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**CHIPPEWA TOWNSHIP  
SANITARY AUTHORITY  
MANUAL OF RULES AND REGULATIONS**

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# CHIPPEWA TOWNSHIP SANITARY AUTHORITY

## MANUAL OF RULES AND REGULATIONS

### 1.0 GENERAL CONSIDERATIONS

#### 1.01 Regulations

- A. Sewers and Sewage Pump Stations shall be designed in accordance with their respective sections in the Sewerage Manual of the Pennsylvania Department of Environmental Protection and the construction details and drawings, which are a part of these Rules and Regulations. Land Use Planning Modules must be submitted and approved and a Water Quality Management Permit must also be obtained, where required.
- B. Construction of Sewers will not be permitted until the proper Federal/State permits have been obtained.
- C. Prior to final acceptance of the sewers by the Chippewa Township Sanitary Authority, it will be necessary for the Developer to furnish a complete set of reproducible "As-Built Plans" (Plan & Profile), showing the angle and distance between manholes, the top elevation and invert elevations including splash and drop connections of manholes, as-built sewer slopes, depth and location of wye connections, and the exact location of all service sewer connections relative to the nearest manhole downstream. Red line markups are not acceptable. These measurements shall reflect the "Actual in ground location of facilities. The cost of incorporating as-built drawings into the Authority System Map shall be the developer's responsibility. It will also be necessary for the developer to submit an electronic copy of the As-Built plans to the Authority.
- D. Easements or right-of-ways shall be recorded in the name of the "Chippewa Township Sanitary Authority" for all sewers to be constructed outside of dedicated street right-of-ways. Minimum width for a permanent sewer easement or right-of-way is 20 feet, with the sewer pipeline being the approximate center.

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- E. All connections to the Sanitary Sewers shall be subject to certain restrictions as to prohibited wastes, which are described in the Chippewa Township Ordinance, Chapter 18. Subject to the foregoing, all water carried wastes normally disposed of in a system of Sanitary Sewers from residences, apartments, commercial establishments, etc., will be connected to the Sanitary Sewer System, but roof drain water, storm water, foundation drain water, spring water and surface water shall be omitted.

1.02 Inspection

- A. Hatch Mott MacDonald, the designated Inspector for the Chippewa Township Sanitary Authority, shall be given at least 48 hours notice before construction begins.
- B. At the time of inspection of the connection, the owner of property shall permit the inspector full and complete access to all sanitary and drainage arrangements and facilities in each building and in and about all parts of the property. No building sewer line shall be covered over, or in any manner concealed, until after it is inspected and approved by said inspector.

1.03 Utilities

- A. Utilities are any service provided or to be provided on a property or plan of subdivisions via wire or pipe or other conduit and include, but is not limited to natural or propane gas, electric, water, telephone, cable, storm sewers and sanitary sewers.
- B. The Contractor shall be responsible for notifying all utility companies, which are located in the work area in advance of construction. This notification is required any time work is within, near or adjacent to existing utility systems, property an/or right of way. The Pennsylvania One Call System is to be used by the Contractor as required by law. The Pennsylvania One Call number is 1-800-242-1776.
- C. Design and Installation Criteria
  - 1) Unless the utility property is to be owned and maintained from the outset by a municipality, a municipal authority, a private corporation customarily engaged in providing water, gas electric or communication service or a corporation which is regulated by the Pennsylvania Public Utility Commission, no such utility shall be installed or located parallel to the sanitary sewer line and within the

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sanitary sewer easement as set forth in Section 1.01D above. Perpendicular crossings shall be permitted only when absolutely necessary and installed in such fashion so as to cause minimal interference with said utility in the event excavation maintenance needs to be performed on the sanitary sewer line.

- 2) Except for public water, when another utility line pursuant to No. 1 above can, and is to be installed parallel to a sanitary sewer line and within a sanitary sewer or general utility easement, a minimum distance of three (3) horizontal feet and three (3) vertical feet shall be maintained between the sanitary sewer line and another utility within the same easement or right of way.
  - 3) In accordance with Pennsylvania Department of Environmental Protection policy as shown on Drawing B-8, the minimum horizontal separation as shown on Drawing B-8, the minimum horizontal separation between a water and sanitary sewer pipe shall be ten (10) feet and the minimum vertical separation shall be eighteen (18) inches (from the crown of the sewer pipe to the invert of the water line.)
- D. When a storm water system is proposed for a plan of subdivision and part of the storm water system is proposed to be located within the sanitary sewer easement (excluding perpendicular crossings), the Developer shall secure a letter from the Municipality to the Authority indicating that the Municipality will, upon installation of the storm water system accept the dedication of said system and henceforth be responsible for the maintenance of the same (subject to any maintenance bond the Municipality may require for said system). No sewer line extension plan will be approved by the Authority without such a letter from the Municipality.

#### 1.04 International Plumbing Code

The International Plumbing Code (IPC), latest revision, is hereby incorporated by reference into the CTSA Manual of Rules and Regulations. When requirements differ between the IPC and the CTSA Manual of Rules and Regulations, the more stringent or restrictive requirement shall apply. The CTSA, or its duly authorized representative, shall be the final authority in determining whether the IPC or the CTSA Manual of Rules and Regulations are more stringent or restrictive. The IPC shall be utilized for all plumbing inside of buildings.

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The IPC shall be referenced for minimum slopes applicable to lateral pipes between the customer's building and the main sewer line. The CTSA Manual of Rules and Regulations, as amended, shall be referenced to determine slopes applicable to main sewer lines.

1.05 Fees and Charges

The fees and charges as listed in this manual are current as of its publication date. These fees and charges are subject to change. For the most current charges, contact the Chippewa Township Sanitary Office.

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## 2.0 CONSTRUCTION DETAILS

### 2.01 Pipe Installation

All pipe and/or fittings to be installed shall be of the following material:

- A. PVC - shall conform to the requirements of ASTM D-3034 - SDR 35 with ASTM D-3212 joints, or Schedule 40 conforming to the requirements of ASTM D-1785 with solvent-cemented or compressed gasket type joint. Also acceptable is ASTM F-789 PVC. The pipe stiffness shall be in accordance with ASTM designation D2412 Specification for External Loading Properties of Plastic Pipe by Parallel Plate Loading, with a minimum "stiffness factor" (*FLY*) = 57.
- B. Ductile Iron - shall conform to Specification ANSI/A WW A - C151/A21.51, Class 52.
- C. Each section of sewer pipe or fitting shall be clearly stamped with the manufacturer's specifications.
- D. Whatever combination of pipe, vent, cleanout stack, traps, etc. are used, it is the responsibility of the property owner to supply proper gaskets, clamps or adapters in order to effect a water tight and air tight connection.
- E. Joints such as concrete, oakum, lead or slip seal are not permitted.
- F. All sewer pipe shall be installed in strict accord with the manufacturer's recommendations.
- G. All public sewer pipe shall be a minimum of 8" in diameter.
- H. All pipe shall be installed with a cradle of six (6) inches of graded bedding of AASHTO 57 crushed aggregate (See Drawing No. B-5A and B-5B) material or as approved by the Authority Engineer. In addition, six (6) inches of AASHTO 57 crushed aggregate will be required above the pipe as shown on Drawing No. B-5A. A concrete cradle may be used depending upon the structural requirements and in accordance with the details as shown in Drawing No. B-4. If undercutting is required based on engineers approval AASHTO 57 will be used to backfill to trench bottom elevation.

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- I. The installation of sewers shall start at the lower end of the line and proceed upstream so that the spigot ends point in the direction of flow. All pipe shall be carefully laid to line and grade. The handling, storing, placing and joining of pipe shall be in strict accordance with the pipe manufacturer's recommendations.
  - J. All lines will be constructed using the laser beam method.
  - K. Electronically detectable, brightly colored plastic tape displaying the printed notation "sanitary sewer" shall be laid between backfilling lifts over the pipe not less than two feet above the pipe nor less than two feet below the finished ground surface. In no event shall the tape be more than four (4) feet below the finished ground surface. Tape shall be of sufficient width or thickness so as to be detectable at the finished ground surface.
  - L. All sewers shall be designed to provide a minimum of 4 feet of cover above the crown of the pipe.
  - M. A Pennsylvania Department of Transportation (PennDOT) Highway Occupancy Permit will be required for any excavation or related sanitary sewer activity in State Highway Right-of-Ways. Procedure for obtaining these permits shall be found in Pennsylvania Code Title 67, Transportation, Chapter 459, Occupancy of Highways by Utilities, latest edition. Permits are required to be obtained in the name of the Chippewa Township Sanitary Authority (CTSA). All procedures to complete the application and associated fees are the responsibility of the developer/contractor. The application form shall be completed and delivered to CTSA, for signature and submission to PennDOT. Township or Borough Road Occupancy Permits are also required for any excavation or related sanitary sewer work that takes place in Township or Borough Rights-of-Way. The Township or Borough Administration Office shall be contacted for the application.

## 2.02 Trenching

Trenching shall comply with appropriate OSHA Regulations. The width of the trench shall be ample to allow the pipe to be laid and jointed properly and to allow the backfill to be placed and compacted as needed. The trench sides shall be kept as nearly vertical as possible. When wider trenches are dug, appropriate bedding class and pipe strength shall be used.

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Large rock, boulders and large stones shall be removed to provide a minimum clearance of 4 inches below and on each side of all pipes.

2.03 Backfill

- A. Backfill shall be of a suitable material removed from excavation except where other material is specified. Debris, frozen material, large clods or stones, organic matter or other unstable materials shall not be used for backfill within 2 feet of the top of the pipe. Backfill shall be placed in such a manner as not to disturb the alignment of the pipe.
- B. All roadway and driveway cuts will be brought to grade with 2A Limestone and tamped every 1 foot of depth.

2.04 Manholes

- A. Walls of manholes shall be constructed of reinforced concrete ring sections. The risers and top sections shall be manufactured using the wet cast method in compliance with the requirements of Specifications for Precast Reinforced Concrete manhole Risers and Tops, ASTM Designation C478.

Riser sections shall have tongue and groove ends, smooth walls, and a minimum wall thickness of five (5) inches or shall be one-twelfth (1/12) of the internal diameter of the riser or largest cone section. Top sections shall be of eccentric cone or flat slab top design as required by the Drawings.

Eccentric cones shall have the same minimum wall thickness and area of circumferential sheet reinforcement as the round riser sections. Flat slab tops shall have a minimum thickness of six (6) inches for risers up to forty eight (48) inches in diameter and eight (8) inches for larger diameters. Flat slab shall be reinforced with steel in accordance with the design requirements specified in ASTM Designation C478. Top sections shall have a top width of such design and dimensions as to properly support the required manhole frame and cover and the lower joint shall be of tongue and groove design. See Drawing No. B-1.

- B. Only precast concrete "mono base" manholes will be accepted. Bases shall be no less than eight (8) inches thick.

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Inverts shall be formed directly in the manhole base, and shall be smooth and accurately shaped to a semi-circular bottom conforming to the inside of the adjacent sewer sections. Changes in size and grade shall be made gradually. Changes in the direction of the sewer and entering branches shall have a true curve of as large a radius as the size of the manhole will permit.

- C. All precast concrete ring sections and top sections shall fit together readily to permit effective jointing.

Particular care shall be taken to secure a watertight joint between the bottom riser section and the concrete base. Adjoining riser and conical top sections shall be fitted together in such manner as to assure true vertical alignment of manhole steps.

"Kent-Seal" (AASHTO M-198 or equal) must be installed in a double application on both the tongue and groove of each manhole section.

- D. The pipe to manhole connections will be made with an integral rubber/neoprene boot coupling. Acceptable connectors are, "INTERFACE BOOT," KOR-N-SEAL" or "Z-LOK."
- E. Manholes shall not exceed a vertical height from invert to top of casting of 24 feet unless by special approval of the Chippewa Township Sanitary Authority.
- F. Manholes steps shall be polypropylene coated steel bar. Steps shall be located in the walls of the riser and conical top sections and be aligned vertically and spaced so as to be on equal centers in the assembled manhole at a maximum distance apart of twelve (12) inches. See Drawing No. B-1, and Drawing No. B-1-A.
- G. Frames and covers for all manholes shall be fabricated of cast iron and shall conform to the details of Drawing No. B-1, and Drawing B-1-A. Covers shall be marked with the words "Chippewa Sanitary"
- H. Where watertight manhole frame and covers are required they shall be fabricated of cast iron and shall conform to the details of Drawing No. B-1, and No. B-1-A. Covers shall be marked with the words "Chippewa Sanitary" and also be marked in the center with an "X".
- I. Where sewers enter manholes such that the inverts are in excess of 2' -0" above the invert of the manhole, drop connections shall be constructed

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in accordance with details shown on Drawing No. B-2.

- J. Connections to existing precast manholes shall be made by machine cored entry holes and a flexible watertight connection.
- K. Manhole installation on an existing sewer shall be made only by using a precast manhole with a concrete base. Installation is detailed on Drawing No. B-14.

2.05 Concrete Cradle and Encasement

Concrete Cradle and Encasement, if required, shall be furnished and installed in accordance with Drawing No. B-4.

2.06 Concrete Anchors

Concrete Anchors shall be installed in accordance with Drawing No. B-4.

2.07 Service Connections

Service Connections shall be furnished in accordance with Drawing No. B-6, Drawing No. B-7 and Drawing No. B-13 and B-13A. (See rules and regulations pertaining to connections in *Appendix E*).

2.08 Service Sewer Installation

The procedure for installing the service is detailed on Drawing No. B-13. The service sewer is defined as the 4 or 6-inch sewer line that extends from the mainline public sewer to the building being served. The standard slope for line construction shall be a minimum of 1/4 inch per foot. Under special circumstances, the slope of the service sewer may be adjusted with approval of the Sanitary Authority.

2.09 Lampholes

A lamphole may be used at the end of a sanitary sewer segment where future sewer extension is unlikely and approval has been granted by the Authority's Engineer. Details for construction are as found in Drawing No. B-3.

