. SOIL PRESSURE.

\* MINIMUM CONCRETE ANCHORAGE WITHOUT BACKFILL AND NO GROUND WATER CONDITION.

NOTE: CONTRACTOR SHALL VERIFY SOIL BEARING PRESSURE. ABOVE THRUST BLOCKS SHALL BE UTILIZED ONLY IF ACTUAL SOIL PRESSURE EXCEEDS 3000 P.S.F.

**TYPICAL THRUST BLOCK DETAILS**

N.T.S.

**WATER SYSTEM DETAIL**

MANCHESTER TOWNSHIP  
OCEAN COUNTY, NEW JERSEY



**REMINGTON & VERNICK ENGINEERS**

9 ALLEN STREET, TOMS RIVER, NJ 08753  
(732) 286-9220, FAX (732) 505-8416, WWW.RVE.COM  
Certificate of Authorization: 24 GA 28003300

*Excellence • Innovation • Service*

SCALE:

N.T.S.

DATE:

11 / 2023

DRAWN BY:

BK

CHECKED BY:

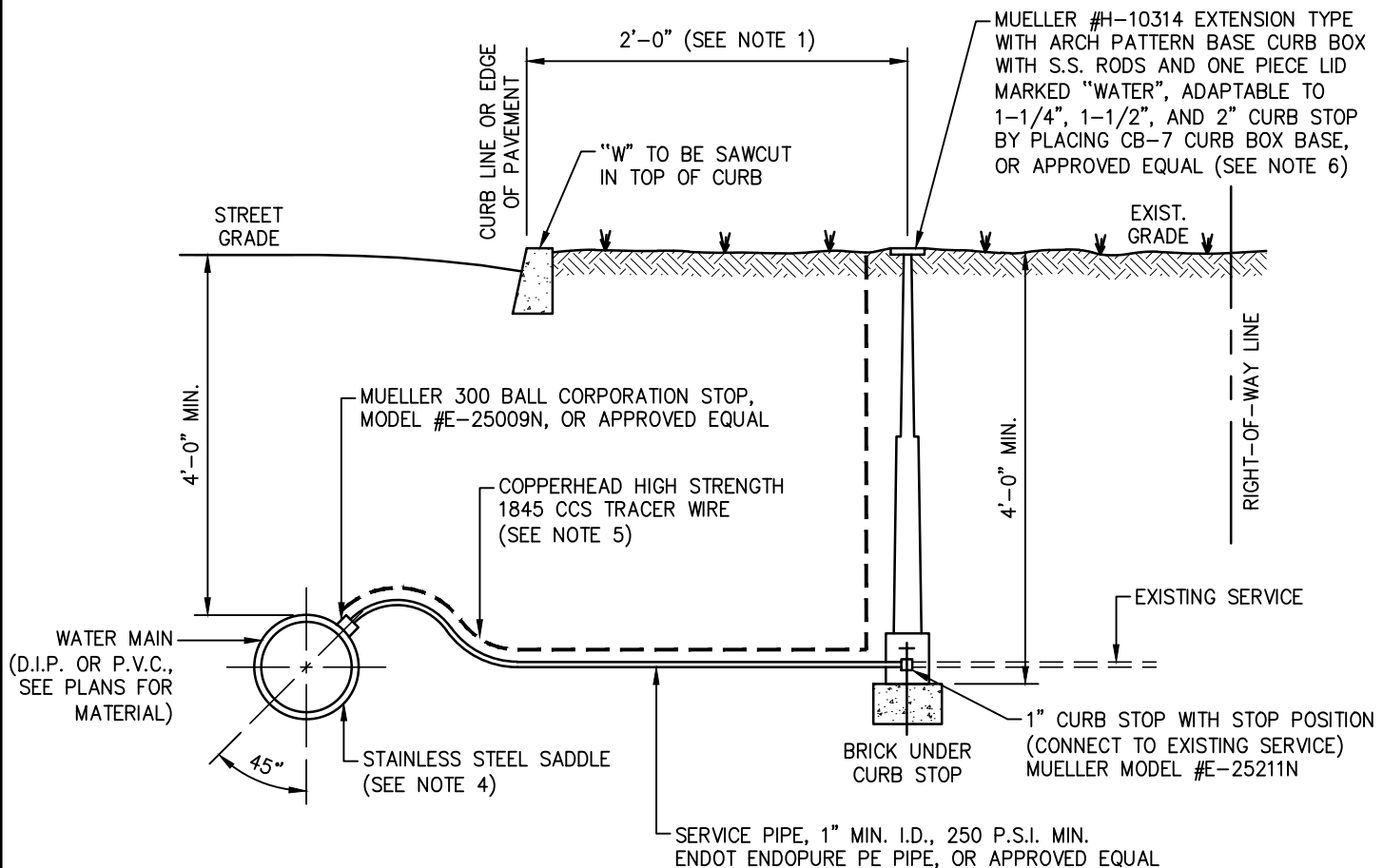
PH

JOB No.: -

FILE: 1519 - Water System Details (RVE).dwg

DETAIL

W-4



**NOTES:**

1. THE LOCATION OF CURB STOP AND BOX SHALL BE TWO (2') FEET FROM THE CURB. WHERE NO CURB IS PRESENT, THE LOCATION OF CURB STOP AND BOX SHALL BE IMMEDIATELY WITHIN THE RIGHT-OF-WAY.
2. NO CONNECTION SHALL BE BACKFILLED UNTIL WRITTEN APPROVAL IS MADE BY THE ENGINEER OR HIS REPRESENTATIVE. VIOLATORS WILL BE REQUIRED TO EXPOSE THE WORK FOR INSPECTION BEFORE ACCEPTANCE OF THE CONNECTION.
3. THE SITE CONTRACTOR SHALL EXTEND THE SERVICE PIPING TO THE PROPERTY LINE.
4. SADDLES MUST BE USED FOR ALL SERVICES LARGER THAN ONE (1") INCH, REGARDLESS OF WATER MAIN MATERIAL. FOR D.I.P. WATER MAINS, SADDLES SHALL BE FORD MODEL #FC202-XXX-TAP STYLE. FOR P.V.C. WATER MAINS, SADDLES SHALL BE FORD MODEL #FC202-XXX-C44. FOR D.I.P WATER MAINS, WITH SERVICES EQUAL OR SMALLER THAN ONE (1") INCH, A DIRECT TAP IS AUTHORIZED. FOR ALL OTHER WATER MAIN MATERIALS, WITH SERVICES EQUAL OR SMALLER THAN ONE (1") INCH, A SADDLE MUST BE USED.
5. COPPERHEAD HIGH STRENGTH 1845 CCS TRACER WIRE MUST BE RAN FROM THE TAP ON THE MAIN ALONG THE WATER LINE TO THE TOP OF THE WATER BOX.
6. CURB STOP AND CURB BOX SHALL BE IN CONFORMANCE WITH STANDARDS OF OWNER'S WATER DEPARTMENT AND CONFORMING WITH THE LATEST A.W.W.A. SPECIFICATIONS AND REQUIREMENTS.
7. WATER METER (IF REQUIRED) AND REMOTE RECEPTACLE SHALL BE PROVIDED BY THE TOWNSHIP AT THE DEVELOPER'S/OWNER'S COST.

# TYPICAL WATER SERVICE CONNECTION DETAIL

N.T.S.

**WATER SYSTEM DETAIL**

**MANCHESTER TOWNSHIP  
OCEAN COUNTY, NEW JERSEY**



**REMINGTON & VERNICK ENGINEERS**

9 ALLEN STREET, TOMS RIVER, NJ 08753  
(732) 286-9220, FAX (732) 505-8416, WWW.RVE.COM  
Certificate of Authorization: 24 GA 28003300

*Excellence • Innovation • Service*

SCALE:

N.T.S.

DATE:

11 / 2023

DRAWN BY:

BK

CHECKED BY:

PH

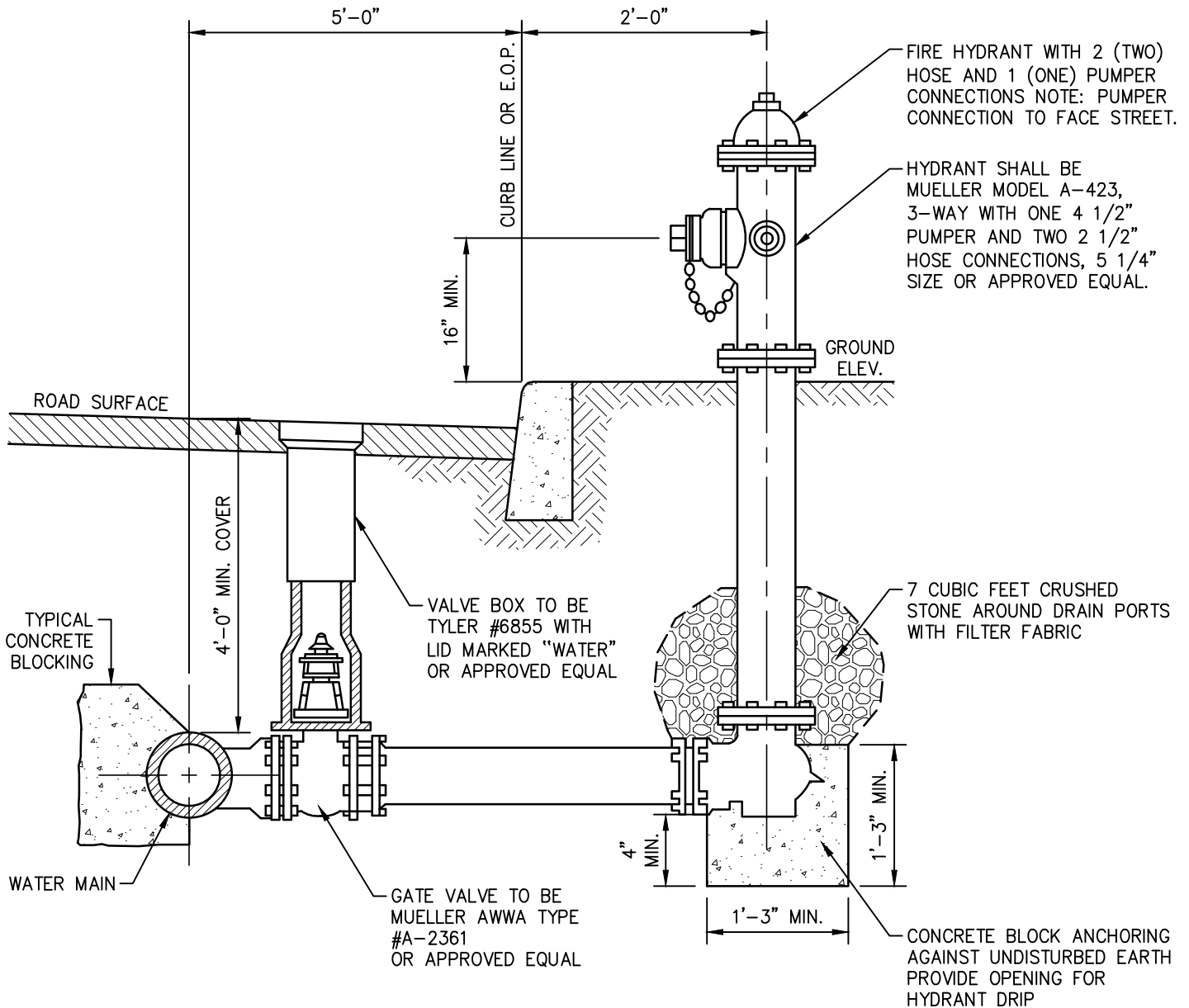
JOB No.: -

FILE: 1519 - Water System Details (RVE).dwg

DETAIL

W-5





# FIRE HYDRANT ASSEMBLY DETAIL

N.T.S.

**WATER SYSTEM DETAIL**

**MANCHESTER TOWNSHIP  
OCEAN COUNTY, NEW JERSEY**



**REMINGTON & VERNICK ENGINEERS**

9 ALLEN STREET, TOMS RIVER, NJ 08753  
(732) 286-9220, FAX (732) 505-8416, WWW.RVE.COM  
Certificate of Authorization: 24 GA 28003300

*Excellence • Innovation • Service*

SCALE:

N.T.S.