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2.10 Testing of Sewers

All lines must be air tested in accordance with accepted standards. These tests will be conducted by the applicant or his representative at the direction and in the presence of the Authority inspector. If corrections are necessary they will be made prior to final connection to the sanitary sewer.

The testing duration for the sewer section with a single pipe size are as follows:

**LOW PRESSURE AIR TEST - MINIMUM TESTING TIME**

<u>Nominal Pipe Size (Inch)</u>	<u>T (Time) Min. per 100 Ft.</u>	<u>Nominal Pipe Size (Inch)</u>	<u>T (Time) Min. per 100 Ft.</u>
4	0.3	21	3.0
6	0.7	24	3.6
8	1.2	27	4.2
10	1.5	30	4.8
12	1.8	33	5.4
15	2.1	36	6.0
18	2.4	-	-

The drop in pressure during the test period shall be recorded. If the air pressure has dropped more than 1.0 psig during the test period, the pipeline is presumed to have failed. If the 1.0 psig air pressure drop has not occurred during the test period, the test shall be discontinued and the pipeline will have passed the test.

If the pipeline fails the test, the Contractor shall determine the source of the air leakage. Corrections to the piping shall be made and retest conducted. The Contractor has the option to test the section in incremental stages (or lengths along the entire sewer reach) until the leaks are so isolated. After the leakages are repaired, the entire section between manholes shall be retested.

To secure an air test on a service line a tee must be placed within two feet (2') of an existing tap or the sanitary sewer main. Upon approval the tee will be sealed in an approved manner to prevent infiltration.

If a service line is inspected at the same time as the main line the tee may be eliminated. The applicant or his representative must provide an air compressor and all testing equipment to secure the required pressures.

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Deflection tests may be required on all flexible pipe if the consulting engineer deems it necessary. The test shall be run not less than 30 days after final backfill has been placed. No pipe shall exceed a deflection of 5 percent. If the deflection test is to be run using a rigid ball or mandrels, they shall have diameters equal to 95 percent of the inside diameter of the pipe and the test shall be performed without mechanical pulling devices.

A TV inspection of the line may be required if in the opinion of the consulting engineer or the Authority unusual circumstances deem a more detailed inspection is necessary.

2.11 Manhole Testing

A. General

Leakage tests at manholes shall be made by the Contractor and observed by the Engineer periodically during construction. The test shall be a vacuum test made as described below. The manhole tester head assembly shall be circular in shape, properly sized to accommodate the manhole opening diameter.

B. Preparation for Test

All incoming and outgoing piping shall be plugged through the use of suitably sized pneumatic plugs. The vacuum head assembly tester shall be installed at the top access of the manhole, inside the manhole frame. The vacuum testing shall be in accordance with the testing equipment manufacturer's written instructions and the test results compared to the manufacturer's published vacuum test tables.

C. Test Procedure

The testing shall be accomplished by starting the vacuum pump engine and stabilizing the rpm's. The manhole shall then be tested to 10 inches mercury vacuum. The maximum allowable drop will be 1-inch mercury during 60 seconds.

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### **3.0 TAPPING FEES AND APPLICATION PROCEDURES**

#### **3.01 Tapping Fees and Application Procedures**

Pursuant to the power granted to the Chippewa Township Sanitary Authority by Act 203 of 1990, and amended by Act 57 of 2003, the Authority shall charge and collect a tapping fee whenever the owner of any property connects the property to the public sanitary sewer system, which fee shall be in addition to any charges assessed and collected against such property in the construction of such public sanitary sewer system and any rental or service charges.

#### **3.02 Definitions**

- A. Connector Facility - The line which is located between and connects the Authority's main line to the customer's service line. When and where necessary the customer shall be responsible for installing the connector line in accordance with the Authority's rules and regulations.
- B. Customer Facility - The service line installed by the owner or customer from the property line to the building to be served by the public sanitary sewer system. The owner shall be responsible for the installation and maintenance of this facility.
- C. Customer Facility Inspection Fee - The fee charged by the Authority based upon the actual cost incurred in inspecting the customer facility service line.
- D. Debt Exclusion - Debt incurred by the Authority to provide public sanitary sewer service facilities (collection and/or treatment) exclusively to new customers; i.e. the PENNVEST Lipinwood/Wanda Project Debt. Type of debt shall not be subtracted from the facilities replacement cost in arriving at the capacity and collection fees.
- E. Existing Collection Part Fee - Fee based upon the number of EDU's of the property to be connected to the existing public sanitary sewer system based upon the replacement cost of the facilities comprising the collector sewer system and non-series pump stations, less the outstanding debt remaining and grants received related to these facilities.
- F. Future Collection Part Fee - Fee based upon the number of EDU's of the property to be connected to facilities to be constructed or acquired to form part of the public collector sewer system and non-series pump stations, in order to provide service to the property to be connected.
- G. Reimbursement Fee - A fee based upon the amount necessary to recapture the allocable portion of facilities in order to reimburse a property owner

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or owners, but not a developer at whose expense such facilities were constructed in accordance with Section 3.07 of this regulation.

- H. Special Purpose Fee - A prorata fee for facilities applicable only to a particular group of customers and/or serving a particular area of the system based upon the cost of such facilities.
- I. Tapping Fee - The fee charged by the Authority based upon the following components, which are applicable to the connection:
  - 1. Capacity Part; Existing and Future
  - 2. Collection Part; Existing and Future
  - 3. Special Purpose Part
  - 4. Reimbursement Part
- J. Types of Connections
  - 1. Near Side Connection - Connection where the public sanitary sewer main is located on the same side of the right-of-way or easement as the property to be connected.
  - 2. Far Side Connection - Connection where the public sanitary sewer main is located on the opposite side of the right-of-way or easement from the property to be connected. This type of connection may entail either:
    - (a) An open cut where the connection is made via a surface (open trench) excavation; or
    - (b) A subsurface bore or jack from the property line to the public sanitary sewer main.

### 3.03 Establishment of Fee

Prior to December 31st of each calendar year the Authority shall calculate and adopt by resolution all the applicable connection, customer facility, capacity, collection, special purpose and reimbursements fees for the following calendar year; provided, however, that as warranted during the year the Authority may add other fees for future capacity, collection, special purpose and reimbursement fees. See *Appendix C*.

### 3.04 Application

A customer desiring to connect the property to the existing public sanitary sewer system shall be required to complete a connection application form supplied by

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the Authority.

- A. When the completed application is received by the Authority, the Authority shall determine the actual applicable tapping fee and the inspection fee, which includes two (2) facility inspections.
- B. The connection application shall not be approved unless and until the actual applicable tapping fees and inspections fees have been paid.
- C. Where the connector facilities are not provided, the applicant (customer, property owner, or developer) shall be responsible for the installation of the connector facilities. Upon proper construction, inspection and approval the Authority will assume subsequent maintenance of this connector.
- D. Within ten (10) days of the time when the actual connection is made, the Authority shall calculate any additional connector and customer facility inspection charges and bill the customer for the difference between the actual charge and the fee collected when the application was made. The payment from the customer to the Authority shall be made within ten (10) days of the date of the bill. If the bill is not paid within the ten (10) day period, the Authority shall immediately proceed to disconnect the connection.
- E. Tap permits shall be issued by the Authority upon the payment of the applicable fees stated in paragraph A above. Where the tap is to be made to a new construction, the applicant must also furnish proof that the appropriate issuing authority or governing body has or will simultaneously issue a building permit for the new construction. In no event will the Authority issue a tap permit without a corresponding building permit being issued.
- F. A tapping permit shall be valid for the period of one (1) year from the date of issuance of the permit. If the connection is not or cannot be made to the public sanitary sewer system within the one (1) year period, a new permit must be obtained by the applicant. New permits will be issued at the prevailing tap fee rate as of the date of issuance. In the event of a tapping fee increase, the applicant required to obtain a subsequent tap permit shall pay the difference between the old tap fee and prevailing tap fee prior to the issuance of the subsequent permit.

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3.05 Sewer Main Line/Facilities Extension

Where the public sanitary sewer system is to be extended at the request of a developer or property owner(s), the developer or property owner(s) shall have the right to construct the extended public sewer line and all necessary appurtenant facilities in accordance with the following requirements.

- A. Construction by the developer or property owner(s) shall be in accordance with a Developer's Agreement to be entered into for the extension and no work shall commence on the extension until such agreement has been entered into by the developer or property owner(s) and the Authority.
- B. The construction shall be in accordance with all the applicable plans and specifications for the construction as approved by the Authority.
- C. The Developer's Agreement shall not be approved by the Authority until all the plans and specifications have been approved and Planning Module approval has been issued by PaDEP.
- D. All construction contracts and plans for sewer line and appurtenant facility extensions shall be in accordance with the Sewage Facilities Plan of the  
  
Authority and Municipality where the extension is to be located and all applicable existing rules, regulations and requirements thereof.
- E. The construction of the extension shall be subject to inspection by a representative of the Authority who shall have the power to halt the construction where the same is not in accordance with the Authority rules and regulations and the plans and specifications approved for the extension project.

3.06 Sewer Main/Facilities Extension Approval Process and Fees

Where the existing public sanitary sewer facilities are to be extended by a developer or property owner(s), the following documents shall be provided to the Authority:

- Site plan for sewers and appurtenances
- Plan for recording purposes showing sanitary easements/right-of ways.
- Construction drawings of sewers and pump stations/force mains

- 
- (if applicable).
  - Sewer profiles
  - Copy of completed and approved Planning Module.
  - Proposed plans, specifications and contract documents.
- A. After receipt of the aforesaid documents the Authority shall cause its Engineer to review the documents for completeness and to estimate the fee to be paid by the developer for the cost of reviewing the plans.
1. An application, which is vague or incomplete, shall be returned to the developer or property owner(s) and no further action shall be taken by the Authority until a complete application package is submitted.
  2. Applications that on initial review appear to comply with Section 3.06 shall not be further reviewed for approval until the developer or property owner(s) has paid to the Authority the Engineer's estimate of the cost incurred for reviewing the plans.
  3. The developer shall be notified of the estimated cost of review by the Authority in writing and no further action shall be taken by the Authority or its Engineer until the estimated review cost has been paid to the Authority by the developer or property owner(s).
- B. Prior to giving final approval to the plans to be submitted to DEP for amending the Municipality's Sewage Facilities Plan, the Engineer shall notify the Authority and the developer or property owner(s) of the actual cost incurred by the Authority Engineer in the plan review. No approval to the plan shall be given unless and until the actual total review cost has been paid to the Authority. In the event the deposit was more than the actual cost, the excess deposit shall be refunded to the developer or property owner(s) within forty-five (45) days of plan approval by the Authority.
- C. When the extension plans have been approved by the Authority and DEP, the developer or property owner(s) prior to commencing construction shall be required to enter into the agreement required by Section 3.05A.
1. Prior to entering into the agreement, the developer shall be required to deposit with the Authority the estimated cost to be incurred by the Authority in (a) preparing the agreement, (b) reviewing and surveying the construction documents, and (c)

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inspecting the construction, (d) preparing the as-built drawings of the extension, (See 1.01 Paragraph C, pg. 1) (e) adding the new line to the existing Authority System Map and (f) any other costs which may be incurred.

2. No construction shall commence until the deposit has been made and the agreement entered into with the Authority.
3. Financial security for the line extension where applicable shall be required in accordance with the provisions of Section 306B(5.1) and 306B(2) of the Municipality Authorities Act.

D. Upon completion of the construction, the developer or property owner shall dedicate the extension line appurtenances and easement to the Authority by written instrument of dedication.

1. The Authority shall not accept the extension or assume any responsibility for the same or allow taps to be made to the extension unless the extension and installation complied with all the plans, specifications, regulations of the Authority applicable to the project, and original as-built drawings, in paper and electronic format, of the project are supplied to the Authority engineer.
2. No tap to the extension shall be made until such time as the line extension and appurtenant facilities have been dedicated and accepted by the Authority. A minimum twenty (20) feet wide easement is required to be dedicated with the sewer line being the approximate center of the easement.
3. No acceptance of the dedicated improvements and easement shall also be made by the Authority until the developer has paid the actual cost incurred by the Authority in (1) preparing the agreement, (2) reviewing the plans and construction documents, (3) inspecting and surveying the construction and (4) preparing the as-built drawings, in paper and electronic format, of the extension. Where the deposit for these expenses exceeded the actual cost, the excess amount shall be refunded to the developer or property owner(s) within forty-five (45) days of the acceptance of the project.
4. The Authority shall keep accurate records of the cost incurred by the Authority on the extension project including legal, engineering and administrative expenses. The cost shall be paid by the

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developer or property owner(s) to the Authority at the same rate as they were incurred by the Authority.

5. Upon completion and dedication of the extended line, Developer shall furnish the Authority a maintenance bond or other sufficient security in the amount of 15 % of the cost of the line extension project to secure the maintenance of the sectioned line and facilities for a period of eighteen (18) months following the dedication of the extension project.

3.07 Line Extension by Property Owner

Where a property owner constructs or causes to be constructed at his own expense any line and appurtenant facilities extension pursuant to Section 3.06, the property owner shall be entitled to reimbursement when the owner of another property not in the development for which the extension was constructed connects a customer service line directly to the line extension within ten (10) years of the date that the property owner dedicated the line extension to the Authority.

- A. The reimbursement to the property owner shall be equal to the collection part of each tapping fee collected as a result of a subsequent connection; provided that the Authority shall retain for its own use five (5) percent of said collection part fee which is deemed to represent the charge for administrative expenses rendered in calculating, monitoring and collecting the reimbursement to the property owner.
- B. A property owner, but not a developer or subdivision developer, shall be required, in addition to the agreement required by Section 3.05, to enter into a reimbursement agreement with the Authority prior to commencing construction. The agreement shall identify the line and/or facilities for which reimbursement is to be provided.
- C. In no event shall the owner or developer of a subdivision of lots or a plan of subdivision be eligible for such reimbursement.
- D. The total reimbursement to which a property owner shall be entitled shall not exceed the cost of all labor, materials, engineering design charges, bond cost, review, inspection and reimbursement agreement charges incurred by the property owner in constructing and initiating the extension, as well as any flushing, air testing and televising charges, plus the cost of dedicating the facilities to the Authority, less the amount which would be chargeable to such property owner based upon the Authority's collection tapping fees which would be applicable to all lands of the property owner served

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directly or indirectly by the extension if the property owner did not fund the extension.