DATE:

11 / 2023

DRAWN BY:

BK

CHECKED BY:

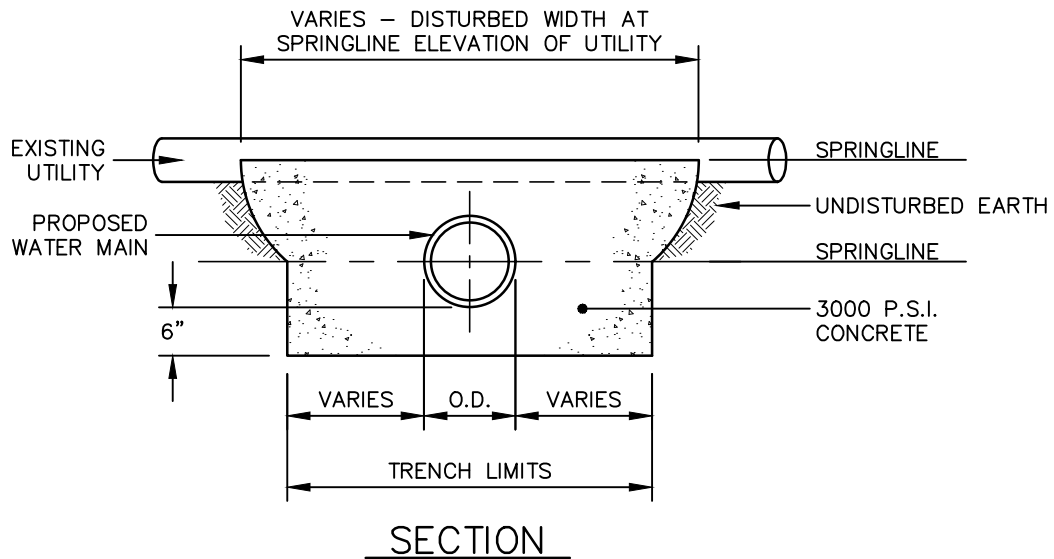
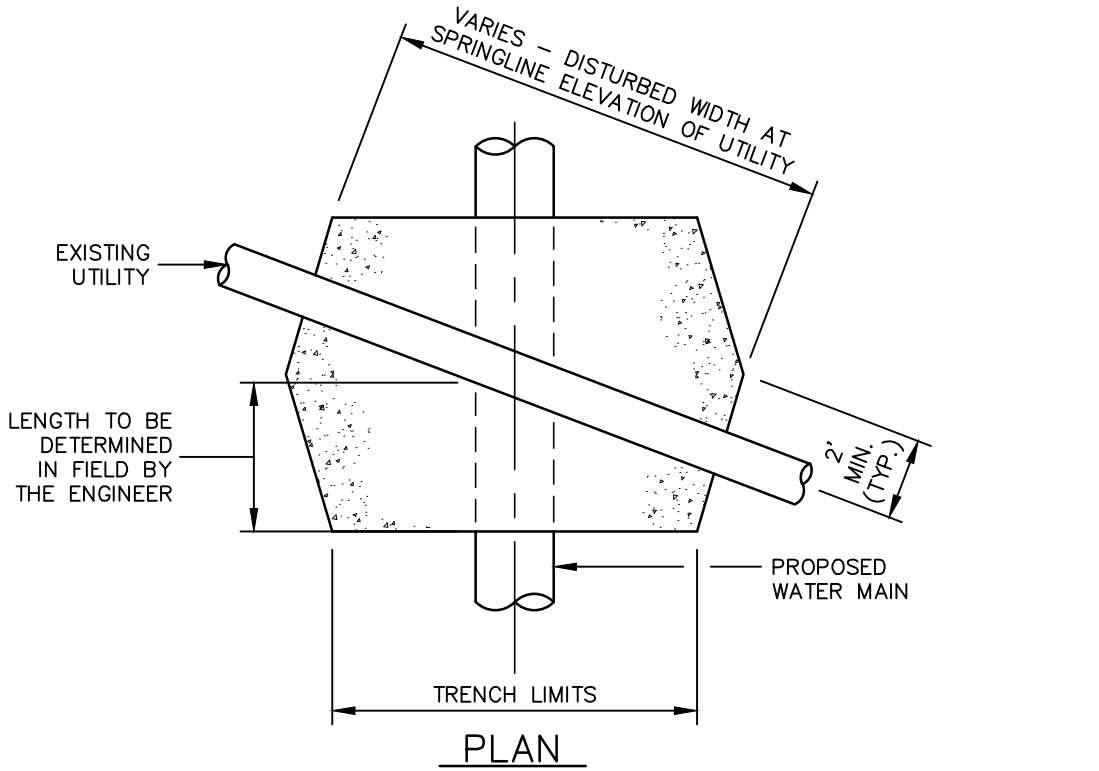
PH

JOB No.: -

FILE: 1519 - Water System Details (RVE).dwg

DETAIL

W-6



**NOTES:**

1. WHERE WATER MAINS CROSS UNDER OR OVER AN EXISTING SANITARY SEWER, STORM DRAIN OR OTHER UTILITY AND WHERE THE MINIMUM DISTANCE BETWEEN THEM IS 6" OR LESS, CONSTRUCT A CONCRETE CRADLE TO THE SPRINGLINE OF THE UPPER PIPE. THE WIDTH OF THE CRADLE SHALL BE EQUAL TO THE ACTUAL EXCAVATED WIDTH OF THE TRENCH (6" BELOW THE LOWER PIPE) AND VARIES TO THE DISTURBED TRENCH WIDTH AT THE SPRINGLINE OF THE UPPER PIPE. THE LENGTH VARIES AND IS TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

## CONCRETE CRADLE DETAIL

N.T.S.

**WATER SYSTEM DETAIL**

**MANCHESTER TOWNSHIP  
OCEAN COUNTY, NEW JERSEY**



SCALE:

N.T.S.

DATE:

11 / 2023

DRAWN BY:

BK

CHECKED BY:

PH

JOB No.: -

FILE: 1519 - Water System Details (RVE).dwg

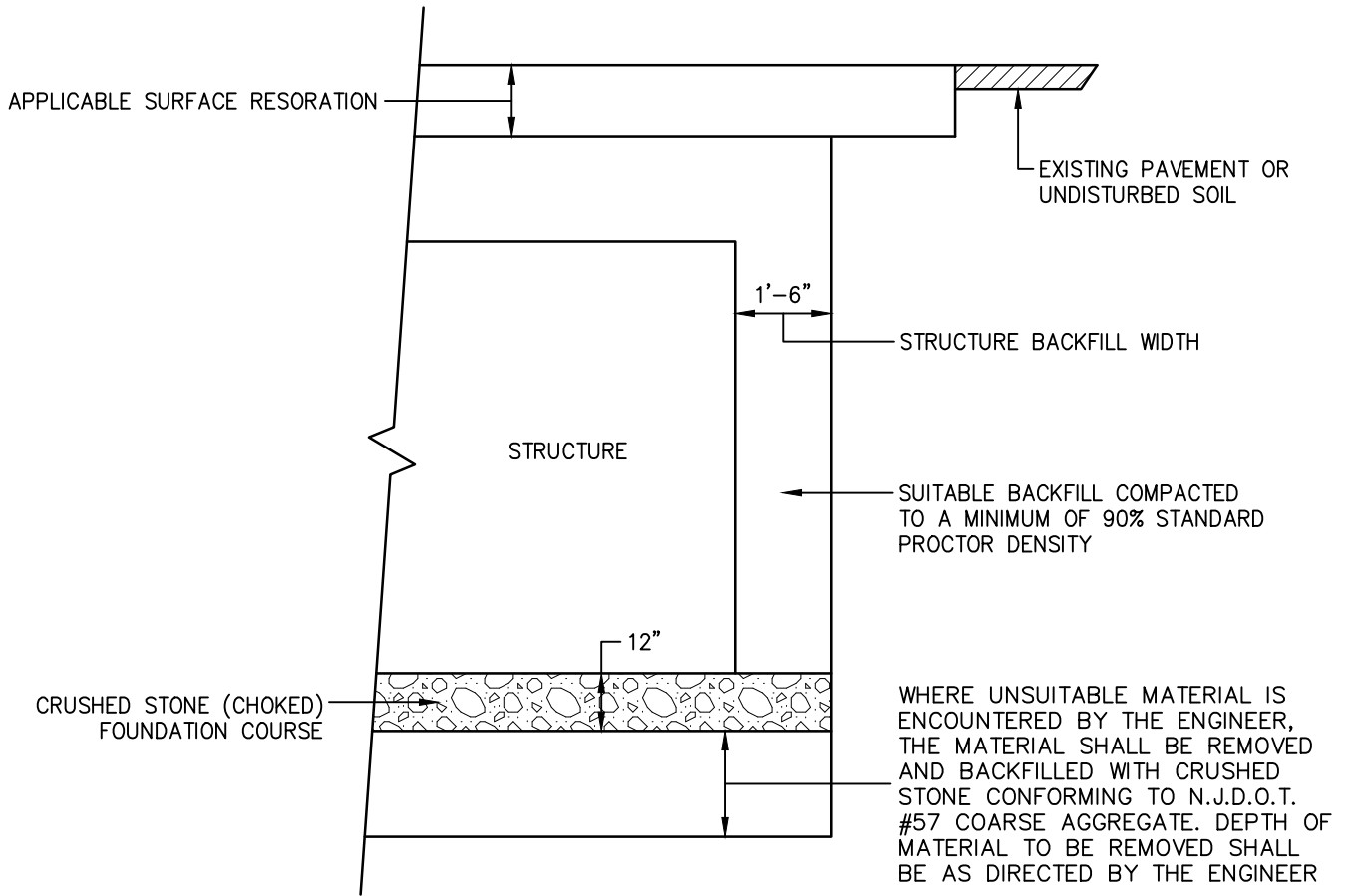
DETAIL

W-7

**REMINGTON & VERNICK ENGINEERS**

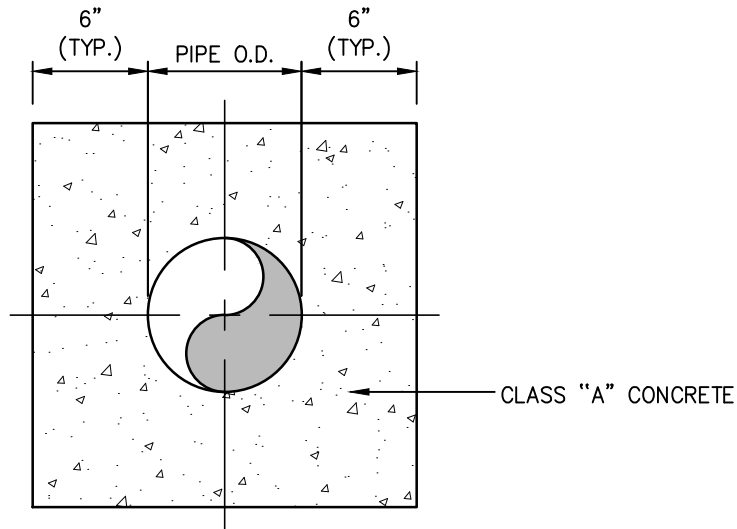
9 ALLEN STREET, TOMS RIVER, NJ 08753  
(732) 286-9220, FAX (732) 505-8416, WWW.RVE.COM  
Certificate of Authorization: 24 GA 28003300

*Excellence • Innovation • Service*



## TYPICAL STRUCTURE BACKFILL DETAIL

N.T.S.



## CONCRETE ENCASEMENT DETAIL

N.T.S.

**WATER SYSTEM DETAIL**

**MANCHESTER TOWNSHIP  
OCEAN COUNTY, NEW JERSEY**



**REMINGTON & VERNICK ENGINEERS**

9 ALLEN STREET, TOMS RIVER, NJ 08753  
(732) 286-9220, FAX (732) 505-8416, WWW.RVE.COM  
Certificate of Authorization: 24 GA 28003300

*Excellence • Innovation • Service*

SCALE:

N.T.S.

DATE:

11 / 2023

DRAWN BY:

BK

CHECKED BY:

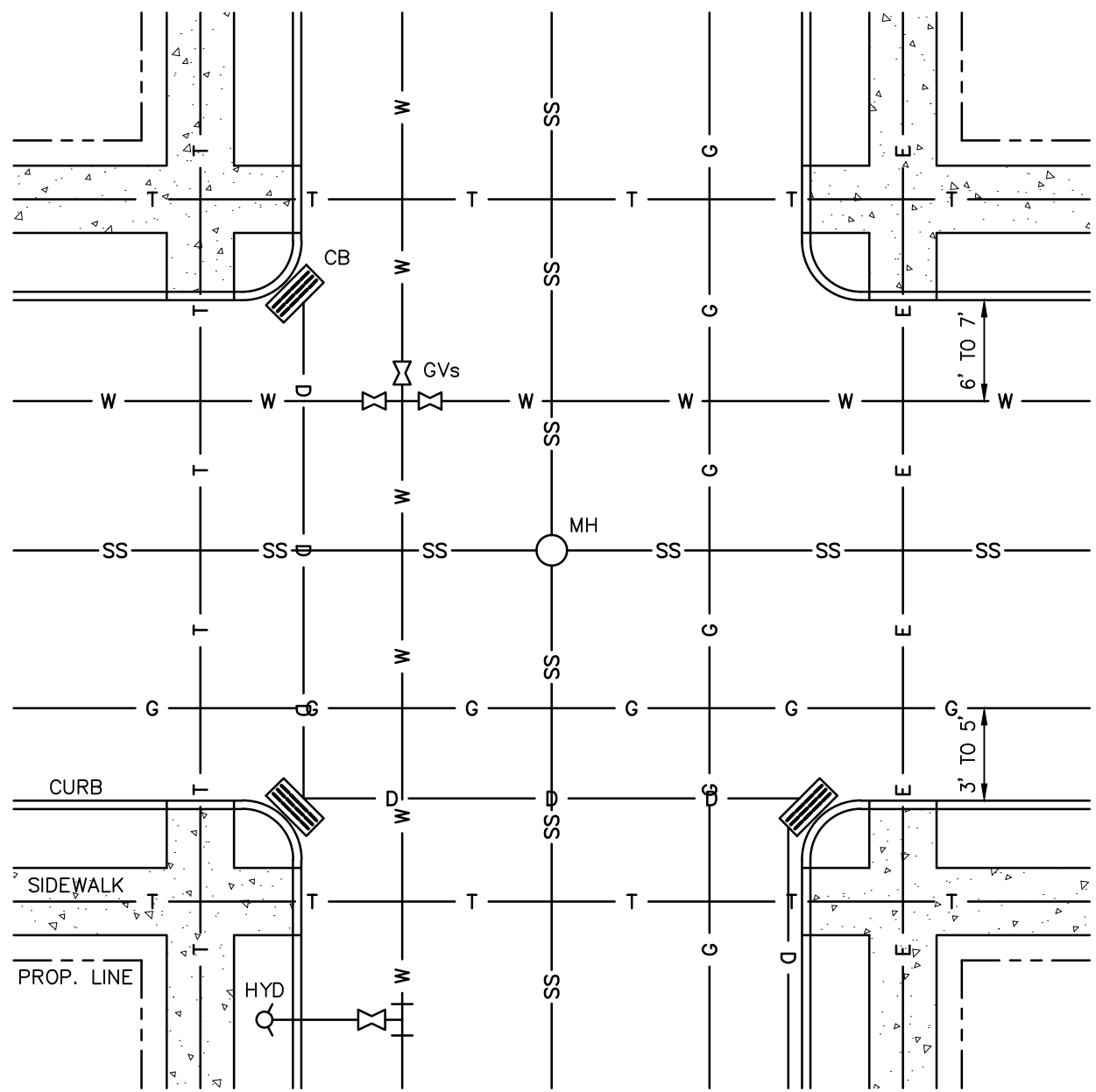
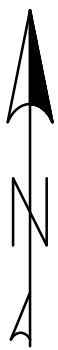
PH

JOB No.: -

FILE: 1519 - Water System Details (RVE).dwg

DETAIL

W-8



LEGEND	
— SS —	Sanitary Sewer
— W —	Water Main
— G —	Gas Main
— D —	Storm Drain
— E —	Electric
— T —	Telephone

## TYPICAL STREET INTERSECTION SHOWING LAYOUT OF UTILITIES

N.T.S.

**WATER SYSTEM DETAIL**

**MANCHESTER TOWNSHIP  
OCEAN COUNTY, NEW JERSEY**

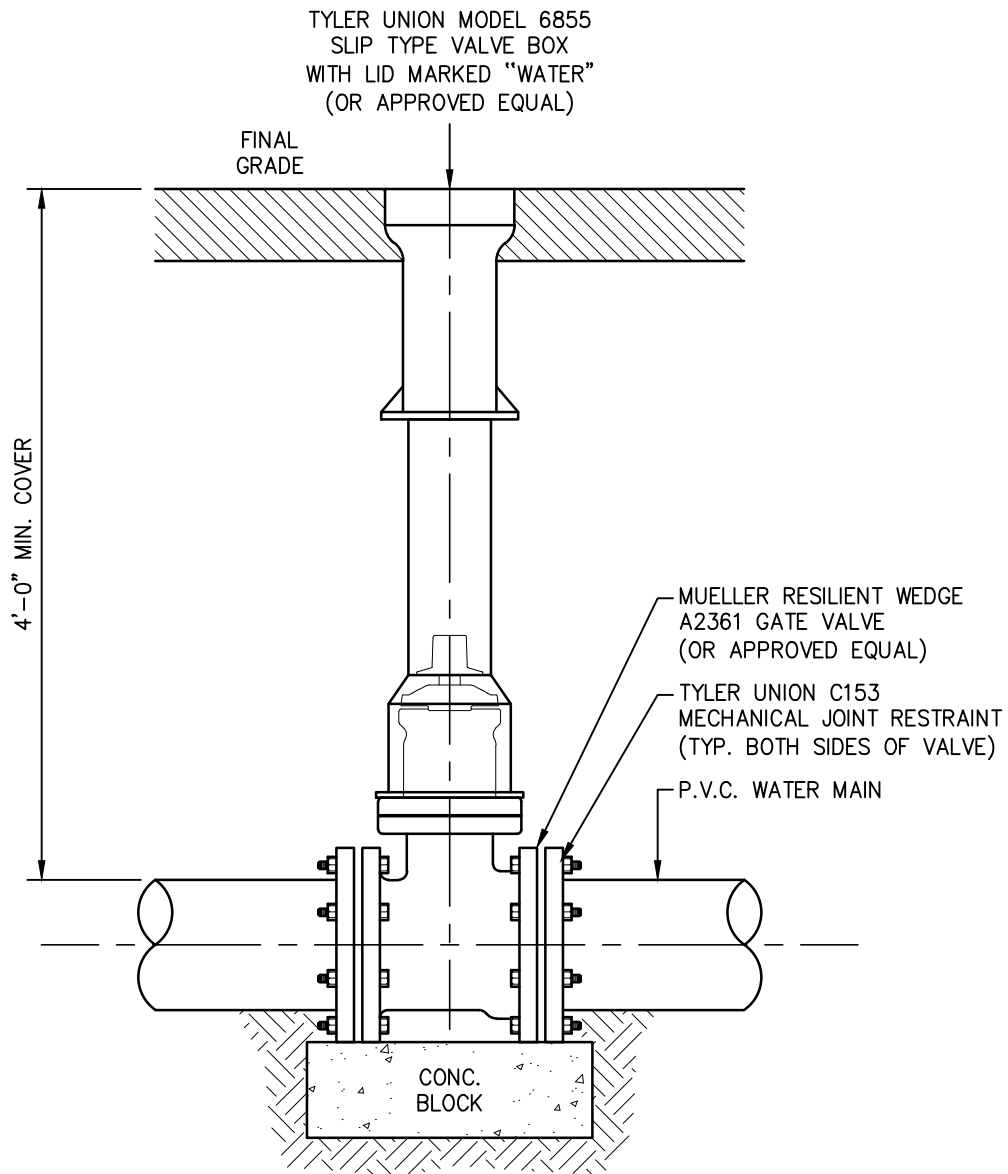


**REMINGTON & VERNICK ENGINEERS**

9 ALLEN STREET, TOMS RIVER, NJ 08753  
(732) 286-9220, FAX (732) 505-8416, WWW.RVE.COM  
Certificate of Authorization: 24 GA 28003300

*Excellence • Innovation • Service*

SCALE: N.T.S.	DATE: 11 / 2023	DRAWN BY: BK	CHECKED BY: PH	JOB No.: -	DETAIL W-9
				FILE: 1519 - Water System Details (RVE).dwg	



## TYPICAL GATE VALVE DETAIL

N.T.S.

**WATER SYSTEM DETAIL**

**MANCHESTER TOWNSHIP  
OCEAN COUNTY, NEW JERSEY**



**REMINGTON & VERNICK ENGINEERS**

9 ALLEN STREET, TOMS RIVER, NJ 08753  
(732) 286-9220, FAX (732) 505-8416, WWW.RVE.COM  
Certificate of Authorization: 24 GA 28003300

*Excellence • Innovation • Service*

SCALE:

N.T.S.

DATE:

11 / 2023

DRAWN BY:

BK

CHECKED BY:

PH

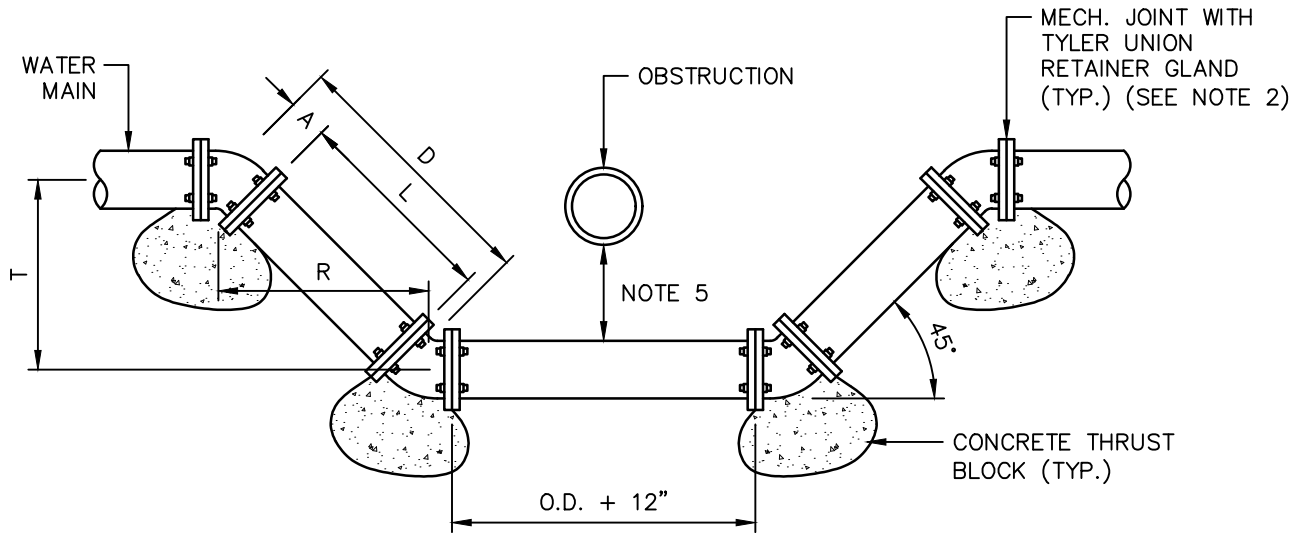
JOB No.: -

FILE: 1519 - Water System Details (RVE).dwg

DETAIL

W-10

ANGLE	D=	R=	L=
45°	(T)x1.414	Tx(1.000)	D-2A
22.5°	(T)x2.613	Tx(2.414)	D-2A
11.25°	(T)x5.126	Tx(5.027)	D-2A



**NOTES:**

1. WATER MAIN MAY BE LOOPED ABOVE OBSTRUCTION IF 4' MINIMUM COVER IS MAINTAINED ABOVE WATER MAIN.
2. ALL JOINTS SHALL BE MECHANICAL JOINT AND ALL FITTINGS SHALL BE RESTRAINED BY TYLER UNION OR APPROVED EQUAL.
3. OFFSETS MAY BE SUBSTITUTED FOR A T OF UP TO 24 FEET IF APPROVED BY THE ENGINEER.
4. CONCRETE THRUST BLOCKS SHALL BE PROVIDED AT ALL BENDS OR OTHER POINTS OF PIPE DIRECTION CHANGE.
5. MINIMUM CLEARANCE BETWEEN SANITARY SEWER AND WATER MAIN SHALL BE 18" MINIMUM. CLEARANCE BETWEEN WATER MAIN AND OTHER OBSTRUCTIONS SHALL BE 6".
6. JOINTS SHALL BE RESTRAINED BY A TYLER UNION C153, OR APPROVED EQUAL.
7. WATER MAIN SHALL BE CLASS 52 DUCTILE IRON CEMENT LINED RESTRAINED JOINT PIPE. ALL FITTINGS SHALL BE MECHANICAL JOINT DUCTILE IRON (RESTRAINED.)