- E. The Authority shall notify by certified mail to the last known address the property owner(s) who funded the extension project of the receipt by the Authority of a reimbursement payment. The property owner shall then have 120 days to claim the reimbursement payment. Failure to claim the payment within said period shall cause the payment to become the sole property of the Authority.

3.08 Line Extension by the Authority

Whenever the sewer system or any part or extension thereof owned by the Authority has been constructed by the Authority at the expense of a private person or corporation under the supervision of the Authority at the expense of the private person or corporation, the Authority shall have the right to charge a tapping fee and refund said tapping fee or any part thereof to the person or corporation who has paid for the construction of said sewer system or any part or extension thereof.

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## 4.0 PUMP STATIONS

### 4.01 Scope

The intent of this section of these specifications is to provide a standard of quality for the material and installation of pump station facilities and not to specify certain types of pump stations or equipment as the most suitable selection of pump station and equipment types will vary with each project. Each design, therefore, will be reviewed by the Authority's Consulting Engineer. The principal items of equipment in each pumping station may include, but not be limited to, motor driven non-clog sewage pumps, valves, internal piping, influent strainer basket, lifting hoist, motor starter and automatic pump controls, lighting, sump pumps, ventilator, dehumidifier, engine driven standby generator, automatic transfer switch, control panels and wiring.

### 4.02 General

The Contractor shall furnish a pump station installation with all structures, fencing, roadway, piping, equipment, machinery, apparatus, motors, drives, controls, wiring, operational manual, tools and all other items necessary for a complete and operable installation.

All requirements of the Pennsylvania Department of Environmental Protection shall be met in the design and construction of the pump station, including those guidelines given in the "PaDEP Sewerage Manual", Section 30.

#### A. Lubrication

On all equipment ample means of lubrication shall be provided for all bearings and other metal parts in sliding contact. Alemite industrial type fittings, or approved equal, shall be used for grease lubrication. All lubricant and fuel necessary for initial operation and tests, and suitable grease pressure guns shall be furnished by the Contractor.

#### B. Installation

All equipment shall be installed by skilled mechanical erection labor in accordance with the instructions of the manufacturer, and such installations shall be inspected, adjusted, approved and certified by the manufacturer in writing to the Contractor, and a copy placed on file with the Authority and the Authority's Engineer.

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C. Shop Paint

All ferrous metal on equipment, unless otherwise specified or directed by the Authority's Engineer, shall receive shop paint compatible with field coats provided by the Contractor.

D. Painting

The Authority will select all colors, with such selection based upon a complete list of manufacturer's color charts submitted by the Contractor, and/or other tinting as required by the Authority. Safety colors and/or special tinting will be required for piping. All paint shall be of the types manufactured for the purpose intended and shall be applied as per manufacturer's directions and conform to Section 1.06 "Painting".

E. Motors

All motors shall conform to the standards of the American Institute of Electrical Engineers (AIEE) and the National Electrical Manufacturers Association (NEMA) for their respective classes and shall perform the work intended without undue wear and undue heating.

4.03 Shop Drawings and Other Data

The equipment supplier shall furnish for approval, completely dimensioned shop, layout or setting drawings and cuts or other data as required to provide a complete description of all equipment specified herein, including certified test curves for all pumps through the full operating range of the pumps. Certified copies of the pump performance tests run in the factory shall be submitted to the Authority's Engineer for approval prior to pump delivery.

Notice of the performance tests shall be given to the Engineer seven (7) days prior to the test date. Shop drawings shall be certified for construction by the manufacturer and shall include, but not be limited to, electrical wiring diagrams, weights of principal parts, diameter of shafting, details, sizes, dimensions, classifications and rated horsepower of all motors, gears and controls, all dimensions necessary for assembly and erection, and the weights of completely assembled equipment.

Complete, written, detailed erection, operation, and maintenance instructions shall be furnished by the Contractor to insure proper training and instruction of the Authority's personnel.

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The Contractor shall furnish the services of competent manufacturers' representatives for not less than one (1) man-day to instruct the Authority's personnel in the maintenance and operation of the respective items of equipment. These services shall be made available following the initial operation of the completed facility and shall be over and above any services necessary during erection or necessary to correct defective materials or workmanship during the eighteen (18) month guarantee period.

#### 4.04 Materials

##### A. Concrete

1. All cast-in-place concrete shall be designed in accordance with ACI 350 and ACI 318; compressive strength shall be at least 4,000 PSI at 28 days. Reinforcing shall be ASTM A-615, Grade 60 deformed steel bars or ASTM A-185 Welded Wire Fabric. Cement, coarse aggregate, fine aggregate, and water shall be as noted below:
  - a. Cement: Portland Cement Type II ASTM C-150
  - b. Coarse Aggregate: Washed gravel or crushed stone ASTM C-33.
  - c. Fine Aggregate; Graded, natural washed sand ASTM C-33.
  - d. Water: Clean, fresh, potable.
  - e. Admixtures: Air Entraining ASTM A-260.
  - f. Testing: ASTM C-172  
Slump: ASTM C-143  
Air Content Test: ASTM C-231  
Compression Test Specimens: ASTM C-31
2. Precast Reinforced Concrete Sections shall be required for wet well and/or valve chamber installations. The sections shall be constructed of reinforced pre-cast concrete units with a compression strength of 4,500 PSI at 28 days. Joints between adjacent sections shall be sealed with butyl rubber sealants. Sealants shall be Con Seal CS-302 Federal Spec SS-S-0021O as manufactured by Concrete Sealants Inc. or equal.
3. The Contractor shall coat the outside of concrete structures below grade with Thoroseal or similar product to ensure watertightness.
4. All exterior concrete surfaces such as pump stations, valve pit or generator slabs shall be "float" finished.

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B. Masonry

1. Mortar, portland cement, sand, lime, water, and grout shall be as noted below:
  - a. Masonry Cement: ASTM C-91 Type N
  - b. Portland Cement: ASTM C-150 Type II
  - c. Sand: ASTM C-144; damp, loose and clean
  - d. Hydrated Lime: ASTM C-207, Type S
  - e. Water: Clean and free of deleterious matter.
  - f. Admixture: No air-entraining admixture or antifreeze compounds to lower the freezing point will be permitted for masonry mortar without permission by the Engineer.

Materials, which have become unsuitable for good construction, shall not be used. Brands of cementitious materials and source of supply of sand shall remain the same throughout the entire project and shall not be changed without the Authority's written permission.

2. Facing brick when applicable to the project shall be selected by the Authority and shall conform to the requirements of ASTM Specification C-216 grade SW for brick in contact with earth and grade MW elsewhere. Standard size 3-5/8" x 2-1/4" x 8".
3. Concrete Masonry units shall conform to ASTM C-90 Type 1, Grade N for hollow load bearing units.
4. Wall ties shall be galvanized corrugated sheet metal, 7/8" x 8", 20 gage.

C. Metals

1. All anchor bolts shall be stainless steel (Type 316).
2. Manhole steps for use in concrete walls shall be made of aluminum or shall be 1/2 inch Grade 60 reinforcing bar encased in polypropylene that is molded into a step. Type PS1-PF by M. A. Industries Inc., or equivalent.
3. Aluminum railings, posts, and formed elbows shall be formed from extruded 6063, 1 1/2 inch schedule 40 aluminum pipe. Railing

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shall have clear, factory-finished, anodized finish. All other aluminum parts shall be fabricated 6063 or 6061 extruded aluminum. All fittings except bases shall be one-piece extrusion machined to final shape. Railing and posts shall be assembled by means of stainless steel fasteners.

Blind rivets, self-tapping screws, and all other fasteners shall be 305 stainless steel. All brackets and fasteners shall be coated with asphaltic paint to prevent direct contact between dissimilar surfaces.

4. Stair nosings to be manufactured of aluminum base with abrasive inserts and integral concrete anchors. Color as selected from manufacturer's standards by Authority.

D. Roofing

Roofing shall be fiberglass shingle, on 5/8" plywood, insulated, supported by wooden truss.

1. Insulation shall be thermal batt insulation, minimum R-value of 19.0, Owens-Corning or equal.
2. Shingles shall be glass fiber, laminated high style, Owens-Corning fiberglass, Oakridge II, or owner approved equal.
3. Wood trusses (premade) shall meet design requirements of ASTM Standards E119 and AITC requirements for materials and design.
4. Contractor shall furnish and install aluminum Alcoa Vent-A-Ridge continuous louvered vent for ridge of pitched roof.
5. Soffit vent for roof undereave ventilation.
6. Gutters and downspouts shall be manufactured by Alcoa, aluminum, anodized with baked-on enamel or owner approved equal.
7. Use 15# tar paper.

E. Doors

Doors and frames shall be galvanized swinging steel door; Model

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L-20F, or equivalent.

F. Windows

Windows shall have aluminum frames, thermopane double glass panels and screens as manufactured by Hopes, Anderson, or equivalent.

G. Joint Sealant

1. Sealant (horizontal surfaces): Sonoplastic paving joint sealant manufactured by Sonneborn, or equal.
2. Sealant (vertical surfaces): Dymeric manufactured by Tremco, or equal.

H. Insulating Board

1. Use fiberboard insulation conforming to ASTM C-532 standard.

I. Pavement Base Drain

Use perforated pavement base-drain. requirements outlined in ASTM D2412. Conform to strength.

J. Expansion Material

1. Use self-expanding cork. ASTM D1752-84, Type III.

K. Fence

1. The fabric shall be 2-inch mesh No.9 gauge steel wire conforming to specifications for aluminum-coated steel chain link fence fabric (ASTM A392). Height of fabric shall be 84".
2. Posts shall be made of steel pipe of the sizes and weights given below or of other approved equivalent section. Line posts shall be 2-1/2 inch nominal diameter, standard weight, ASTM-A-120.
3. Gate post for double-swing gate openings up to 13 feet

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shall be 4-inch standard weight, ASTM A-120 pipe.

4. Gate posts for double-swing gate opening 13 feet wide and up to and including 18 feet shall be pipe 6-inch standard weight, ASTM A-120.
5. Terminal posts shall be 3" standard weight ASTM A-120 pipe.
6. Steel pipe posts shall be capped with caps of the manufacturer's standard material as approved.
7. Top rails shall have a 1-1/4 inch outside diameter and weight 2.27 pounds per linear foot.
8. Fittings shall be wrought iron, malleable iron, or pressed steel.
9. Fabric shall be connected: to line posts with 6 gauge wire clips; to top rail with 9 gauge wire; to terminal corner and gate posts with 1/4" x 3/4" tension bars tied with 11 gauge, 1 inch wide steel bands and 3/8 inch diameter bolts and nuts; to tension wire with 11 gauge hot rings.
10. Concrete bases for posts shall be 3,000 psi concrete.

#### 4.05 Construction Methods

##### A. Excavation and Backfill

1. Material for "selected compacted fill" shall be granular, clean and free of clay and organic matter. This material shall be placed in three-inch layers and compacted to a density of at least 97 percent of the maximum density based on ASTM Method D1557-78. Selected compacted fill material shall be moistened or dried as necessary to bring it to the optimum moisture for compaction. Compaction shall be by a three-wheel power roller of not less than ten tons or by approved sheep foot tamping rollers.
2. In cases where the amount of embankment exceeds the amount of excavation within the limits of the site as

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indicated by the Approved Drawings, and where material is not available from other sources, the Contractor shall obtain sufficient suitable material from borrow pits located entirely beyond the limits of the site. The Contractor shall notify the Engineer sufficiently in advance of borrow necessity, and to view the proposed borrow pit.

No allowance will be made for embankments made from material excavated from a borrow pit or area that has not had the Engineer's approval. Borrow obtained from within the site shall be removed to uniform lines and grades satisfactory to the Engineer, and in such a manner as will not detract from the general appearance of the improvements and shall not create unsatisfactory conditions. All borrow pits shall be stripped of brush, roots, grass and other vegetation prior to removal of material for embankment purposes. The Contractor will be entirely responsible for obtaining the necessary borrow pits and for compensating the owner thereof.

3. Where structures such as a valve pit or brick wall have foundations bearing on fill the entire area must be filled at least 3 feet above the proposed bearing elevation, then the fill removed to the required elevations.

B. Concrete

1. Exposed concrete surfaces shall be true and even, free from open or rough areas, depressions or projections. Concrete in all walls shall be brought to the required elevation, struck off with a straight edge and floated. Mortar finishing will not be permitted.
2. Concrete shall be handled from the mixer to the place of final deposit in a continuous manner that will prevent separation or loss of material, and as rapidly as practicable until the unit of operation is complete. Concrete, which has reached an initial set or has contained water for more than one hour shall not be deposited in the work.
3. Hot weather placement of concrete shall be in strict accordance with ACI Specification 305 for Recommended

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Practice for Hot Weather Concreting. Subgrades should be kept moist in hot weather to prevent extraction of water from the concrete.

4. Cold weather placement of concrete shall be in strict accordance with ACI Specification 306 for Recommended Practice for Cold Weather Concreting.
5. All necessary anchor bolts, pipe anchors, pipe sleeves, inserts, tank anchoring steel, and other appurtenances shall be set in the forms accurately, true, plumb, in a manner to prevent dislocation during concrete placement.
6. Concrete shall be maintained in a continuously moist condition for at least seven days following placement. Fresh concrete shall be protected from heavy rains, flowing water, freezing temperatures, and mechanical injury.

All exposed surfaces of finished or unfinished work shall be kept constantly moist by sprinkling with clean water at short intervals (unless otherwise directed during cold weather) or by covering with moistened burlap, or by such other means as may be approved.

7. Where wood forms are kept in place, these too shall be kept wet during the period of curing. The Contractor shall not permit walking upon or over the concrete until it has set for a sufficient length of time. Projecting steel reinforcement or inserts shall likewise be protected from disturbances until the concrete has been satisfactorily cured.