## TYPICAL UTILITY CROSSING DETAIL

N.T.S.

**WATER SYSTEM DETAIL**

**MANCHESTER TOWNSHIP  
OCEAN COUNTY, NEW JERSEY**



**REMINGTON & VERNICK ENGINEERS**

9 ALLEN STREET, TOMS RIVER, NJ 08753  
(732) 286-9220, FAX (732) 505-8416, WWW.RVE.COM  
Certificate of Authorization: 24 GA 28003300

*Excellence • Innovation • Service*

SCALE:

N.T.S.

DATE:

11 / 2023

DRAWN BY:

BK

CHECKED BY:

PH

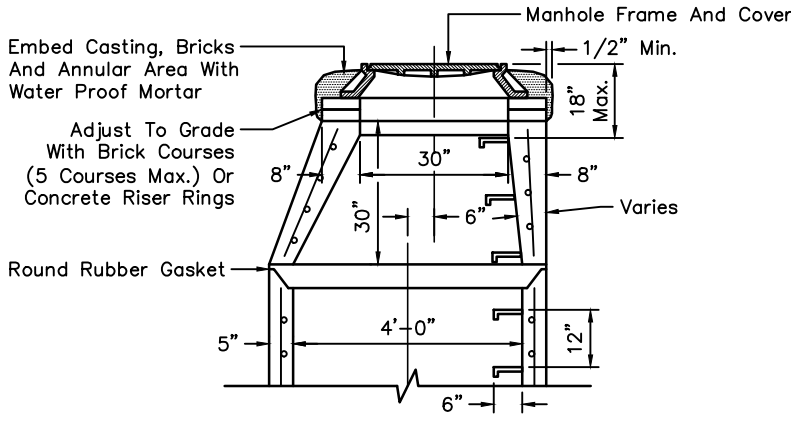
JOB No.: -

FILE: 1519 - Water System Details (RVE).dwg

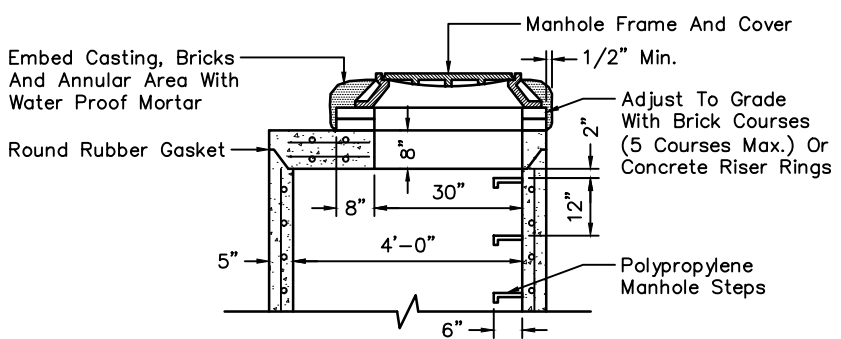
DETAIL

W-11

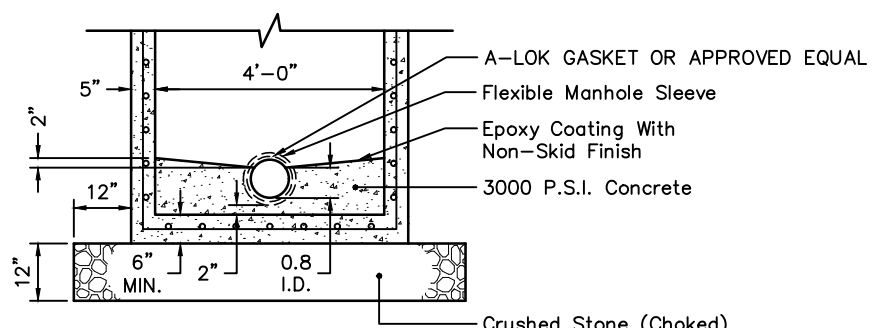




**CONE TOP (ALTERNATE "A")**



**SLAB TOP (ALTERNATE "B")**



**BASE SECTION**

**NOTES:**

1. Short Sections Of Main Shall Be Used At Manholes.
2. Exterior Surface Shall Be Painted With Two Coats Of Coal Tar Epoxy. Interior Surface Shall Be Coated With White Epoxy.
3. All Construction Shall Meet Standard Specifications, The Latest Revisions.
4. All Construction Shall Be In Accordance With The Latest O.S.H.A. Standards.
5. Precast Reinforced Concrete Manhole Sections Shall Conform To The Requirements Of ASTM C478.
6. All Precast Sections Shall Have A Minimum Ultimate Compressive Strength Of 4000 P.S.I.
7. Joints Of The Manhole Sections Shall Be Formed Using A Round Rubber Gasket And When Assembled Shall Be Self-Centering And Make A Uniform Watertight Joint.
8. Slab Tops Are To Be Used When There Is Sufficient Elevation Difference To Make All The Changes In Section.

**STANDARD MANHOLE DETAIL**

N.T.S.

**SANITARY SYSTEM DETAIL**

**MANCHESTER TOWNSHIP  
OCEAN COUNTY, NEW JERSEY**



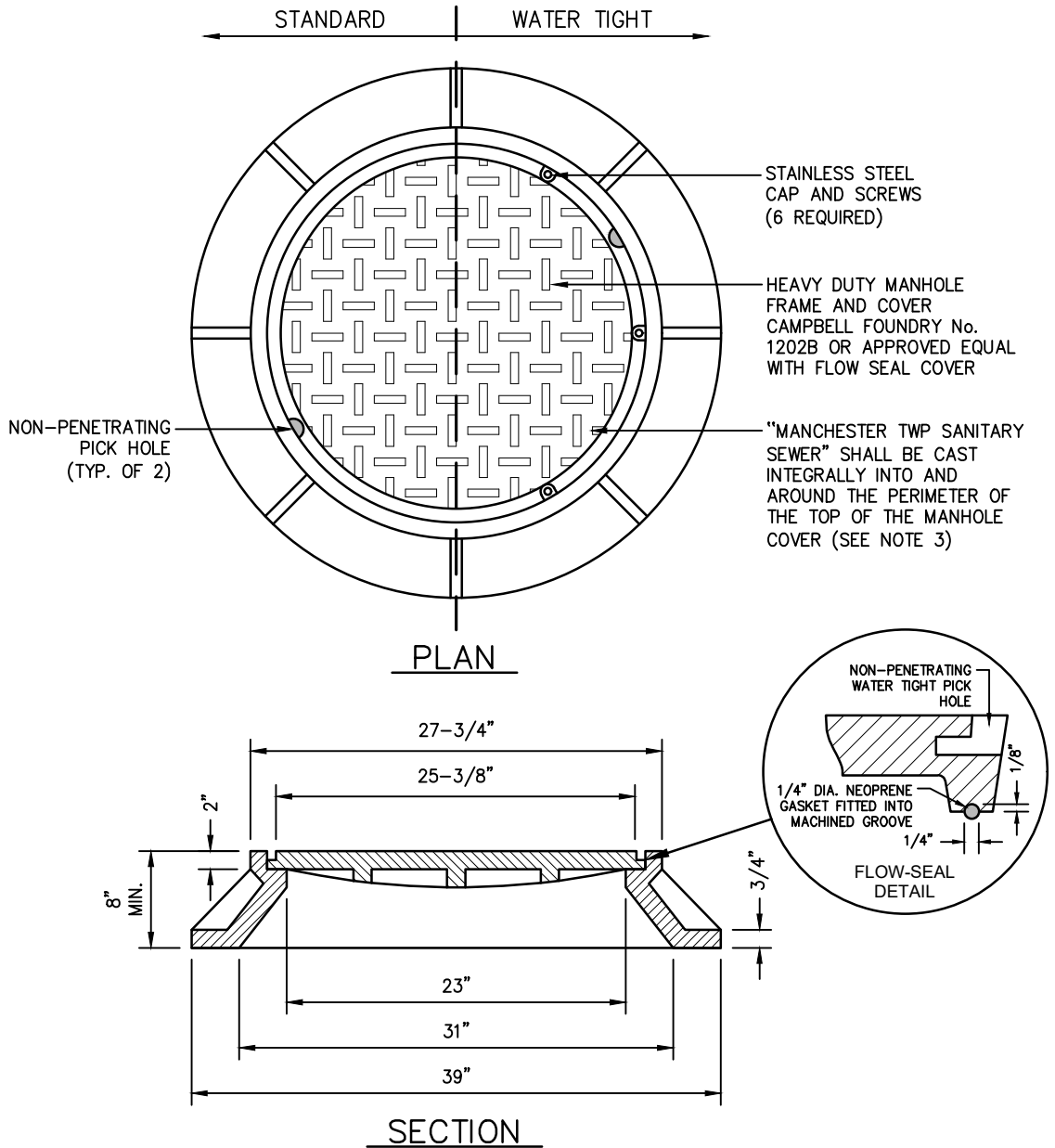
**REMINGTON & VERNICK ENGINEERS**

9 ALLEN STREET, TOMS RIVER, NJ 08753  
(732) 286-9220, FAX (732) 505-8416, WWW.RVE.COM  
Certificate of Authorization: 24 GA 28003300

*Excellence • Innovation • Service*

SCALE: N.T.S.	DATE: 11 / 2023	DRAWN BY: BK	CHECKED BY: PH	JOB No.: -	DETAIL S-1
				FILE: 1519 - Sanitary System Details (RVE).dwg	

N:\DRAWING\Manchester\Details\Sanitary\1519 - Sanitary System Details (RVE).dwg 11/19/2023 3:04:37 PM



**NOTES:**

1. CASTINGS SHALL BE FULLY COATED INSIDE AND OUTSIDE WITH COAL TAR PITCH VARNISH OR APPROVED EQUAL. INTERIOR SHALL HAVE TWO COATS, COLORED WHITE.
2. BEARING SURFACE OF FRAME AND COVER SHALL BE MACHINED.
3. COVER SHALL BE SUPPLIED WITH 2" HIGH BLOCK LETTERING, RAISED. CAMPBELL PATTERN NUMBER #12024502 / #12278822 FLOW SEAL COVER LABELED "MANCHESTER TWP SANITARY SEWER"
4. CAMPBELL FOUNDRY PATTERN NO. 1202 TYPE B OR EQUAL.
5. "FLOW-SEAL MANHOLE COVER" REQUIRED FOR MANHOLES LOCATED IN AREAS BELOW AN ELEVATION 10. CAMPBELL NEOPRENE GASKET #1227.
6. MATERIALS SHOWN TO BE MANUFACTURERS LISTED OR APPROVED EQUAL.