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C. Masonry

1. General

Masonry shall be plumb, true to line, with level courses accurately spaced, and built to the thickness and bond pattern indicated or specified. Where no pattern is indicated, masonry shall be laid in running (center) bond pattern. Masonry units shall be dry when laid. Each unit shall be adjusted to final position in the wall while mortar is still soft and plastic. Any unit disturbed after mortar has stiffened shall be removed and relaid with fresh mortar.

Anchors, wall plugs, accessories, flashings, and other items to be built in shall be installed as the masonry work progresses. All cutting and fitting of other sections shall be done by masonry mechanics with masonry saws.

2. Mortar

Measurement of materials shall be such that the specified proportions are controlled and accurately maintained. Workability or consistency of mortar on the board shall be sufficiently wet to be worked under the trowel. Water for tempering shall be available on the scaffold at all times. Mortar, which has begun to "set" or is not used within two and one-half hours after initial mixing shall be discarded. Mortar which has stiffened due to evaporation within the two and one-half hour period shall be retempered to restore its workability. Retempering the mortar at the mixer shall not be permitted.

3. Mortar Bedding and Joints

Hollow units shall be laid with full mortar coverage on horizontal and vertical face shells, except that webs shall also be bedded in all courses of piers, columns, and pilasters, and in the starting course on footings and solid foundation walls, and where adjacent to cells or cavities to be reinforced and/or filled with grout or concrete.

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4. Weather Requirements

Masonry work is not permitted when the temperature is below 40 degrees Fahrenheit without the Engineer's written permission.

When freezing temperature is expected within 3 days, follow procedures outlined in Brick Institute of America (formerly Structural Clay Products Institute) "Technical Notes" on cold weather masonry construction.

5. Cleaning

Cleaning of exposed masonry walls shall be accomplished by washing with clean water only, using fiber brushes.

If, in the Engineer's opinion, a satisfactory job has not been done with water, a solution of trisodium phosphate and detergent, 1/2 cup of each to each gallon of water should be used.

If, in the Engineer's opinion, a satisfactory job has not been done by either of the two methods specified above, a solution of commercial muriatic acid diluted one part acid to ten parts water may be used with fiber brushes on facing brick. Rinse by flooding with clean water. Cleaning done with acid shall be done before any aluminum is installed in the affected area.

Masonry in need of repointing or recleaning shall be repointed or recleaned in a manner satisfactory to the Engineer.

4.06 Painting

A. Materials

1. Paint coatings shall be suitable for the intended use. Materials shall be recommended by their manufacturer for the intended service.

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Paint coatings used on ferrous surfaces for submerged or exterior service shall be of protective paint coating quality.

2. In any paint coating system, all coatings shall be compatible. Only products of one manufacturer shall be used. Coatings used for touch up shall be the same as the originally applied coatings.

B. Shop Coatings

1. All ferrous metal surfaces subject to normal exposure, immersion, moisture, condensation or chemicals shall receive a shop applied prime coating after the surfaces have been properly prepared.
2. Shopcoats shall be compatible with coatings to be applied in the field at the site.

C. Colors

1. The Developer shall submit suitable color samples to the Authority for approval prior to proceeding with the work. No variations shall be made without the Authority's approval. Color names and/or numbers shall be according to the appropriate color charts issued for the particular product in question. Standard colors, as selected by the Authority, shall be factory tinted unless otherwise specified.

D. Surface Preparation

1. Ferrous metal surfaces subject to continuous or intermittent immersion or corrosive atmospheres identified, as non-submerged metal shall be sandblasted to a Near-White grade in accordance with the Steel Structure Painting Council Specification SSPC-SP-10. All blasted surfaces shall be coated the same day as blasted.
2. All other ferrous metal surfaces subject to normal industrial exposure shall be sandblasted to a Commercial grade in accordance with Sections SSPC-SP-6. All blasted

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surfaces shall be coated the same day as blasted.

3. Other methods for cleaning steel surfaces shall conform to SSPCSPI Solvent Cleaning, SSPC-SP2 Hand Tool Cleaning, and SSPCSP3 Power Tool Cleaning as appropriate for the exposure and specified coating.
4. All concrete surfaces shall be cleaned of all dust, dirt, form oil, curing compounds and other foreign matter. Concrete floors shall be etched with a 15-20% solution of muriatic acid. Etched floors shall have the granular appearance of fine sandpaper and shall be re-etched to attain uniformity if required. After etching, all acid shall be flushed off with clean water to be furnished by the Developer.
5. All wood surfaces shall be clean and free of all foreign matter, with cracks and nail holes and other defects properly filled and smoothed. Wood trim shall be sandpapered to a smooth finish and wiped clean of dust.
6. All aluminum surfaces shall be cleaned free of all dirt, oils, grease and other foreign matter. Surfaces shall be immersed in or treated with chemical compounds designated for this purpose. Surfaces shall be thoroughly rinsed with clean water and completely drained.
7. Galvanized metal surfaces shall be treated prior to painting with chemical compounds designated for this purpose in accordance to paint manufacturer's directions.
8. Insulation on pipes and ducts shall be cleaned of dirt, dust and other foreign matter and shall receive one coat of Latex Primer to prepare for finish painting.
9. PVC shall be scuff sanded and washed with isopropyl alcohol prior to painting.

E. Painting Schedule

1. Submerged Ferrous Metal - All submerged ferrous metal surfaces, piping and mechanical equipment, which shall be in contact with, sludges, sewage or other liquids (not

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including potable water).

- a. Shop Surface Preparation: Near White Sandblast (SSPC SP10)
  - b. Shop Primer: 1 Coat Universal Metal Primer
  - c. Preparation: Spot sand blast rust, bare metal, and deficient shop primer to SP-10 (Near White Sandblast). Do not touch up shop primer.
  - d. Finish: 2 coats Coal Tar-Epoxy Coating (6.0 - 8.0 mils DFT each coat).
2. Non-submerged Ferrous Metal - All non-submerged ferrous metal surfaces which shall be subject to moisture, condensation and chemicals.
- a. Preparation: Hand and power tool clean (SP-2 & SP-3) as needed to remove rust, loose shop primer, and other surface contaminants.
  - b. Prime: 1 coat Universal Primer (2.0 - 3.0 mils DFT)
  - c. Finish: 2 coats Catalyzed Epoxy Coating (4.0 - 6.0 mils DFT per coat).
3. Submerged Equipment (Pumps, aerators and other process equipment):
- a. Factory finish by manufacturer with material suitable for submersion in raw sewage and sludge.
  - b. Touch-up: Shop paints provided by the equipment manufacturer.
4. Equipment:
- a. Factory finish by manufacturer with standard coating material.
  - b. Touch-up: Shop paints provided by the equipment manufacturer.

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5. Interior Ferrous Metal - All interior ferrous metal surfaces including hollow metals.

a. Surface Preparation: spot hand tool clean (SSPC-SP2)

b. Prime: 1 coat Rust Inhibitive Primer (1.5 – 2.0 mils DFT)

c. Finish: 2 coats Alkyd Enamel (2.0 – 3.0 mils DFT each coat)

6. Exterior Ferrous Metal - All exterior ferrous metal surfaces including hollow metals.

a. Surface Preparation: spot hand tool clean (SSPC-SP2)

b. Prime: 1 coat Rust Inhibitive Primer (1.5 – 2.0 mils DFT).

c. Finish: 2 coats Silicone-Alkyd Enamel (1.0 – 2.

7. Ferrous Metal - All ferrous metal surface encased in concrete.

Primer: 1 coat rust metal surface encased in concrete.

8. Submerged Concrete - The inside surfaces of tanks:

a. Preparation: Brush-off sandblast to remove laitance and other surface impurities.

b. Finish: 2 coats Coal Tar Epoxy Coating (6.0 - 8.0 mils DFT each coat).

Coal tar epoxy coatings shall be top-coated within 24 hours. If 24 hours are exceeded prior to application of the next coat, then the previous coat shall be roughened by brush blasting before applying the next coat.

9. Exterior Concrete and Masonry - Below grade - including backfill areas of building, and as noted on the Plans.

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- a. Preparation: Brush-off sandblast to remove laitance and other surface impurities.
  - b. Finish: 1 coat Coal Tar Epoxy Coating, applied at a spreading rate of 120 square feet per gallon.
10. Drywall Walls and Ceilings
- a. Primer: 1 coat Latex Emulsion Primer (1.0 – 2.0 mils DFT)
  - b. Finish: 2 coats Latex Semi-gloss Acrylic Emulsion (2.0-2.5 mils DFT each coat)
11. Interior Concrete and Masonry - As noted on the Plans.
- a. Primer: 1 coat Masonry Block Filler or Latex Emulsion Primer as required.
  - b. Finish: 2 coats catalyzed epoxy enamel, applied at a spreading rate of 250 square feet per gallon
12. Exposed Galvanized Conduit and Supports: (Interior)
- a. Primer: 1 coat Galvanized Steel Primer unless scheduled finish paint is self-priming on galvanized surfaces.
  - b. Finish: Same material and color as adjacent surfaces.
13. Concrete Floors - As noted on the Plans.
- a. Primer: 1 coat Catalyzed Epoxy Coating, thinned 50% with appropriate thinner applied to 2 mils dry film thickness.
  - b. Intermediate: Catalyzed Epoxy Coating, applied at a spreading rate of 300 square feet per gallon to obtain 4 mils dry film thickness.

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- c. Finish: Same as intermediate applied to 2 mils dry film thickness.
- 14. Galvanized, Aluminum, Non-ferrous Metals - where designated for coating shall receive one coat of Galvanized Steel Primer as a pretreatment before applying appropriate coating systems.
  - 15. Interior & Exterior Wood - All, unless otherwise noted on the Plans.
    - a. Primer: 1 Interior & Exterior Wood - All, unless otherwise noted on the Plans.
    - b. Finish: 2 coats of Alkyd Enamel at 1.5 to 3.0 mils dry per coat.
  - 16. Aluminum surfaces which after erection are to be embedded or otherwise in contact with concrete, brick masonry or mortar shall be painted with heavy asphaltic or bitumastic paint.
  - 17. All exposed plastic pipe shall receive two (2) coats of Alkyd Enamel.
  - 18. All asphalt coated pipe shall receive one coat of Anti-Bleeding Sealer prior to painting with Alkyd Enamel.
  - 19. Shop Primers
    - a. All metal surfaces subject to immersion or severe exposure such as, moisture, condensation or chemicals, shall be shop primed with universal metal primer specified in this Section.
    - b. All metal surfaces not subject to immersion or severe exposure, but normal exposure, shall be shop-primed with rust inhibitive primer as specified in this Section.

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F. Acceptable Manufacturers

1. Valspar
2. Koppers
3. Tnemec
4. Sherwin Williams
5. PPG Industries
6. Or approval equal.

G. Execution

1. The Developer shall, when work is located in confined spaces, provide and maintain safe working conditions for all employees. Fresh air ventilation shall be provided to continuously remove paint fumes from the confined space through the combined use of existing openings, force-draft fans and temporary ducts to the outside. Paint fumes shall, if possible, be exhausted to the outside from the lowest level in the confined space. Electrical fan motors shall, if located in the confined space, be explosion-proof. No smoking or open fires will be permitted in the confined space.
2. Where thinning is necessary, only the product of the manufacturer furnishing the paint and for the particular purpose shall be allowed and all such thinning shall be done strictly in accordance with the manufacturer's instructions.
3. Adequately protect adjacent surfaces from paint and damage. Repair damage as a result of inadequate protection.
4. Furnish drop cloths, shields and protective covers to prevent overspray and paint droppings from fouling adjacent surfaces.
5. Place waste cloths and material, which may constitute a fire hazard in closed metal containers and remove from the site daily.

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6. All work shall be performed by skilled personnel regularly engaged in this type of work. Surfaces shall be left free from drops, ridges, waves, laps and brush marks. Edges of paint adjoining other colors or materials shall be sharp, true and free of overlapping.
  7. Do not apply paint in temperatures below 50 degrees Fahrenheit except where manufacturer allows lower temperatures or above 90 degrees Fahrenheit, nor at any time when temperatures cannot be controlled and are likely to be outside the limits recommended by the paint manufacturer. No painting shall take place when the surface temperature is below the dew point or when relative humidity is above 85 %. No exterior painting shall be done during threatening weather or under other conditions, which are unsuitable for obtaining good results.
  8. Do not apply prime or seal coats of paint to wood in areas where cement, mortar or plaster is in the process of application or drying.
  9. Each coat shall be uniform in coverage and color. Number of coats shall be as specified or required for the acceptance of the finish. Each coat shall be carefully examined and poor workmanship, holidays, damaged areas and other imperfections shall be touched up prior to applying succeeding coats. Comply with paint manufacturer's recommendations for drying time between coats.
  10. Thoroughly examine surfaces scheduled to be painted prior to commencement of work. Report in writing any condition that may potentially affect proper application. Do not commence until such defects have been corrected.

H. Color and Identification of Piping

1. All major piping, where exposed to view, shall be painted in accordance with the following Color Coding Scheme.
2. All lines will be identified with applied adhesive tape pipe

markers indicating pipe contents on a colored background. Apply markers at each valve to identify pipe contents, at every point of pipe entry or exit at walls and on each riser and "T" joint. Markers will have adjacent arrows indicating direction of flow and shall be applied to the lower two quarters of pipes. Pipe markers shall be as specified in the color coding scheme.

### 3. Pipe Identification Color Coding Scheme

<b>Pipe System</b>	<b>Pipe Color</b>	<b>Letters and Arrow Color</b>	<b>Identification Letters</b>
Compressed Air	Light Green	Black	Air
Digested Sludge	Dark Brown	White	Dig.-Sludge
Domestic Gas Red	White	Domestic Gas	
Drain Lines	Dark Grey	White	Drain
Non Potable Water	Dark Blue/Red Strip	Red	Non Potable Water
Effluent Flushing Water	Dark Blue/Red Strip	Red	EFW
Effluent Flushing Bibbs/Hydrants	Dark Blue/Red Stripe	Red	Non Potable Water
Polymer Feed Purple	White	Polymer	
Potable Water Light Blue	White	Potable Water	
Potable Water Hydrants	Light Blue	White	Potable Water
Primary Waste Sludge	Tan	White	WPS
Raw Sewage	Light Gray	Black	Raw Sewage
Return Activated Sludge	Medium Brown	White	RAS
Return Waste Line	Black	White	RWL
Secondary Effluent	Dark Green	White	Secondary Effluent
Waste Activated Sludge	Dark Brown	White	WAS

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4. The colors of electrical conduit and air ducts shall be approved by the Authority prior to painting.

- I. Cleanup

The Developer shall be responsible for the cleanliness of his operations, using covers and masking tape to protect the work wherever such covering is necessary, or is so requested by the Authority. Any paint spoiling unpainted surfaces or surfaces painted a different color shall be carefully removed without damage to any finished paint. If damage does occur, the entire surface adjacent to and including the damaged area, shall be repainted without visible lapmarks and without additional cost to the Authority.

The Developer shall be entirely responsible for injury or damages to the property of the Authority, other contractors and subcontractors, or the general public, if such injury or damage is due to the Developer's own negligence, carelessness, poor workmanship, or poor judgment regarding painting methods or suitability of conditions for the application of paint.

- 4.07 Pumps and Accessories

All pumps, motors, and central equipment shall conform to the requirements set forth in the Approved Drawings and Shop Drawing submittals as to capacity, head and other requirements. Motors shall be of ample size to operate without overload under all possible conditions of loading through the entire range of the pump characteristic curve. Motors and pumps shall be capable of continuous, 24 hour per day operation.

Submersible grinder pumps are acceptable for use provided they meet the application, capacity, head and other design requirements listed within this document.

The discharge of each pump, with the exception of submersible pumps, shall be furnished with a pressure gauge. The suction of each pump, with the exception of sump pumps, shall be furnished with a compound gauge. Gauges shall be of the Bourden tube type with cam and roller movement. Discharge gauges shall be graduated in PSIG from zero to twice the head capacity of the pump. Compound gauges shall indicate vacuum in inches of mercury and pressure in PSIG.

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#### 4.08 Valves

##### A. Plug Valves

Straight way plug valves shall be of the nonlubricated, eccentric type with resilient faced plugs. Three way plug valves shall be of the nonlubricated concentric type, resilient seated, lift and turn type operation. Port areas of all valves shall be at least 80% of full pipe area.

Bodies shall be of cast iron conforming to ASTM Standard A126, Class B. Valves shall be designed to withstand C.W.P. non-shock working pressures of 175 PSI. Pressure ratings shall conform to ANSI Standard B 16.1, Hydrostatic Test. Valves shall have nickel seats, neoprene plug facting, stainless steel bearings, and nitrile-butadiene packing. Means of actuation shall be lever, gear actuator, floor stand, etc., as indicated on the Approved Drawings. All valve sizes 10" and greater shall be furnished with geared actuators. All lever and handwheel actuators shall be furnished with an adjustable, open position memory stop, which allows the valve to be closed and then reopened to the same position. Actuating shafts shall be sealed by means of an adjustable packing gland. Valves shall be as manufactured by Clow Corporation, Dezurik, or equal.

##### B. Check Valves

All check valves shall be swing check, and shall be produced by Darling Valve Manufacturing Company, Kennedy Valve Manufacturing Company, Chapman Valve Manufacturing Company, R. D. Wood Company, or Mueller Company, or approved equal. Check valves three inches and larger shall be iron body, fully bronze mounted, and those smaller than three inches shall be solid bronze. The check valves shall be designed for a minimum water working pressure of 150 pounds per square inch and shall be factory tested to double that pressure before shipment. The ends of check valves shall be of the type conforming to the pipe line where installed. Discs shall be open position. Check valve bodies shall provide excess area through the valves to assure full delivery of line capacity. Unless otherwise required, all check valves shall be furnished with outside weighted levers.

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4.09 Hatchways

All hatchways shall be aluminum, double leaf, with hold-open bar, flush lift handle, locking hasp, gutter drainage collector and drainage coupling, and sized as shown on the Approved Drawings.

4.10 Strainer Basket

The Contractor shall furnish and install an aluminum strainer basket on the influent sewer to the pump station as applicable and as indicated on the Approved Drawings. This basket will be mounted on guides, which will allow the raising of the basket for cleaning.

Strainer basket shall be a debris screening basket and shall include guides, standoffs, ladder rungs, fine basket, stainless steel lifting cable, and hoist with winch.

4.11 Hoist

The Contractor shall furnish a wire rope hoist designed to pull the pumps from the wet well. The portable hoist shall be designed to fit into a special bracket on the hatch frame and have the capacity to pull the pump and motor using a hand operated pulley arrangement. The arrangement of the hoist shall also make it possible to lift the strainer basket.

Hoist shall be furnished with an enclosed, spur-gear operated winch, with self-locking brake, which stops when the handle is released, whether raising or lowering.

Hoist shall be as the portable hoist manufactured by the Flygt Pump Company, or an approved equal.

4.12 Unit Heater

The Contractor shall furnish and install a Chromalox, Model LUH-02-21 electric unit heater, or equivalent. The unit shall be furnished complete with thermostat and all applicable accessories. Maintain a minimum of 6" clearance or, as per manufacturer's specifications, from surfaces of heater to combustibles.

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#### 4.13 Ventilation

Adequate ventilation shall be provided for all pump stations. Where the pump pit is below the ground surface, mechanical ventilation is required, so arranged as to independently ventilate the dry well and the wet well if screens or mechanical equipment requiring maintenance or inspection are located in the wet well. There shall be no interconnection between the wet well and dry well ventilation systems. In pits over 15 feet deep, multiple inlets and outlets are desirable. Dampers should not be used on exhaust or fresh air ducts and fine screens or other obstructions in air ducts should be avoided to prevent clogging. Switches for operation of ventilation equipment should be marked and located conveniently. All intermittently operated ventilating equipment shall be interconnected with the respective pit lighting system.

Consideration should be given also to automatic controls where intermittent operation is used. The fan wheel should be fabricated from non-sparking material. In climates where excessive moisture or low temperatures are a problem, consideration should be given to installation of automatic heating and/or dehumidification equipment.

- A. Ventilation may be either continuous or intermittent. Ventilation, if continuous, shall provide at least 12 complete air changes per hour; if intermittent, at least 30 complete air changes per hour. Air shall be forced into the wet well rather than exhausted from the wet well.
- B. Dry Wells - Ventilation may be either continuous or intermittent. Ventilation, if continuous, shall provide at least six complete air changes per hour; intermittent, at least 30 complete air changes per hour.

#### 4.14 Dehumidifier

A dehumidifier assembly is required to maintain the relative humidity of the air in the pump chamber low enough to keep the electrical equipment dry and to prevent condensation on walls. The moisture removing capability of the dehumidifier shall vary with the temperature and relative humidity within the station. The dehumidifier shall be controlled automatically by an adjustable humidistat and low air temperature cut -out with contacts of adequate capacity for the humidifier motor.

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4.15 Spare and Loose Parts

Parts removed from equipment, and spare and loose parts furnished with equipment shall be suitably labeled and safely stored by the Contractor until the completion of the work, and then delivered to the Authority.

4.16 Special Tools

Furnish one set of all special tools required for operation and maintenance of all equipment furnished. Deliver tools to the Authority's representative.

4.17 Electrical

A. Wiring Methods - Interior

In all portions of the buildings, install all wire and cable in rigid galvanized steel conduit except electrical metallic tubing may be used above dropped ceilings. All conduits shall be installed exposed except in areas having dropped ceilings where all work shall be concealed. Plastic PVC conduit may be used for conduit runs in slabs or under the ground floor slab. All ferrous metals shall be protected by galvanizing or epoxy coating. Sealing fittings are not required, but gaskets shall be used where possible to minimize gas entry into this raceway system.

Use liquid-tight flexible steel conduit in lengths not exceeding 18 inches for the connection of motors and other items subject to vibration in all exposed areas and all damp locations.

Flexible steel conduit (Greenfield) may be used in lengths not exceeding 48 inches for the connection of recessed lighting fixtures, and for motors or other items subject to vibration, which are installed above finished ceilings.

B. Wiring Methods - Exterior

Install underground conductors in reinforced concrete encased plastic PVC ducts with a minimum cover of 24 inches. Where not grouped with other conduits, single runs may be rigid galvanized steel, without encasement.

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C. Motor and Equipment Wiring

Provide complete wiring to all motors and equipment shown on the Approved Drawings, leaving same in perfect operating condition. In general, motors less than 1/2 horsepower will be wound for single phase, 120 volts, and motors 1/2 horsepower and over will be wound for 3 phase, 460 volts.

D. Raceway - Material

Size all conduit and raceway in accordance with Table 1, Chapter 9 of the National Electrical Code. The minimum raceway size shall be 3/4-inch, unless specifically noted otherwise on the Approved Drawings.

Plastic conduit shall be made of high impact polyvinyl chloride compound approved for 90 degrees C. conductors, shall conform to NEMA Specification TC-2, and Federal Specification WC-I094, and shall bear an Underwriters' label. PVC conduit shall be heavy wall Schedule 40.

Rigid steel conduit shall be made of hot-dipped galvanized steel manufactured in accordance with U.L. Standard No.6 or 1242. Rigid steel conduit shall conform to the requirements of Federal Specification WW - C581, latest amendment. Conduit shall bear the manufacturer's and Underwriters' labels.

Electrical metallic tubing shall be of steel, galvanized inside and outside, enameled inside and outside, manufactured in accordance with U. L. Standard No. 797, and shall conform to the requirements of Federal Specifications WW-C-563. Tubing shall bear the manufacturer's and Underwriters' labels.

Liquid-tight flexible steel conduit shall have a plastic jacket that is sealed to the flexible metal jacket. It shall be the type approved for use without a ground wire, where possible.

Flexible steel conduit (Greenfield) shall be made of galvanized steel strip with each convolution interlocked with the previous. Conduit shall conform to the requirements of Federal Specifications WW -C-566, latest revision.

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E. Raceway Installation

Insofar as possible, install all raceways exposed. Conduits that are to be concealed shall be installed in floors, walls and partitions, and above finished ceilings in such a manner that the structure of the building is not damaged or weakened. Under no circumstances will horizontal runs of conduit be permitted in walls constructed of hollow masonry units. 3/4-inch conduit may be embedded in concrete floor slab; any larger conduit shall be installed under the concrete slab. Cover all conduit in crushed aggregate fill with cement grout of 2-inch minimum thickness.

Where raceways must be installed exposed, they shall be installed parallel with walls, partitions, joists, beams, and columns so as to present a neat appearance. Exposed diagonal runs will not be permitted.

Branch circuit conduits to motors not located adjacent to wall shall be run under floors and shall be terminated adjacent to the motor locations with outlet boxes placed six inches above finished floor.

Raceways shall be continuous from outlet to outlet, and from outlet to cabinet, junction box or pull box, and shall enter and be secured to all boxes in such a manner that each system shall be electrically continuous from service entrance to all outlets. Where rigid conduits terminate in cabinets, outlet boxes and pull boxes, a bushing and a locknut shall be installed on the inside, and a locknut on the outside. Use conduit adapter bushings where conduits are installed in knockout of larger size.

F. Mounting Height Of Outlets

Locate outlet boxes in walls with centerline at the following elevations above finished floor.

Wall switch outlets	4' 6"
Bracket outlets - Exterior	6' 4" or 1'0" above doors
Bracket outlets – Interior doors	6' 4" or 1'0" above
Wall receptacles – General Counters	1' 6" or above
Wall receptacles - Utility Area	4' 0"
Panel Cabinets	6' 6" to top
Telephone outlets	1' 6"

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These heights may be changed to meet building conditions in which case the Contractor shall use dimensions given him by the Authority's representative.

G. Grounding

Provide all electrical system grounds mentioned herein and/or as required by the National Electrical Code. The following shall be solidly grounded:

- 1) Neutral leads of secondary service.
- 2) Main service entrance switch.
- 3) Panel boards.
- 4) Motor control center.
- 5) Transformers, enclosures and neutral leads.
- 6) Generator frames and neutral leads.
- 7) Pull boxes.
- 8) Raceway system.
- 9) Motor frames.
- 10) Electric heating equipment.
- 11) Lighting fixtures. (By raceway)
- 12) Exterior lighting fixtures. (By driven rods)

All grounding fittings for service and equipment grounds shall be of an approved type.

H. Panelboards

Distribution and power panelboards shall be of the dead-front type, and shall incorporate switching and protective devices of the number, type and rating as noted herein or shown on the drawings. Panelboards shall be rated for the intended voltage and shall be constructed in accordance with the Underwriters' Laboratories, Inc. "Standard for Panelboards" and "Standard for Cabinets and Boxes" and shall be so labeled. Where panel boards are to be used as service entrance equipment, they shall be so labeled. Panel boards shall also comply with NEMA Standard for Panel boards, "National Electrical Code for Panel boards" and "Standard for Cabinets and Boxes" and shall be so labeled. Where panel boards are to

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be used as service entrance equipment, they shall be so labeled. Panel boards shall also comply with NEMA Standard for Panel boards, National Electrical Code, and Federal Specification W-P-115a, where applicable.

Interiors shall be completely factory assembled with switching devices, wire connectors, etc. All wire connectors, except screw terminals, shall be of the antiturn solderless type. Interiors shall be so designed that switching and protective devices can be replaced without disturbing adjacent units and without removing the main buss connectors and shall be so designed that circuits may be changed without machining, drilling or tapping.

Circuit breakers shall have quick-make, quick-break operating mechanisms; shall have silver alloy contacts; shall be electrically and mechanically trip free; and shall have common trip bar for all poles. The operating handle shall indicate ON, TRIPPED and OFF positions.

Fault current interrupting ratings shall not be less than the short circuit current rating indicated on the drawings, nor less than the available short circuit current where the breaker is being installed.