## MANHOLE FRAME AND COVER DETAIL

N. T. S.

**SANITARY SYSTEM DETAIL**

**MANCHESTER TOWNSHIP  
OCEAN COUNTY, NEW JERSEY**



**REMINGTON & VERNICK ENGINEERS**

9 ALLEN STREET, TOMS RIVER, NJ 08753  
(732) 286-9220, FAX (732) 505-8416, WWW.RVE.COM  
Certificate of Authorization: 24 GA 28003300

*Excellence • Innovation • Service*

SCALE:

N. T. S.

DATE:

11 / 2023

DRAWN BY:

BK

CHECKED BY:

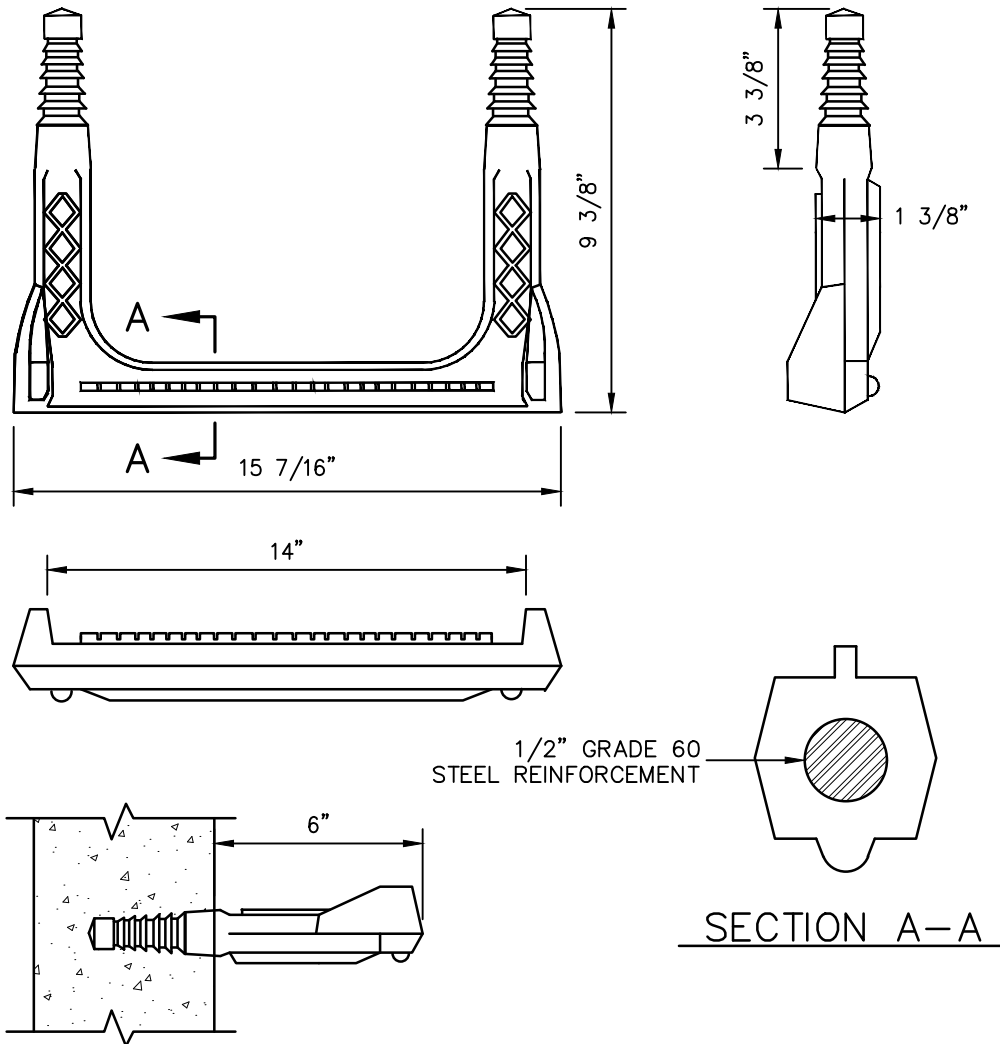
PH

JOB No.: -

FILE: 1519 - Sanitary System Details (RVE).dwg

DETAIL

S-2



**COPOLYMER POLYPROPYLENE  
MANHOLE STEP (PLASTIC)**

N.T.S.

**SANITARY SYSTEM DETAIL**

**MANCHESTER TOWNSHIP  
OCEAN COUNTY, NEW JERSEY**



**REMINGTON & VERNICK ENGINEERS**

9 ALLEN STREET, TOMS RIVER, NJ 08753  
(732) 286-9220, FAX (732) 505-8416, WWW.RVE.COM  
Certificate of Authorization: 24 GA 28003300

*Excellence • Innovation • Service*

SCALE:

N.T.S.

DATE:

11 / 2023

DRAWN BY:

BK

CHECKED BY:

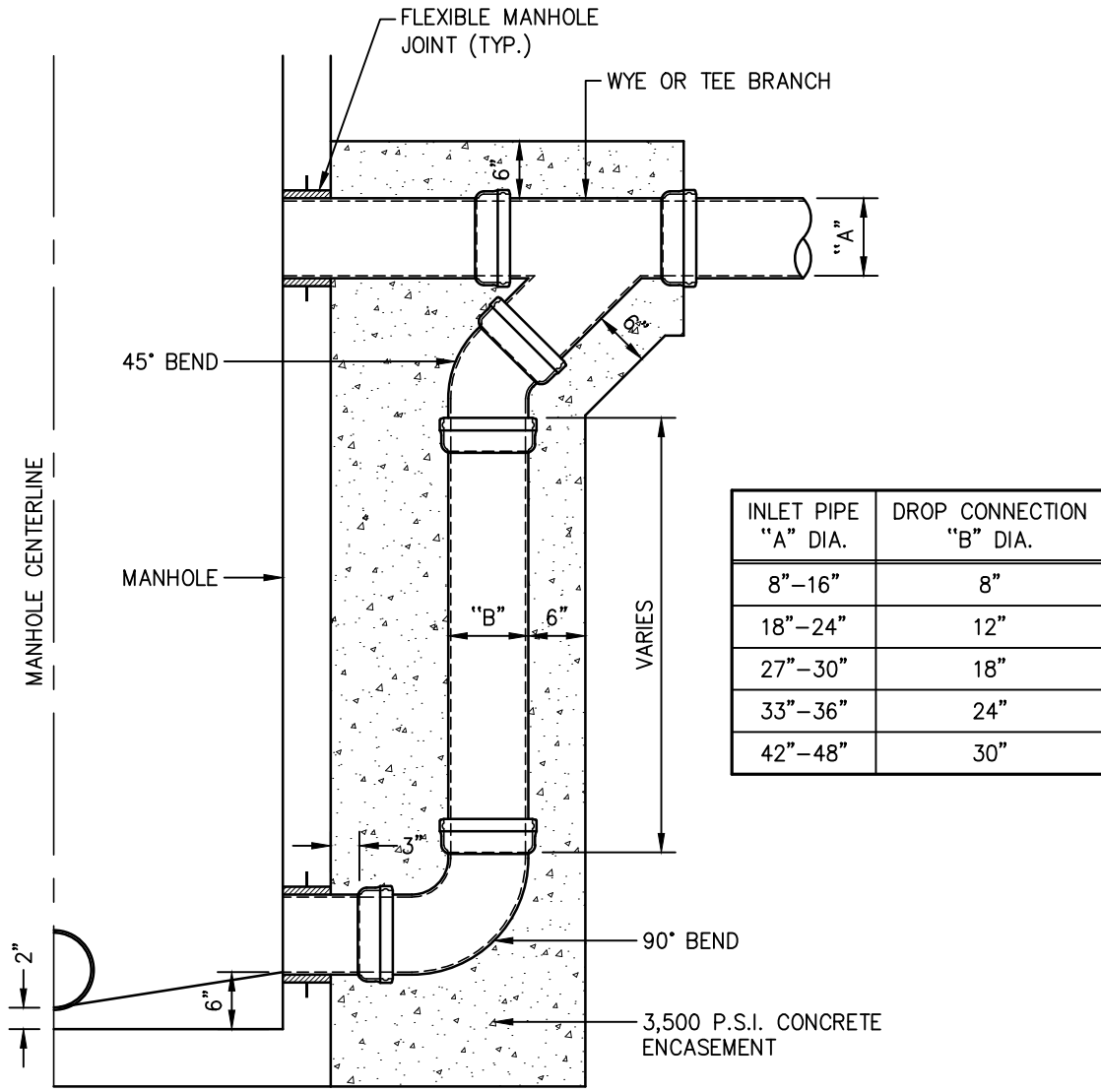
PH

JOB No.: -

FILE: 1519 - Sanitary System Details (RVE).dwg

DETAIL

S-4



**GENERAL NOTES:**

- 1. DROP PIPE TO BE USED IN ALL CASES WHERE DIFFERENCE BETWEEN INVERT AND LOWEST OUTLET INVERT IS TWO (2') FEET OR GREATER.

**TYPICAL DROP CONNECTION**  
N.T.S.

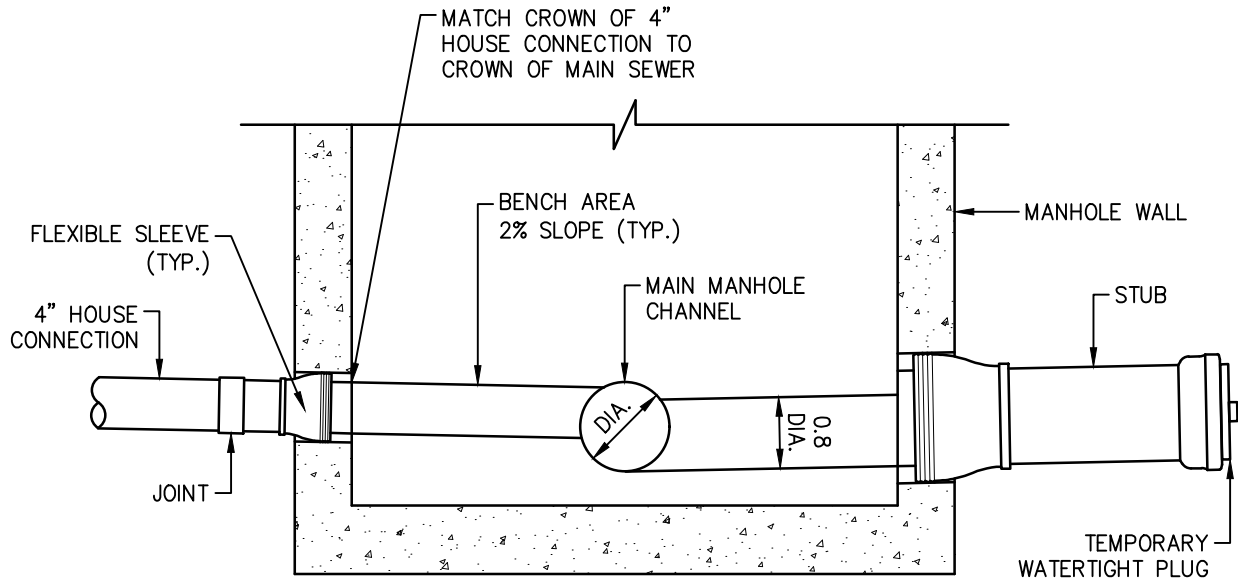
**SANITARY SYSTEM DETAIL**  
  
**MANCHESTER TOWNSHIP**  
**OCEAN COUNTY, NEW JERSEY**



**REMINGTON & VERNICK ENGINEERS**  
 9 ALLEN STREET, TOMS RIVER, NJ 08753  
 (732) 286-9220, FAX (732) 505-8416, WWW.RVE.COM  
 Certificate of Authorization: 24 GA 28003300  
*Excellence • Innovation • Service*

SCALE: N.T.S.	DATE: 11 / 2023	DRAWN BY: BK	CHECKED BY: PH	JOB No.: -	DETAIL S-5
				FILE: 1519 - Sanitary System Details (RVE).dwg	

N:\DRAWING\Manchester\Details\Sanitary\1519 - Sanitary System Details (RVE).dwg 11/9/2023 3:04:40 PM



## MANHOLE WALL WITH STUB AND HOUSE CONNECTION

N.T.S.

**SANITARY SYSTEM DETAIL**

**MANCHESTER TOWNSHIP  
OCEAN COUNTY, NEW JERSEY**



**REMINGTON & VERNICK ENGINEERS**

9 ALLEN STREET, TOMS RIVER, NJ 08753  
(732) 286-9220, FAX (732) 505-8416, WWW.RVE.COM  
Certificate of Authorization: 24 GA 28003300

*Excellence • Innovation • Service*

SCALE:

N.T.S.