Identify all switching and protective devices by engraved nameplate or by neatly typed directory card with nonflammable, transparent cover mounted on the inside of the doors of the cabinets. Stencil the panelboard designation and system voltage in I-inch lettering on the inside of each cabinet door.

Coordinate the dimensions of each panelboard and its cabinet with the dimensions of the space designated for its installation. Detail shop drawings of all panelboards, indicating size, rating and arrangement of all switching and protective devices shall be submitted.

I. Panelboard, Cabinets and Trims

Each panelboard shall be mounted in a sheet steel enclosing cabinet designed for surface or flush mounting as indicated on the drawings. Cabinets shall be fabricated of code-gauge, galvanized sheet steel. The rear of the cabinets shall be provided with a minimum of four studs for supporting the panelboard in such a manner that adjustments may be made in all directions.

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All cabinets shall have wiring gutters at top, bottom and sides of sufficient size to adequately accommodate both present and future conduits and wires.

Trims shall be fabricated from codegauge sheet steel. Trims for flush type cabinets shall overlap 3/4-inch or as required, and those for surface type cabinets by means of indicating type trim clamps and shall have an angle iron rest near the bottom to aid in installation and removal. Install all cabinet and trims plumb and in a workmanlike manner.

All trims shall contain hinged doors for covering switching device handles.

J. Disconnect Switches

Provide safety switch type disconnects where indicated on the Approved Drawings for circuit protection, motor and equipment disconnects, and at all other locations required by the National Electrical Code.

Safety switches shall be of the heavy-duty class, shall be Underwriters' Laboratories, Inc. listed and labeled, horsepower rated, conforming to Federal Specification WS-865 and NEMA 12 enclosures. Switches indicated to be weatherproof shall have NEMA 4 stainless steel enclosures.

K. Fuses

Furnish and install current limiting fuses for all fuse gaps. Fuses shall be of nonrenewable cartridge type of the current ratings noted on the Approved Drawings. All fuses shall be Underwriters' Laboratories, Inc. listed and labeled.

L. Motor Control Centers

Motor control centers shall be designed, constructed and tested in accordance with the latest applicable NEMA Standards for Control Centers and Industrial Control. All individual units and all vertical sections shall be Underwriters' Laboratories, Inc. listed and labeled, except in the case of nonstandard features where the equipment shall be manufactured to conform in every way possible to the UL Standard. The design shall have been tested in a recognized high power laboratory to prove that it has both adequate mechanical and electrical capabilities.

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Motor control centers shall be of the required number of vertical sections bolted together to form one metal enclosed rigid motor control center. Coordinate the dimensions of the stripping units with the dimensions of the access pathway for moving the motor control centers into the indicated location within the building.

Motor control centers shall be dead-front with NEMA Type 1A metal enclosure arranged for free-standing floor mounting.

Motor control centers shall be complete with all bussing and power connections to the individual units, and control wiring to unit mounted pilot devices.

Control center wiring shall be Type B with wiring of unit mounted control devices and unit mounted numbered pull apart terminal blocks for all control wiring. Unit mounted terminal blocks shall be provided for power wiring of starters. Additional terminal shall be included for junction points for wiring from remote devices, arranged with no more than 2 field wires per terminal.

Submit shop drawings for the motor centers, consisting of the following minimum drawing requirements:

1. Outline drawing and floor plan.
2. Schedules of all units, accessories and nameplates.
3. Connection diagram for each individual unit with terminal numbering.
4. Notes and specifications.

Across-the-line elementary diagram for each individual unit with the terminal numbering. Diagrams shall be complete including devices external to the motor control center.

M. Control Panels

Furnish and install control panels for various motors and equipment with relays, time clocks, time-delay relays, pilot lights, pushbuttons, and selector switches as detailed on the Approved Drawings. The control panels shall be totally enclosed, factory assembled and wired panels.

The control panel components shall be mounted in NEMA 12 or NEMA 4

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continuous hinge enclosures, as indicated, which shall be wall mounted. The indicating lights shall be self-contained transformer-type, press-to test lights. The indication lights and selector switches shall be heavy-duty, oil tight control units. Furnish weatherproof boots, where required, for devices in NEMA 4 panels. Relays shall be of the machine tool type with convertible contacts. Relays shall have a minimum of one spare set of contacts.

N. Lighting Fixtures

Furnish and install all lighting fixtures complete with lamps, ballasts, fuses and other accessories for each and every outlet indicated on the Approved drawings. Plaster rings or frames shall be provided for all recessed fixtures in plaster and other non-accessible ceilings.

All lighting equipment shall be designed, adjusted and focused to perform as desired and to illuminate the objects or areas intended.

The parts of lighting units exposed to the weather shall be made of non-corroding metals, such as aluminum, stainless steel or bronze, and all fastenings and fastening devices shall be made of the above listed metals.

All fixtures shall be approved by shop drawings, sample or catalog identification. All lighting fixture shop drawings shall be submitted at the same time in sets or brochures.

Exterior pole mounted lighting fixtures shall be protected with GMF fuses, or rating recommended by ballast manufacturer. Fuses shall be contained in HLR fuse-holders.

O. Exterior Lighting and Control

Provide all the various types of exterior lighting for roadways, parking lots, walkways, as indicated on the Approved Drawings.

Stake out the locations of all exterior lighting fixtures and obtain Authority representative's approval for all such locations before starting any related excavation, trenching or concrete work.

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P. Standby Power and Lighting System

Furnish and completely install a standby power and lighting system in conformance with the requirements of the Department of Labor and Industry, Commonwealth of Pennsylvania and Article 701 of the National Electrical Code.

The standby power and lighting system shall consist of a natural gas, or diesel engine standby generator, concrete foundation, automatic transfer switch with automatic/programmable exerciser, standby panels, power and control wiring, conduit, wire, outlets, lighting fixtures, and other accessories required for a complete and operable system.

The automatic engine-generator set shall be of such design that it shall satisfactorily operate and successfully carry its rated output as shown on the drawings without exceeding its safe operating temperature, for the duration of any utility electrical outage.

The standby power and lighting system shall be interconnected with the normal utility electrical supply by means of an automatic transfer switch which shall operate in such a manner that when the normal utility electrical supply fails, its under voltage sensing shall provide, after a time delay, a contact closure to signal the engine-generator to start; and when the generator output reaches both 90% of voltage and frequency, the emergency load shall be transferred to the generator output and shall be supplied by the engine-generator for the duration of the Utility outage. When the normal Utility supply is re-established, after a time delay, the emergency load shall be transferred back to the Utility supply and the engine-generator shall be signaled to cool down and stop.

The engine-generator set shall be the product of the original equipment manufacturer of either or both the engine and/or the generator. The set shall be engineered and designed as a complete unit and the manufacturer shall have full responsibility for the coordinated operation of all components. The manufacturer or his distributor shall maintain a parts stock and service facilities within a radius of 75 miles of the project site.

When applicable and where indicated on the drawings, the generator and accessories shall be housed in an outdoor type enclosure providing complete protection from the elements in a cold climate region. The housing module shall be factory assembled and tested with the generator

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and all components. Only fuel inlet, power feeders, control wiring, the corrosion protection connections shall remain to be completed in the field.

On completion of the installation, a factory trained representative of the engine-generator manufacturer shall provide instruction on operating and maintenance procedures to the Owner's personnel. Two copies of operating and maintenance instruction books, and parts list shall be supplied for the engine-generator set and such auxiliary equipment as may require the same.

Detail shop drawings of the engine-generator, control panels, fuel storage, transfer and piping system, exhaust silencer, batteries, battery charger, automatic transfer switch, and other accessories along with certification of Department of Labor and Industry approval shall be submitted to the Authority. A certified installation drawing for the engine-generator base shall be included.

The engine-generator set shall receive the manufacturer's standard factory testing. Prior to acceptance of the installation, the equipment shall be field tested to show it will start automatically, subjected to a 4-hour full load test; shut down and reset. The Contractor shall provide and connect temporary load bank as required to satisfy the full load test requirement. Prior to acceptance, any defects, which become evident during this test shall be corrected by the Contractor at his expense.

Q. Alarm System

The Contractor shall furnish and install a system to monitor and transmit alarms to the Chippewa Township Treatment Plant and the Chippewa Township Police Station. The system shall utilize telephone communications or current method in use by the Authority at the time of construction, and shall be fully compatible with the system in use. The units shall continuously monitor their inputs, transmitting only on a change of condition. Each station shall be equipped with a complete and operable system. Any necessary additions to alarm receiving display and control units at the plant and police station will be provided by the Contractor. Supplier services shall include construction supervision, start-up, instruction of Owner's personnel, and manuals.

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4.18 Odor and Corrosion Control

A. Introduction

Odor and corrosion problems can be experienced at various locations throughout the Chippewa Township Sanitary Authority collection system. To prevent this problem, it is required that newly proposed pump stations and force mains be designed with provisions to handle and eliminate odor and corrosion causing compounds. Ideally, this would be handled by requiring new developers to comply with design features that would prevent the formation of odor and corrosion causing chemicals or would treat for these compounds before expensive repair and replacement costs are incurred in the collection system.

B. Odor and Corrosion Control

For odor and corrosion control at pump stations and force mains the Developer will provide a ferrous sulfate feed system. The feed capacity of the metering pumps will depend on the size of the development and the length of the force main. An example calculation is found in *Appendix D*.

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## 5.0 PRESSURE SEWER SYSTEM

### 5.01 Scope

The pressure sewer system shall be considered as a supplemental approach for the wastewater collection system and not as a substitute for the conventional gravity collection system. It is expected that a pressure sewer system would generally be used in small sub-systems or areas. This system may be approved for use under conditions such as the following:

- A. Where the topography makes it extremely difficult or impractical for the potential users to be served by a gravity collection system.
- B. Where ground-water conditions make it difficult to construct and maintain a gravity collection system.
- C. Where excessive rock excavation makes the gravity collection system impractical.

### 5.02 Design Criteria

The following considerations shall be used for the design of a pressure sewer system including the grinder pump units, or centrifugal pump units where solids do not present a problem.

- A. Collection System
  - 1. No pressure sewer less than 1-1/4 inches inside diameter shall be provided. The required size shall be determined to maintain low frictional losses in the system and a minimum scouring velocity of 2 feet per second at all points in the system.
  - 2. Special care shall be exercised in the hydraulic design of a pressure sewer system, which is proposed to serve ultimately more houses than those expected to be served initially.
  - 3. The determination of flow in the pressure sewer system shall be made on the basis of the maximum probable number of grinder or centrifugal pump units that would be expected to run simultaneously or some other accepted method of computing the peak sewage flow rate in the system.

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4. The pressure sewer system shall be laid out in a branched or tree configuration to avoid flow-splitting at branches, which cannot be accurately predicted.
  5. The pressure sewer piping shall be installed in a depth sufficient to protect against freezing and damage from vehicular traffic. Detectable, brightly colored plastic tape displaying the printed notation "Sanitary Sewer" shall be laid between backfilling lifts over the pipe not less than two (2) feet above the pipe nor less than two (2) feet below the finished ground surface. In no event shall the tape be more than four (4) feet below the finished ground surface. Tape shall be of sufficient width or thickness so as to be detectable at the finished ground surface
  6. Although any suitable pipe material can be used, plastic pipe such as PVC S.D.R.-16 or 21 conforming to the requirements of ASTM D2241 or equivalent are considered suitable. A value of  $C = 120$  is recommended to be used for plastic pipe in the Hazen-Williams formula. A value of  $C = 100$  is required for unlined iron or steel pipe.
  7. For pressure sewer piping sizes less than two (2) inches, pipe shall be high performance molecular weight high density polyethylene pipe equal to Driscopipe 1000, as manufactured by Phillips Driscopipe, Inc., Dallas, Texas or an approved equivalent. The pipe material shall be a Type III, Class C, Category 5, P34 material as described in ASTM D1248. The standard HDPE fittings shall be standard commercial products manufactured by injection molding or by extrusion and machining, or, shall be fabricated from PE pipe conforming to the specifications. The fitting shall be full pressure rated by the manufacturer to provide a working pressure equal to the pipe for 50 years service at 73.4 degrees Fahrenheit with an included 2:1 safety factor. The fitting shall be manufactured from the same resin type, grade and cell classification as the pipe itself.

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8. Clean-out connections (See Drawing No. B-16) shall be provided at distances not to exceed 500-600 feet. Flushing clean-outs should be provided at the upstream end of every major branch.
  9. Pressure and vacuum release valves shall be employed at appropriate locations. Pressure sewers should be constructed on a gradually ascending slope to minimize air binding.
  10. The pressure sewer main shall be color taped or coded to distinguish between sanitary sewer and water main, and the direction of flow should be indicated on all pressure sewers inside the building.
  11. Current standards shall be maintained in separating parallel sanitary and water systems.
  12. Pressure sewer system operating pressures in general shall not exceed a range of 40 to 60 psi for any appreciable period of time.
  13. Thorough hydrostatic pressure testing of all lines, fittings etc. shall be made prior to start -up.
  14. Details of construction shall be clearly stated in the drawings and/or specifications. Typical installation is depicted on Standard Drawing No. B-9, Drawing No. B-11, and Drawing No. B-16.

B. Individual Dwelling Unit or Commercial Unit Grinder Pump

1. The minimum net storage capacity of the grinder pump unit shall be approximately 50 gallons. The grinder pump tank should be able to accommodate normal peak flows and emergency storage during a short power failure.
2. If grinder pump units are replacing an existing on-lot system, the existing system should be retained for holding sewage during an extensive power failure.

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3. The grinder pump shall have the characteristics that will continue to produce flows of at least 8 gpm even when conditions in the pressure system cause heads to rise temporarily to values higher than the normal maximum.
  4. Check and shut-off valves shall be employed to isolate the grinder pump unit from the house service line and the pressure laterals.
  5. Appropriate high water and overflow detection devices such as visual and/or audio alarm shall be provided.
  6. Provisions shall be made to insure that the grinder pump operates even under temporary loads above normal and contains integral protection against back siphonage and over pressure.
  7. The grinder pump unit shall be capable of reducing any material in the wastewater which enters the grinder unit to such size that the material will pass through the pump unit and pressure sewer without plugging or clogging. No screens or other devices requiring regular maintenance shall be used to prevent trashy material from the grinder pump. See Drawing No. B-15.
  8. At least one (1) stand-by grinder pump unit for each 50 units or fraction thereof shall be provided for emergency replacement.
  9. If the grinder pump unit is installed outside the residence, provision must be made for access, as well as protection from weather and vandalism. Inside installations shall be quiet and free from electrical and/or health hazards and (shall) preferably be certified by nationally recognized independent testing laboratories, such as the Underwriter's Laboratories, Inc. and the National Sanitation Foundation.
  10. The grinder pump unit must be capable of being removed without dewatering the collection tank.

C. Individual Dwelling Unit or Commercial Unit Centrifugal Pump

1. As an alternative to using the grinder pump unit, a centrifugal pump may be used in conjunction with an existing septic tank or other pump tank, provided that the results obtained are similar to those obtained using the grinder pump unit.

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2. All conditions applicable to the grinder pump unit as stated in Subsection B, above, which can be utilized with the centrifugal pump unit shall be utilized.

5.03 Operation, Maintenance and Service

Grinder pump units must be serviceable and replaceable under wet conditions without electric hazard to the repair personnel. Piping and pump units shall be designed for rerouting of flow under emergency conditions.

- A. Provisions shall also be made to avoid interruption of sewer service due to mechanical or power failure. Alternatives shall include:
  1. Piping interconnection with a second, nearby grinder pump installation.
  2. Provision of stand-by power generator.
  3. Connection to a holding tank or to an existing septic tank system.
  4. Increasing wet well capacity of the unit.
- B. The pressure sewer system designed and installed by the Sanitary Authority shall be owned, maintained and operated by The Chippewa Township Sanitary Authority. The grinder or centrifugal pump unit shall be operated by the property owner. The pump unit and force main locations shall be located in dedicated easements for maintenance purposes.

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## 6.0 CHECKLIST FOR CONSTRUCTION DRAWING SUBMISSION

The following information is required for submission of plans for review.

### 6.01 Construction Plans

- A. Cover Sheet signed and sealed.
- B. Location map showing municipal boundaries, proposed development, and existing sewers in vicinity.
- C. Drawing index if over two drawings.
- D. Recording Plan showing sewer easements. Individual *R/W* agreements with *R/W* drawings if sewer through private property.
- E. North Arrows.
- F. 8" Sewer abutting each lot.
- G. Engineer's seal on each drawing.
- H. Existing sewer permit number at tie-in point.
- I. Water tight manholes where prone to high water.
- J. Manholes in berms out of pavement where possible.
- K. Sewers out of streams where possible.
- L. Erosion and sedimentation control plan.
- M. Drawing size 24" x 36"
- N. Construction plans must be at a scale of 1" = 50'
- O. A note must be included notifying contractors of the design number and required notification under PA One Call Act 199 of 2004.
- P. Add name and address of all utilities on site per Act 287 utility listing.
- Q. The 6" service sewer should terminate at the road or sewer easement *R/W* line.

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6.02 Profiles

- A. On USGS datum.
- B. 400' maximum between manholes.
- C. Concrete anchors when over 20% slope.
- D. MH at end of each line.
- E. Minimum 4-foot of cover above the crown of pipe.
- F. Maximum cover should not exceed 20' if possible.
- G. Bored state road crossings.
- H. Utility Clearance
- I. Slope

All sewers shall be so designed and constructed to give mean velocities, when flowing full, of not less than 2.0 feet per second, based on Kutter's formula using an "n" value of 0.013. Use of other practical "n" values may be permitted by the Authority if deemed justifiable on the basis of research or field data presented. The following are the minimum slopes which should be provided; however, slopes greater than these are desirable.

<u>Sewer Size</u>	<u>Minimum Slope in Feet Per 100 Feet</u>
6"	0.60
8"	0.50
10"	0.28
12"	0.22
14"	0.17
15"	0.15
16"	0.14
18"	0.12
21"	0.10
24"	0.08
27"	0.067
30"	0.058
36"	0.046

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Under special conditions, if justifiable reasons are given, slopes slightly less than those required for the 2.0 feet per second velocity when flowing full may be permitted. Such decreased slopes will only be considered where the depth of flow will be 0.3 of the diameter or greater for design average flow. Whenever such decreased slopes are selected, the engineer must furnish with his report his computations of the depths of flow in such pipes at minimum, average and peak rates of flow. The sewer diameter and slope shall be selected to obtain the greatest practical velocities to minimize settling problems. It is recognized that such decreased slopes may cause additional sewer maintenance expense. Sewers shall be laid with uniform slope between manholes.

- J. Drop manhole connections are required where there is 2-foot or greater difference in elevation of inlet and outlet of manhole.
- K. Concrete encasement under streams is required.
- L. Match pipe crowns with larger diameter sewers.

6.03 Sewer Design Considerations

- A. Easements provided for possible future extensions.
- B. Sewer deep enough for possible future extensions.
- C. Sewer size and slope for possible future flows.
- D. Downstream system capacity.
- E. Sanitary manholes shall not exceed a total of 24 feet in vertical height from invert to top of casting.

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## 7.0 CONNECTION TO SANITARY SEWER SYSTEM

### 7.01 Definitions

Unless the context specifically indicates otherwise, the following words and terms used in these regulations shall have the following meanings:

ABNORMAL INDUSTRIAL WASTE - Any industrial waste having a suspended solid content or B.O.D. appreciably in excess of that normally found in municipal sewage. For the purpose of these regulations, any industrial waste containing more than three hundred fifty (350) parts per million of suspended solids, or having a B.O.D. in excess of three hundred (300) parts per million, shall be considered an abnormal industrial waste regardless of whether or not it contains other substances in concentrations differing appreciably from those normally found in municipal sewage.

AUTHORITY - The Chippewa Township Sanitary Authority, its predecessors and successors and assigns.

BOARD OF SUPERVISORS - The Board of Supervisors of Chippewa, as now or hereafter constituted, and its duly authorized agent or representative.

B.O.D. OF SEWAGE OR INDUSTRIAL WASTE - Shall designate its "Biochemical Oxygen Demand" and shall mean the quantity of oxygen utilized in the biochemical oxidation of the organic matter in said sewage or industrial waste under standard laboratory procedure in five (5) days at 20°C., expressed in parts per million by weight. It shall be determined by one of the acceptable methods described in the latest edition of Standard Methods for the Examination of Water and Sewage published by the American Public Health Association.

BOROUGH - The Borough of Big Beaver.

CHIPPEWA TOWNSHIP - The Township of Chippewa.

COMBINED SEWER - A sewer designed to receive both sewage and storm water runoff.

COMMERCIAL CUSTOMER - Any customer who obtains, uses or utilizes the sanitary sewer, facilities and services of the public sanitary sewerage system for other than solely domestic and/or residential purposes.

CONNECTION - The tapping into and connection of a customer service line to an existing sanitary sewer main line.

CUSTOMER - Any person, group of persons, firm, partnership, association or corporation, whether as an owner or tenant, obtaining, using or utilizing in any manner the sanitary sewer, facilities and services of the public sanitary sewerage

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system for a particular lot, building, dwelling, apartment, condominium, house, garage, unit or any other type of structure, or portion thereof.

CUSTOMER SERVICE LINE - The line carrying or conveying sewage from the customer's building or dwelling to any existing sanitary sewer main line. The customer shall be responsible for the installation, maintenance and repair of the customer service line and any and all required permits and planning modules.

EXTENSION - The extending of any existing sanitary sewer main line.

GARBAGE - Solid wastes from the preparation, cooking and dispensing of food and from the handling, storage and sale of produce.

INDUSTRIAL WASTES - Any liquid, gaseous or water-borne wastes from industrial processes or commercial establishments, as distinct from sanitary sewage.

OCCUPIED BUILDING - Any structure erected and intended for continuous or periodic habitation, occupancy or use by human beings or animals, and from which sanitary sewage and industrial wastes, or either thereof, is or may be discharged.

PERSON- Includes natural persons, partnerships, associations and corporations.

pH - The logarithm to the base ten (10) of the reciprocal hydrogen ion concentration expressed in moles per liter. It shall be determined by one of the acceptable methods described in the latest edition of Standard Methods for the Examination of Water and Sewage published by the American Public Health Association.

PREMISES ACCESSIBLE TO THE PUBLIC SANITARY SEWERAGE SYSTEM - Any real estate abutting on or adjoining any street, alley or right-of-way of the Authority or Township of Chippewa, Township of South Beaver or Borough of Big Beaver in which a sanitary sewer of the public sanitary sewerage system.

PROPERLY SHREDDED GARBAGE - The wastes from the preparation and cooking of food from residential customer's shall be shredded to such degree that all particles will be carried freely under the flow conditions normally prevailing in public sewers, with no particle greater than one-half inch (1/2") in any dimension. No shredded garbage shall be permitted to discharge to the sanitary sewer system from commercial customers.

PUBLIC SANITARY SEWERAGE SYSTEM - All sanitary sewers, all pumping stations, all force mains, all sewage treatment works and all other facilities owned or operated by the Chippewa Township Sanitary Authority for the collection, transportation and treatment of sanitary sewage and industrial wastes, together with their appurtenances, and any additions, extensions or improvements thereto. It shall also include sewers within the Authority's service area that serve one (1) or more persons and discharge into the public sanitary sewerage system even though

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those sewers may not have been constructed by Authority funds and are not owned or maintained by the Authority. It does not include separate storm sewers or culverts which have been constructed for the sole purpose of carrying off storm and surface runoff, the discharge from which is not and does not become tributary to the Authority's sewage treatment facilities.

RESIDENTIAL CUSTOMER - A customer who obtains, uses or utilizes the sanitary sewer, facilities and services of the public sanitary sewerage system for domestic and/or residential purposes only, and not for any commercial, institutional, industrial or other business purposes.

SANITARY SEWAGE - The normal water-carried household and toilet wastes from residences, business buildings, institutions, and industrial and commercial establishments, exclusive of storm water runoff, surface water or ground water.

SANITARY SEWER - A sewer that carries sewage and to which storm, surface and ground waters are not intentionally admitted.

SANITARY SEWER MAIN LINE - The line or service of lines carrying or conveying sewage from the customer's service line to the Chippewa Township Sanitary Authority Sewage Treatment Plant, which line is either located within a public right-of-way (state or local) or within a right-of-way belonging to the Chippewa Township Sanitary Authority.

SERVICE AREA - The areas and locations within Chippewa Township, South Beaver Township and Big Beaver Borough served or to be served by public sanitary sewer facilities of the Authority.

SEWAGE - A combination of water-carried wastes from residences, business buildings, institutions, and industrial and commercial establishments, together with such ground surface or storm water as may be present.

SEWER - A pipe or conduit for carrying sewage.

SHALL - Is mandatory; "may" is permissive.

SOUTH BEAVER - South Beaver Township.

STORM SEWER - A sewer which is intended to carry storm water runoff, surface waters, ground water drainage, etc; but which is not intended to carry any sanitary sewage or polluted industrial waste.

STORM WATER RUNOFF - That portion of the rainfall which reaches a channel, trench, sewer or sink.

SUSPENDED SOLIDS - Solids that either float on the surface or are in suspension in water, sewage, industrial waste or other liquids, and which are removable by laboratory filtration. The quantity of suspended solids shall be determined by one of the acceptable methods described in the latest edition of

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Standard Methods for the Examination of Water and Sewage published by the American Public Health Association.

UNPOLLUTED WATER OR WASTE - Any water or waste containing none of the following: free or emulsified grease or oil; acid or alkali; phenols or other substances imparting taste and odor to receiving waters, toxic or poisonous substances in suspension, colloidal state or solution; obnoxious or odorous gases. It shall contain not more than ten thousand (10,000) parts per million by weight of dissolved solids of which not more than two thousand five hundred (2,500) parts per million shall be as chloride and not more than ten (10) parts per million each of suspended solids and B.O.D. The color shall not exceed fifty (50) parts per million. Analyses for any of the above mentioned substances shall be made in accordance with the latest edition of Standard Methods for the Examination of Water and Sewage published by the American Public Health Association.

WATER COMPANY - The Beaver Falls Municipal Authority or any publicly or privately owned duly authorized agency, corporation or organization which succeeds said company as the approved purveyor of the public water supply within the limits of Chippewa, South Beaver or Big Beaver Borough.

7.02 Discharge of Sanitary Sewage to Public Sanitary Sewerage System Required

Every owner of property in the Township of Chippewa, Township of South Beaver and Borough of Big Beaver whose property abuts upon any line of the sanitary collection sewers of Chippewa Township Sanitary Authority, Beaver County, Pennsylvania (herein called the "Authority") shall connect at his own cost, the building, buildings or other structures located on said property within one-hundred fifty feet (150') of said sanitary sewers, with said sanitary sewers, for the purpose of disposing of all sanitary sewage customarily disposed of in a system of sanitary sewers.

- A. All persons owning any occupied building now erected within the service area upon premises accessible to the public sanitary sewerage system shall, at their own expense, make connection with the public sanitary sewerage system.
- B. All persons owning any premises within the service area accessible to the public sanitary sewerage system upon which an occupied building is erected shall, at the time of erection of such building, and at their own expense, make connection with the public sanitary sewerage system.
- C. All persons owning any occupied building within the service area upon premises which become accessible to the public sanitary sewerage system shall, at their own expense, make connection with the public sanitary sewerage system within sixty (60) days after notice to do so from the Board of Directors or its authorized representative.
- D. All connections to the public sanitary sewerage system shall be made in

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accordance with the Rules and Regulations to be established by the Board of Directors.

- E. Upon failure of any person to make connection with the public sanitary sewerage system as required by these regulations, the Board may make the same and collect the cost thereof from such person by a municipal claim or in an action of assumpsit in the manner provided by law.