DATE:

11 / 2023

DRAWN BY:

BK

CHECKED BY:

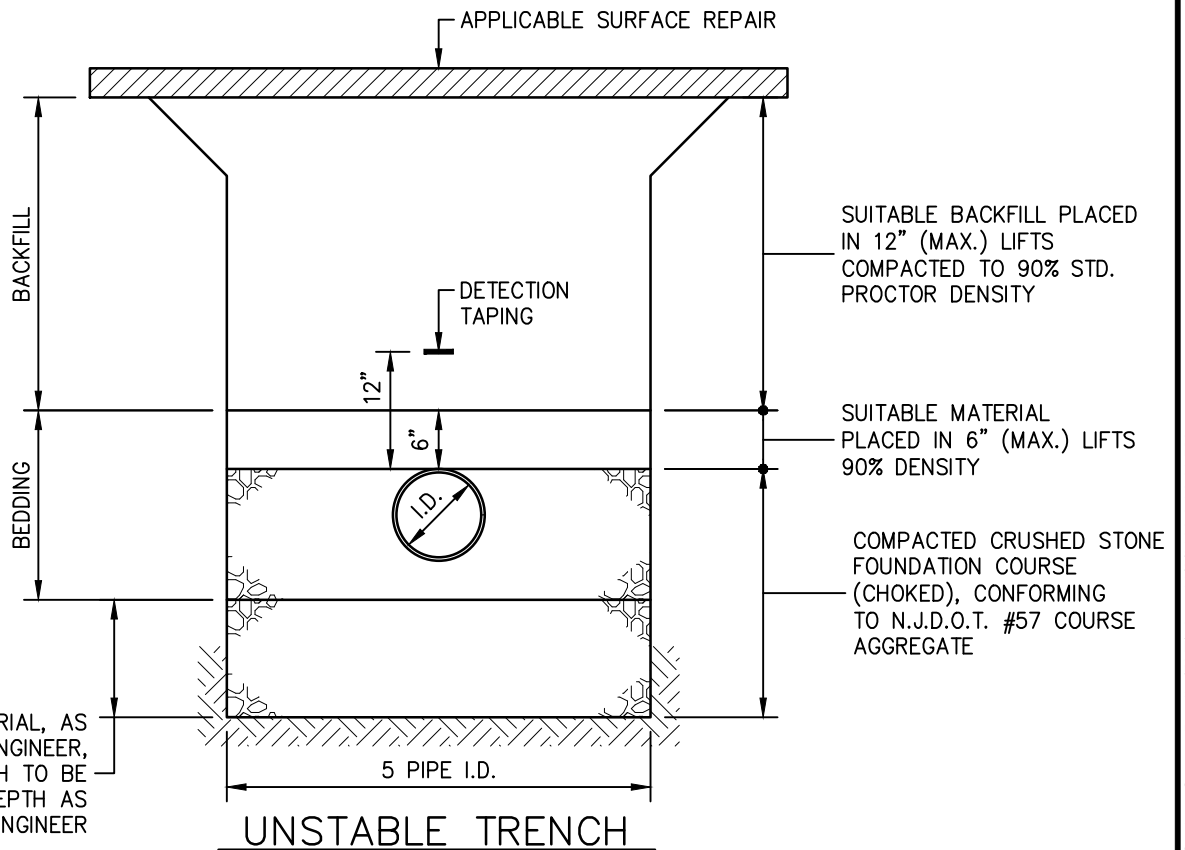
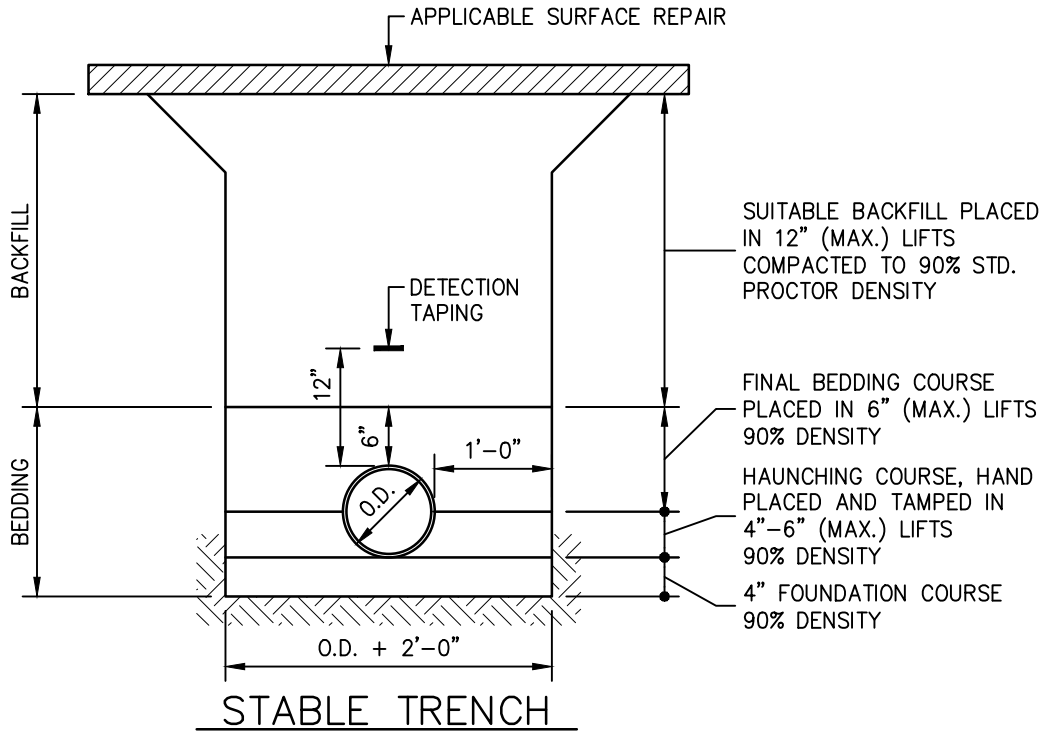
PH

JOB No.: -

FILE: 1519 - Sanitary System Details (RVE).dwg

DETAIL

S-6



# P.V.C. PIPE BEDDING / BACKFILL DETAILS

N.T.S.

**SANITARY SYSTEM DETAIL**

**MANCHESTER TOWNSHIP  
OCEAN COUNTY, NEW JERSEY**



**REMINGTON & VERNICK ENGINEERS**

9 ALLEN STREET, TOMS RIVER, NJ 08753  
(732) 286-9220, FAX (732) 505-8416, WWW.RVE.COM  
Certificate of Authorization: 24 GA 28003300

*Excellence • Innovation • Service*

SCALE:

N.T.S.

DATE:

11 / 2023

DRAWN BY:

BK

CHECKED BY:

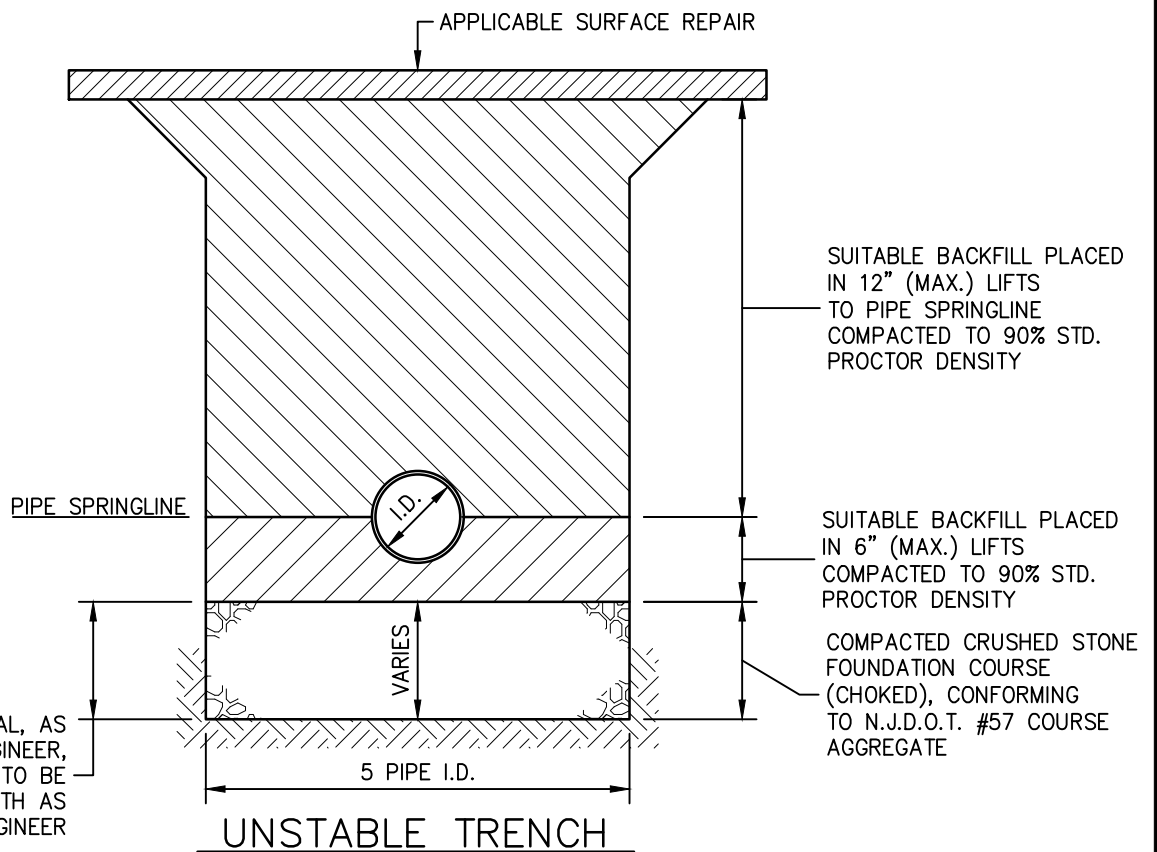
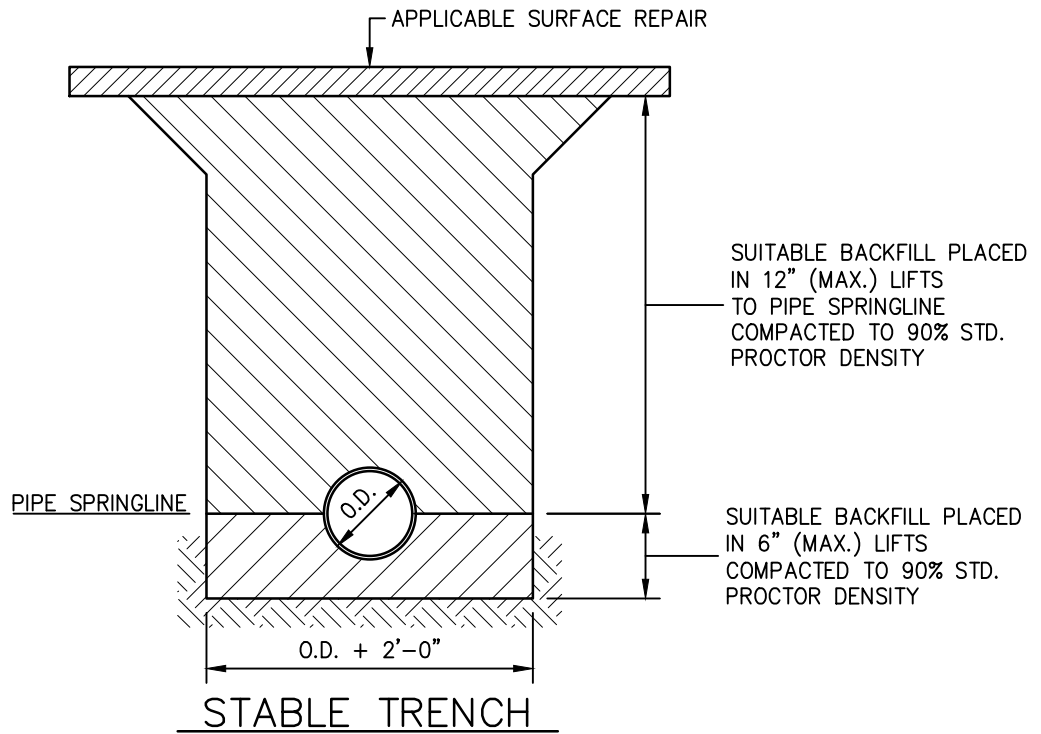
PH

JOB No.: -

FILE: 1519 - Sanitary System Details (RVE).dwg

DETAIL

S-7



## D.I.P. BEDDING / BACKFILL DETAILS

N.T.S.

**SANITARY SYSTEM DETAIL**

**MANCHESTER TOWNSHIP  
OCEAN COUNTY, NEW JERSEY**



**REMINGTON & VERNICK ENGINEERS**

9 ALLEN STREET, TOMS RIVER, NJ 08753  
(732) 286-9220, FAX (732) 505-8416, WWW.RVE.COM  
Certificate of Authorization: 24 GA 28003300

*Excellence • Innovation • Service*

SCALE:

N.T.S.

DATE:

11 / 2023

DRAWN BY:

BK

CHECKED BY:

PH

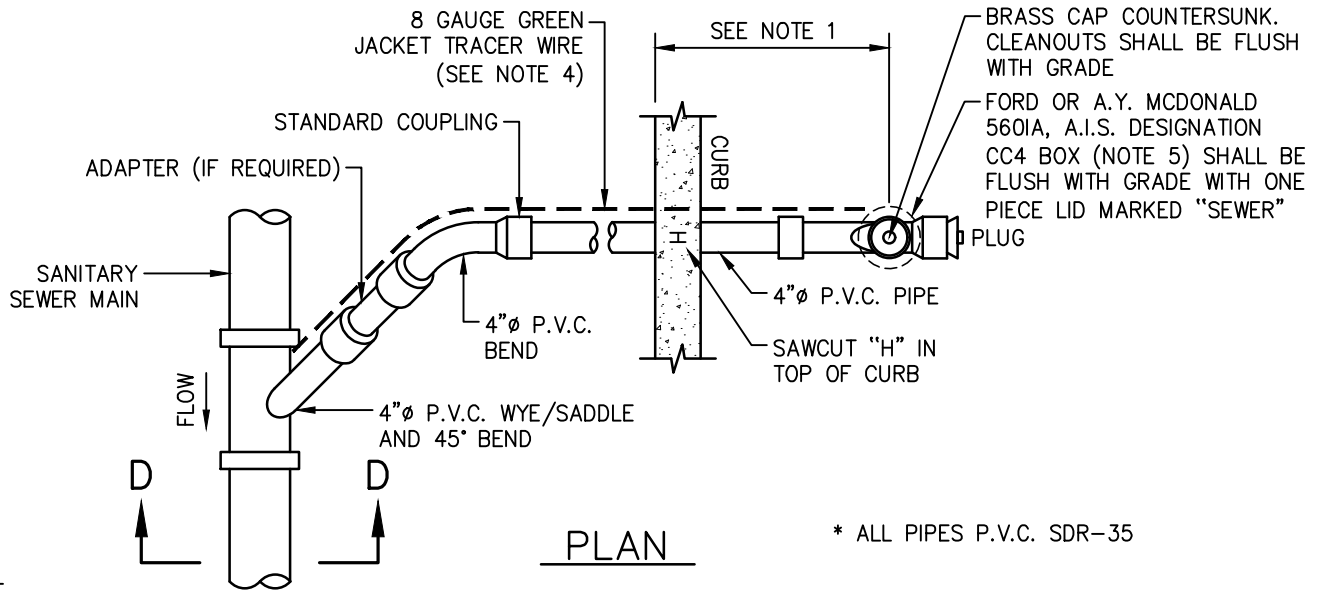
JOB No.: -

FILE: 1519 - Sanitary System Details (RVE).dwg

DETAIL

S-8

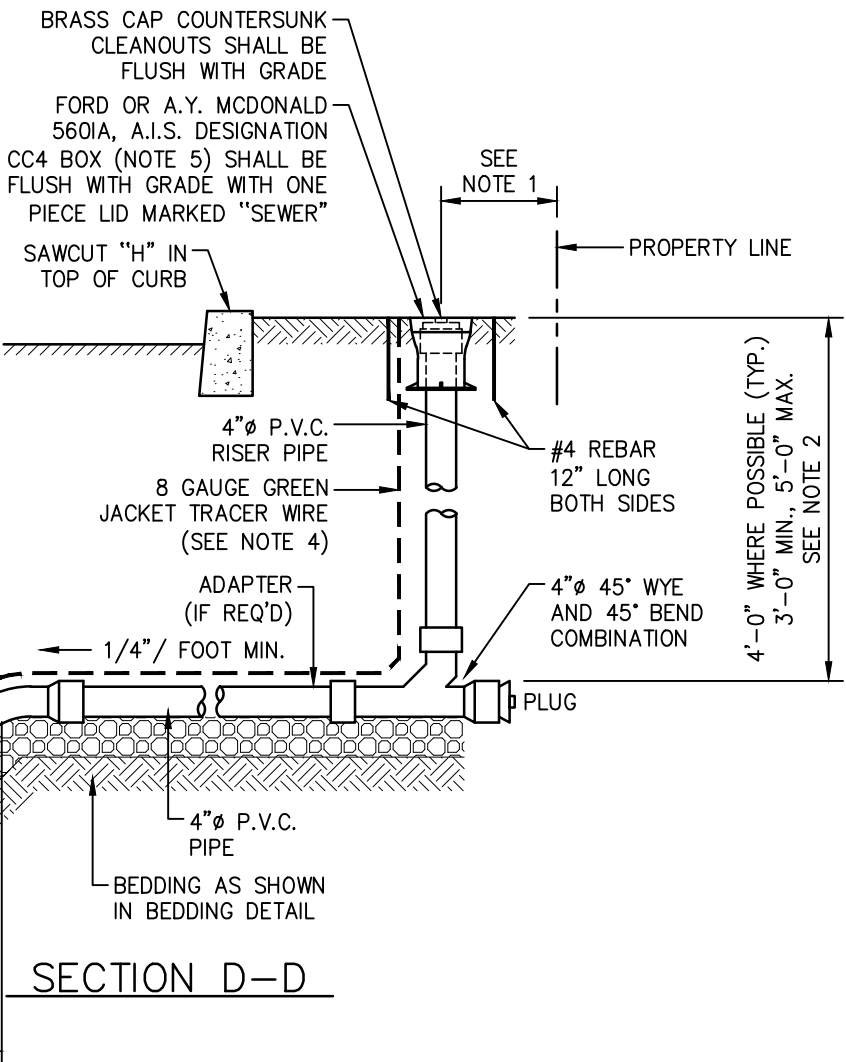




\* ALL PIPES P.V.C. SDR-35

**NOTES:**

1. CLEANOUTS ARE TO BE LOCATED TWO (2) FEET FROM CURB IN THE PLANTER AREA (NOT IN CONCRETE, PAVERS, ETC.). WHERE CURBS DO NOT EXIST, PLACE CLEANOUT ONE (1) FOOT OUTSIDE OF PROPERTY LINE WITHIN THE R.O.W.
2. 1/4" PER FOOT SLOPE GOVERNS OVER CONFLICTS WITH THE 3 FOOT MIN. COVER DIMENSION.
3. ALL COUPLINGS, PLUGS, AND CAPS TO BE STANDARD FOR TYPE OF PIPE USED AND INSTALLATION TO BE WATERTIGHT.
4. 8 GAUGE GREEN JACKET TRACER WIRE MUST BE RAN FROM THE TAP ON THE MAIN ALONG THE SEWER LATERAL TO THE TOP OF THE CLEANOUT LID.
5. CC4 BOXES SHALL BE INSTALLED IN DRIVEABLE AREAS ONLY.



**TYPICAL 4" HOUSE CONNECTION DETAIL**

N.T.S.

**SANITARY SYSTEM DETAIL**

**MANCHESTER TOWNSHIP  
OCEAN COUNTY, NEW JERSEY**



**REMINGTON & VERNICK ENGINEERS**

9 ALLEN STREET, TOMS RIVER, NJ 08753  
(732) 286-9220, FAX (732) 505-8416, WWW.RVE.COM  
Certificate of Authorization: 24 GA 28003300

*Excellence • Innovation • Service*

SCALE:

N.T.S.

DATE:

11 / 2023

DRAWN BY:

BK

CHECKED BY:

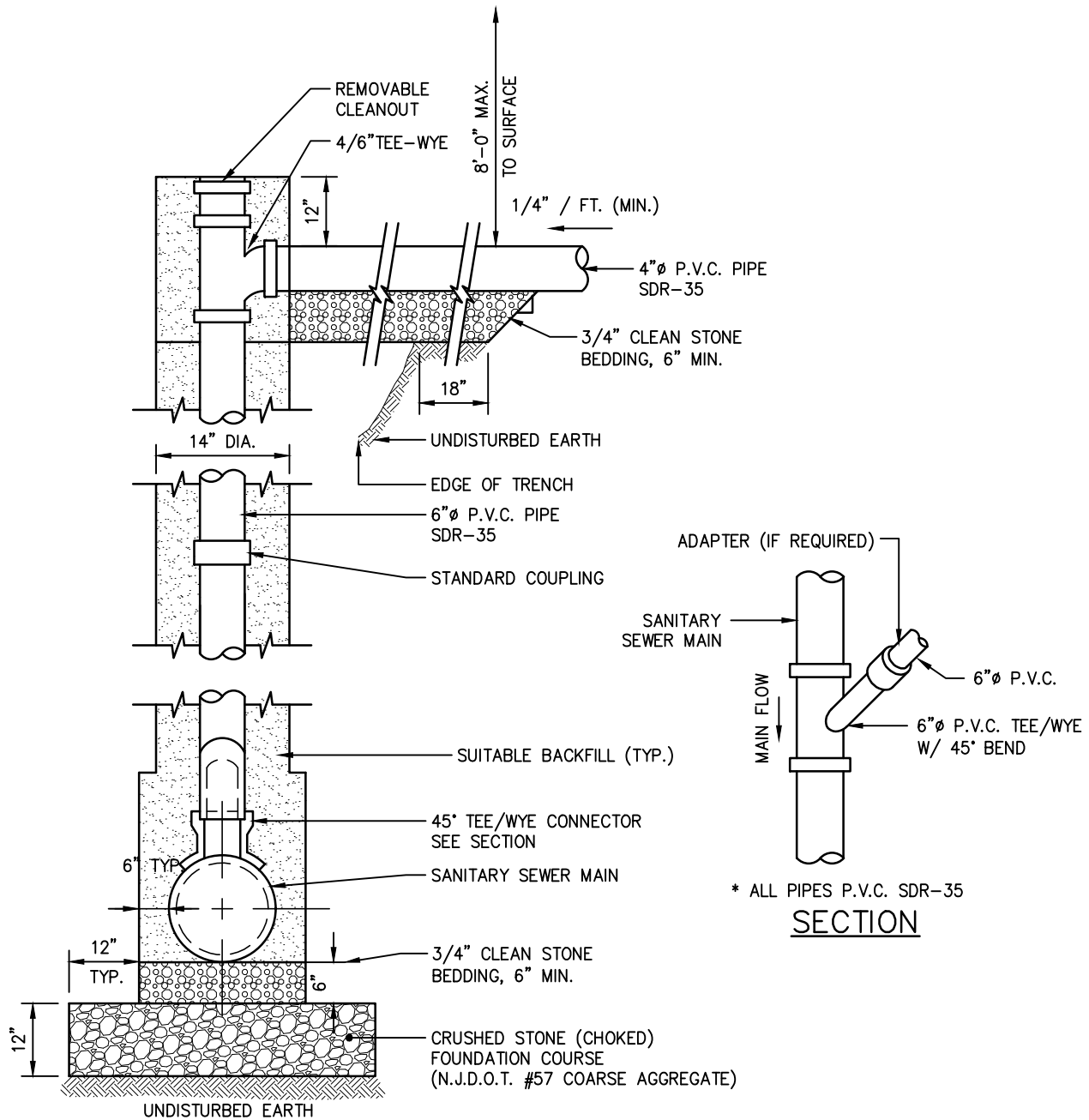
PH

JOB No.: -

FILE: 1519 - Sanitary System Details (RVE).dwg

DETAIL

S-9



**NOTES:**

1. CLEANOUTS ARE TO BE LOCATED TWO (2) FEET FROM CURB IN THE PLANTER AREA (NOT IN CONCRETE, PAVERS, ETC.). WHERE CURBS DO NOT EXIST, PLACE CLEANOUT ONE (1) FOOT OUTSIDE OF PROPERTY LINE WITHIN THE R.O.W.
2. 1/4" PER FOOT SLOPE GOVERNS OVER CONFLICTS WITH THE 3 FOOT MIN. COVER DIMENSION.
3. ALL COUPLINGS, PLUGS, AND CAPS TO BE STANDARD FOR TYPE OF PIPE USED AND INSTALLATION TO BE WATERTIGHT.
4. ALL DEEP SANITARY SEWER LATERAL CONNECTIONS TO BE BACKFILLED IN ACCORDANCE WITH THE PVC PIPE TRENCHING DETAIL. DEEP LATERALS WILL BE IF AN WHERE DIRECTED.

**DEEP SERVICE CONNECTION**

N.T.S.

**SANITARY SYSTEM DETAIL**

**MANCHESTER TOWNSHIP  
 OCEAN COUNTY, NEW JERSEY**



**REMINGTON & VERNICK ENGINEERS**

9 ALLEN STREET, TOMS RIVER, NJ 08753  
 (732) 286-9220, FAX (732) 505-8416, WWW.RVE.COM  
 Certificate of Authorization: 24 GA 28003300

*Excellence • Innovation • Service*

SCALE:

N.T.S.

DATE:

11 / 2023

DRAWN BY:

BK

CHECKED BY:

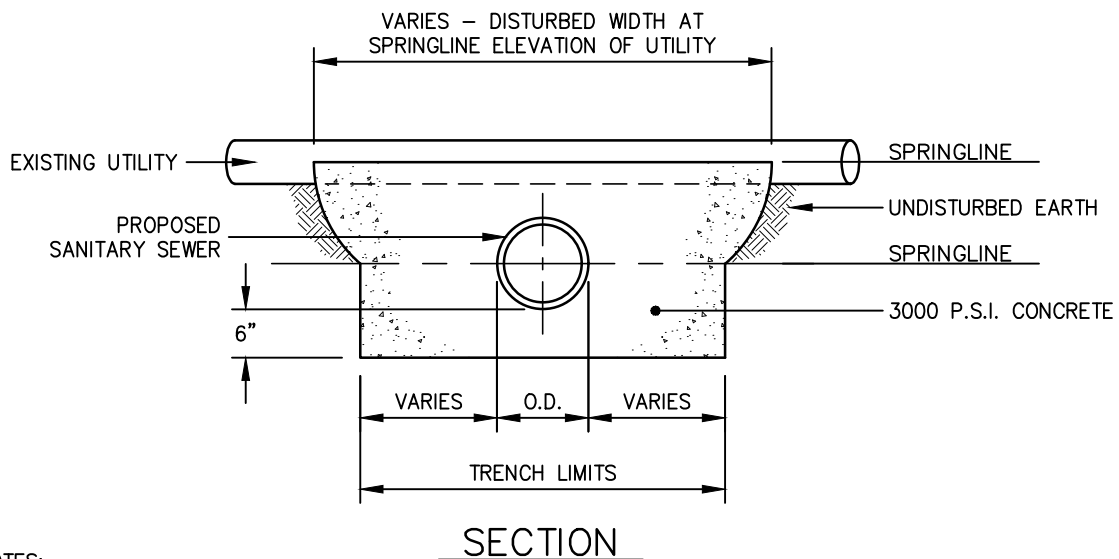
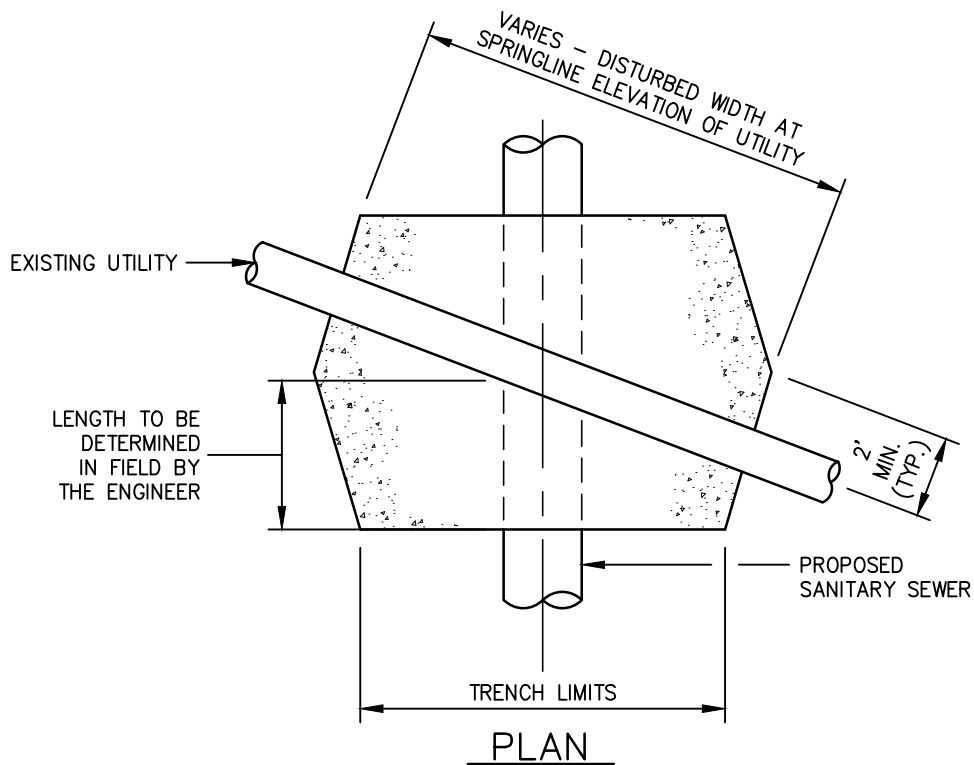
PH

JOB No.: -

FILE: 1519 - Sanitary System Details (RVE).dwg

DETAIL

S-10



**NOTES:**

1. WHERE GRAVITY SEWERS CROSS UNDER OR OVER AN EXISTING SANITARY SEWER, STORM DRAIN OR OTHER UTILITY AND WHERE THE MINIMUM DISTANCE BETWEEN THEM IS 6" OR LESS, CONSTRUCT A CONCRETE CRADLE TO THE SPRINGLINE OF THE UPPER PIPE. THE WIDTH OF THE CRADLE SHALL BE EQUAL TO THE ACTUAL EXCAVATED WIDTH OF THE TRENCH (6" BELOW THE LOWER PIPE) AND VARIES TO THE DISTURBED TRENCH WIDTH AT THE SPRINGLINE OF THE UPPER PIPE. THE LENGTH VARIES AND IS TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

**SEWER CROSSING DETAIL**

N.T.S.

**SANITARY SYSTEM DETAIL**

**MANCHESTER TOWNSHIP  
OCEAN COUNTY, NEW JERSEY**



**REMINGTON & VERNICK ENGINEERS**

9 ALLEN STREET, TOMS RIVER, NJ 08753  
(732) 286-9220, FAX (732) 505-8416, WWW.RVE.COM  
Certificate of Authorization: 24 GA 28003300

*Excellence • Innovation • Service*

SCALE:

N.T.S.

DATE:

11 / 2023

DRAWN BY:

BK

CHECKED BY:

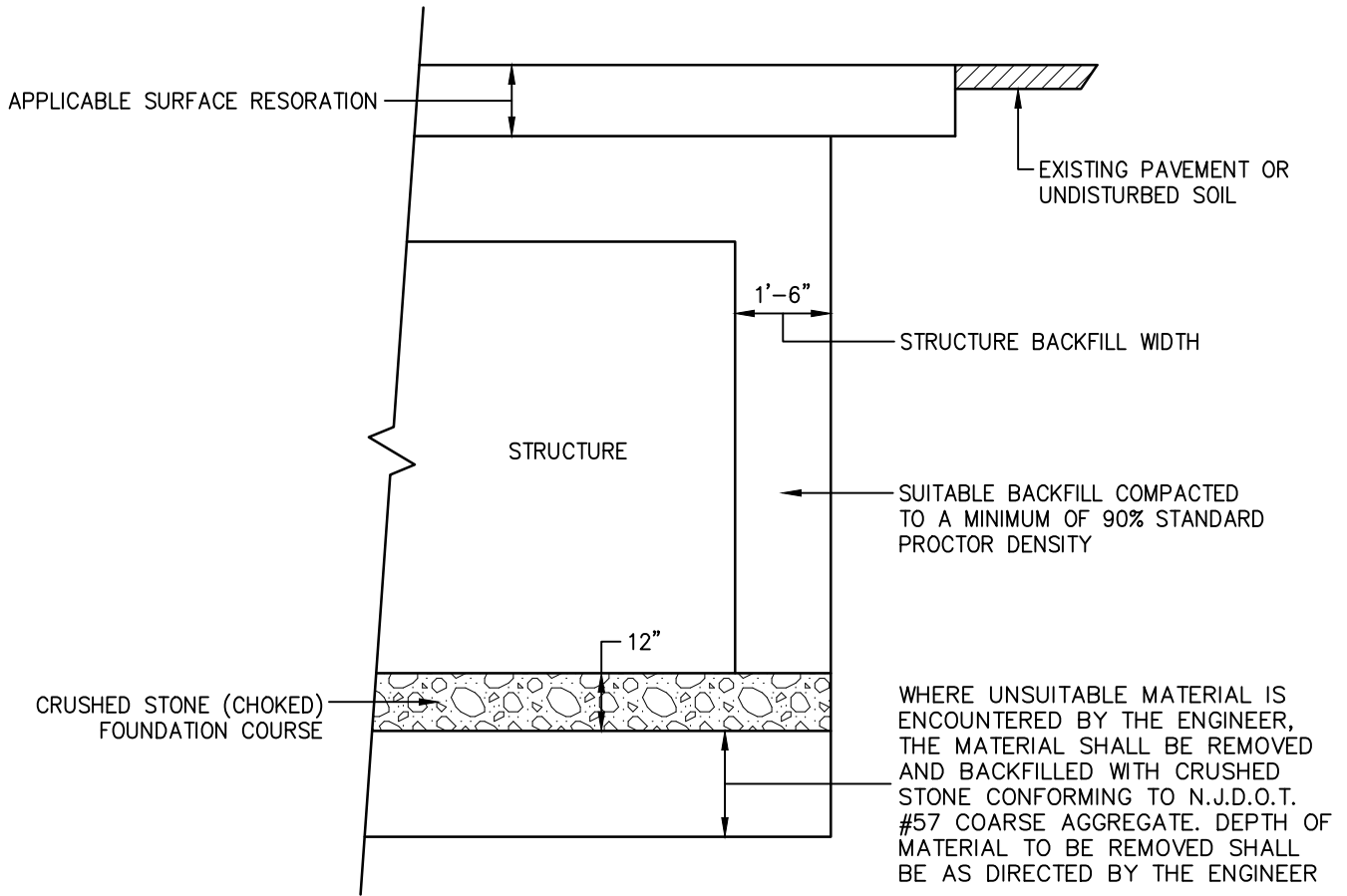
PH

JOB No.: -

FILE: 1519 - Sanitary System Details (RVE).dwg

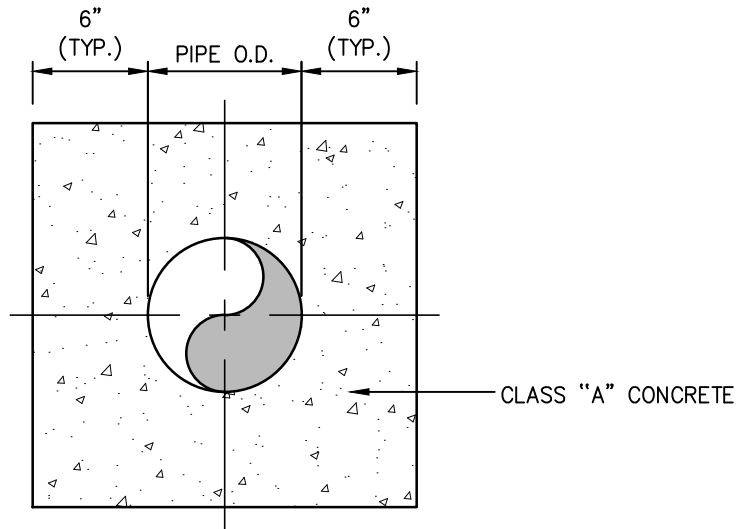
DETAIL

S-11



## TYPICAL STRUCTURE BACKFILL DETAIL

N.T.S.



## CONCRETE ENCASEMENT DETAIL

N.T.S.

**SANITARY SYSTEM DETAIL**

**MANCHESTER TOWNSHIP  
OCEAN COUNTY, NEW JERSEY**



**REMINGTON & VERNICK ENGINEERS**

9 ALLEN STREET, TOMS RIVER, NJ 08753  
(732) 286-9220, FAX (732) 505-8416, WWW.RVE.COM  
Certificate of Authorization: 24 GA 28003300

*Excellence • Innovation • Service*

SCALE:

N.T.S.

DATE:

11 / 2023

DRAWN BY:

BK

CHECKED BY:

PH

JOB No.: -

FILE: 1519 - Sanitary System Details (RVE).dwg

DETAIL

S-12