7.03 Exclusion of Storm Water, Surface Water and Subsurface Water

- A. It shall be unlawful for any person owning premises within the service area accessible to the public sanitary sewerage system to erect, construct, use or maintain, or cause to be erected, constructed, used or maintained, any connection resulting in the discharge of storm water into the sanitary sewer system. These regulations do not, however, prohibit the present or future discharge of storm, surface or subsurface water into natural watercourses within the service area in accordance with applicable storm water management laws, ordinances and rules and regulations.

7.04 Admission of Industrial Wastes to Public Sanitary Sewerage System

- A. The economy and desirability of the combined treatment of industrial wastes and sanitary sewage is recognized. The treatment facilities that the Authority will cause to be constructed are of type and design to permit reasonable flexibility in the treatment of various type of industrial wastes. In general any and all industrial wastes may be discharged to the public sanitary sewerage system except those which are deemed harmful to the system or are specifically prohibited by these regulations and by law. However, it is also recognized that the treatment of abnormal industrial wastes may add to the cost of operating and maintaining the public sanitary sewerage system. Such additional cost shall be borne by the person or persons receiving the benefit of such treatment.
- B. The Authority reserves the right to refuse connection to the public sanitary sewerage system for deleterious industrial wastes, or to compel discontinuance of the use of the system for such wastes, or to require pretreatment thereof in order to prevent harmful or adverse effect upon the system. The design, construction and operation of such pretreatment facilities shall be subject to the approval of the Board of Directors or its authorized representative.
- C. In general industrial waste will be considered harmful to the public sanitary sewerage system that may cause any of the following damaging effects:

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1. Biological chemical reaction either directly or indirectly with the materials of construction of the public sanitary sewerage system in such a manner as to impair the strength or durability of the sewer structures.
  2. Mechanical action that will destroy the sewer structures.
  3. Restriction of the hydraulic capacity of the sewer structures.
  4. Restriction of the normal inspection or maintenance of the sewer structures.
  5. Danger to public health and safety.
  6. Obnoxious condition inimical to public interest.
- D. When required by the Board of Directors, any person discharging to the public sanitary sewerage system industrial wastes, or industrial wastes and sanitary sewage together, shall install a suitable manhole or manholes on his connecting sewer or sewers to facilitate observation, sampling and measurement of the combined flow of wastes from his premises. Such manhole or manholes shall be accessible and safely located and shall be constructed in accordance with plans approved by the Board of Directors or its authorized representative. The manhole or manholes shall be installed by such person at his expense and shall be maintained by him so as to be safe and accessible to the Board of Directors or its authorized representative at all times. The construction and maintenance of such manholes shall be mandatory for the producers of abnormal industrial wastes.

7.05 Prohibited Wastes

- A. The discharge of garbage (as defined in 7.01) for all commercial customers (as defined in Section 7.01) is expressly prohibited. This discharge of garbage into the public sanitary sewerage system by residential customers is expressly prohibited unless the garbage is properly shredded.
- B. No person shall discharge to the public sanitary sewerage system industrial wastes having any of the following characteristics:
  1. Wastes containing liquids, solids or gases which by reason of their nature or quality may cause fire or explosion or be in any other

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way injurious to persons, the structures of the public sanitary sewerage system or its operation.

2. Wastes having a temperature in excess of 140°F or less than 32°F.
3. Wastes having pH lower than 5.5 or higher than 9.0 or having any corrosive property capable of causing damage or hazards to structures, equipment or personnel of the public sanitary sewerage system. Where the Board of Directors deems it advisable, it may require any person discharging industrial wastes to install and maintain, at his own expense, in a manner approved by the Board of Directors or its representative, a suitable device to continuously measure and record the pH of the wastes so discharged.
4. Wastes containing any noxious or malodorous gas or substance which either singly or by interaction with sewage or other wastes is likely, in the opinion of the Board of Directors, to create a public nuisance or hazard to life, or prevent entry to sewers for their maintenance and repair.
5. Wastes containing ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood, hair, chemical or paint residues, greases, lime slurry or viscose material of such character or in such quantity as, in the opinion of the Board of Directors, may cause an obstruction to the flow in sewers or otherwise interfere with the proper operations of the public sanitary sewerage system.
6. Wastes containing insoluble, non-flocculent substances having a specific gravity in excess of 2.65.
7. Wastes containing soluble substances in such concentration as to cause the specific gravity of the waste to be greater than 1.1.
8. Wastes containing any of the following substances in solution in concentration exceeding those shown in the following table:

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<u>Substance</u>	<u>Maximum Permissible Concentration</u>
pH	6.0-9.0
Ammonia	20
Phosphorus	10
Oil and Grease	100
Sodium Chloride	10,000
Sodium Sulfate	1,500
Iron	5
Total Chromium	1.6
Hex. Chromium	0.1
Total Cyanide	0.5
Free Cyanide	0.14
Copper	0.5
Zinc	0.5
Nickel	1
Cadmium	0.5
Arsenic	0.1
Barium	1
Boron	1
Phenolics	1
Lead	0.5
Silver	0.05
Mercury	0.1
Selenium	.05
Tin	2
Hydrogen	0.5
Sulfur Dioxide	10
Nitrous Oxide	10
Halogens	10
Total Toxic Organics	2.0
Temperature	32-140 F

9. Wastes containing more than one hundred (100) parts per million by weight of fat, oil or grease.
10. Wastes containing more than ten (10) parts per million of any of the following gases: hydrogen sulfide, sulfur dioxide, nitrous oxide, or any of the halogens.
11. Wastes containing gases or vapors, either free or occluded, in concentrations toxic or dangerous to humans or animals.

12. Any waste containing toxic substances in quantities sufficient to interfere with the biochemical processes of the sewage treatment works.
13. Any waste containing toxic radioactive isotopes without a special permit.

7.06 Sewage Service Charge

A. Schedule of Rates

There is hereby imposed upon all the customers of the public sanitary authority sewage system a service charge for the use of the system and treatment of customer sewage payable as hereinafter provided. The service charge may be billed on a quarterly or monthly basis. The bill may either be submitted and processed by the Authority or by the Beaver Falls Municipal Authority on behalf of the Authority as the Board of Directors may designate.

B. Service Charges (as of January 1, 2000)

1. The service charge for all non-commercial or non-industrial customers supplied with public water from the Beaver Falls Municipal Authority shall be set, billed and collected as follows:

<u>Water Consumption</u> <u>Sewer Bill Date</u>	<u>EDU Base Rate</u> <u>per Quarter plus</u>	<u>Amt. per 1000 gal.</u> <u>water used</u>
Quarterly	\$110.04	\$3.10

2. The service charge for all non-commercial or non-industrial customers not supplied with water from the Beaver Falls Municipal Authority but from lot wells shall be collected as follows:

<u>Sewer Bill Date</u>	<u>Flat Rate Amount/Quarter</u>
Quarterly	\$141.04

3. The service charge for all commercial customers shall be billed and collected as follows:

One EDU + Additional EDU's + Water Consumption

Base rate of upon \$110.04/quarter	Additional EDU's \$3.10/1000 gal. based water used above 18,300 gallons/quarter
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- a. The agreed upon average water uses for each Equivalent

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Dwelling Unit, EDU, is hereby established to be 18,300 gallons of water used per quarter or 6,100 gallons of water per month

- b. Each additional EDU above the base EDU set forth in subparagraph 3a shall be the sum of \$110.04 per quarter or \$36.68 per month.
  - c. The quarterly base rate for a quarterly commercial customer using in excess of 18,300 gallons of water per quarter shall be determined by adding the base EDU in subparagraph 3 above plus the sum arrived at by dividing the amount of metered water used during the quarterly billing period of 18,300 and multiplying the quotient of this division by \$110.04.
  - d. In those cases where the commercial customers are billed on a monthly basis the base monthly rate for a monthly commercial customer using in excess of 6,100 gallons of water for the month shall be determined by adding the following base EDU plus the sum arrived at by dividing the amount of metered water used during the monthly billing period by 6,100 and multiplying the quotient of this division by \$36.68.
4. In the case when a lot, building, dwelling, condominium, apartments, house garage, unit or any other type of structure or portion thereof is used by two (2) or more customers, but only serviced by a common water meter(s), the water usage figure shall be determined by dividing the total number of gallons used in the billing period by the number of customers serviced by the common meter. Each customer shall be billed the applicable base rate plus the customer water usage quotient determined above times the applicable water usage rate per each 1,000 gallons of water used during the applicable billing period.
5. The charges for other services are as follows:
- a. Maintenance of grinder pump stations: The current actual hourly total labor rate plus materials incurred.
  - b. Grease trap inspection and maintenance: The minimum inspection fee shall be the sum of \$40.00 per inspection. In the event that the Authority has to take corrective

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action due to improper maintenance of the grease tap, the minimum maintenance fee shall be \$75.00

6. Customers serviced by a common grinder pump system shall in addition to the service charges imposed hereinabove pay for electricity used by the common pump station. The electric service charge shall be prorated equally between the number of customers using a common grinder pump. This charge may be billed separately to the customers.

C. Penalty

All bills for service, maintenance, inspection and surcharges shall be due and payable within twenty (20) days of the bill date, and shall be subject to a penalty of ten (10) percent of the bill if not paid in full within said twenty (20) day period. Failure to pay the bill shall result in the filing and collection of a municipal lien and/or invocation of water shut-off procedures.

- D. In the event the customer or customers of the lot, building, dwelling, apartment, condominium, house, garage, unit or any other type of structure or portion thereof served by the public sanitary sewerage system obtains part or all of the water used in or on such property from sources other than the Water Company, such customer shall upon demand of the Board of Directors, at no expense to the Authority or the Water Company, install and maintain a water meter or meters satisfactory to the Board of Directors and to the Water Company for measuring all water used other than that obtained from the Water Company, and the quantity of water used to determine the service charge shall be the quantity of water measured by all such meters plus the quantity of water obtained from the Water Company.
- E. The Board of Directors shall at least annually review the sewerage service charges imposed by these regulations and adjust the same accordingly, if necessary, to meet the debt service and operational needs of the sewerage collection system and treatment plant and in accordance with the various loan agreements with PENNVEST and ESB Bank.
- F. Nothing contained in this section shall preclude the right of the Board of Directors from entering into contracts with neighboring municipalities for the treatment of their sewage pursuant to a schedule of fees differing from the service charges above set forth.

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7.07 Well Metering Policy

A. Procedure for Obtaining and Installing a Well Water Meter

1. Customers served with well water as their exclusive supply of potable water may upon written request to the Authority install a water meter on the water well which meter shall be used as the basis for sewer billing on the well customer
2. Where a meter is installed the cost of the meter and the installation shall be borne exclusively and entirely by the customer.
3. The meter shall be of the size and type customarily used in the potable water industry for measuring water for use being made at the customer's property.
4. The meter shall be installed in a place approved by the Authority and in a fashion where it is not susceptible to freezing. The meter shall also be installed at a point where by-passing of the meter after installation is not readily possible. The meter shall also be installed at the point where the water flow from the well will meter all the flow to the building and any and all the various water facilities on the property.
5. Once the meter is installed it shall be marked and identified or sealed by the Authority.
6. All meters installed shall also have installed a remote meter display. The remote meter display shall be installed at a point on the customer's building that is readily accessible from the property driveway or sidewalk.
7. The meter shall be inspected and approved by the Authority prior to its installation.

B. Start-up

1. Immediately after the meter is fully installed it shall be inspected and marked by the Authority. When the meter is placed on line and in service in the interim of a billing period, the customer's bill will be prorated the flat rate and the meter rate. The volume of water used for the initial billing period shall be determined by adding the amount of water flowing through the meter to the amount of water determined by dividing the amount of days the meter was not in service during the billing period by 10,000

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gallons times the number of EDU's attributable to the customer's use.

2. Subsequent billing periods shall then be billed in accordance with Section 7.06 B.1 or 7.06 B.2. above.

C. Inspection, Reading, Illegal By-Pass

1. The customer upon installation of the meter does irrevocably grant unto the Authority the right to periodically inspect the meter and meter location to determine that the meter is functioning properly, that the remote read-out is in sync with the meter, and that the meter is not being by-passed. When the meter is not reading properly, the meter shall be replaced by the customer.
2. In the event inspection is denied or it is determined that the meter has been by-passed or is being by-passed or is not metering the entire well flow to the property or is providing an inaccurate reading, the Authority shall discontinue billing the customer on the meter basis. Billing will revert to well customer flat rate basis of Section 7.06 B. 2., except that billing will be based upon the greater of either 10,000 gallons per quarter (or 3,333 gallons per month) or the highest historical water flow through the meter during a given billing period per EDU.
3. In addition to the regular sewer user charges the well meter customer shall also be billed and pay a meter reading charge of \$15.00 per reading and an inspection charge of \$30.00 per inspection.
4. The meter shall be read at a minimum of quarterly by personnel of the Chippewa Township Sanitary Authority. If the account contains more than one (1) EDU, the Authority may at its option elect to read the meter and bill the account on a monthly basis.

7.08 Surcharge for Certain Industrial Wastes

- A. Although the sewage treatment works is capable of treating certain industrial wastes as heretofore defined in Section 7.01, the actual treatment of such wastes may increase the cost of operating and maintaining the public sanitary sewerage system. Therefore, there is hereby imposed upon each customer discharging such industrial wastes into the public sanitary sewerage system a surcharge, or surcharges, which are intended to cover such additional cost. Such surcharges shall be in addition to the regular

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service charges set forth in Section 7.06 of these regulations and shall be payable as hereinafter provided in the amount hereinafter provided.

- B. The strength of any industrial waste, the discharge of which is to be subject to surcharge, shall be determined monthly, or more frequently, from samples taken either at the manhole referred to in Section 7.04, subsection D, or at any other sampling point mutually agreed upon by the Board of Directors and the producer of such waste. The frequency and duration of the sampling period shall be such as, in the opinion of the Board of Directors, will permit a reasonably reliable determination of the average composition of such waste, exclusive of storm water runoff. Samples shall be collected by a representative of the Board of Directors in proportion to the flow of waste, exclusive of storm water runoff, and composited for analysis in accordance with the latest edition of Standard Methods for the Examination of Water and Sewage as published by the American Public Health Association. Except as hereinafter provided, the strength of the waste so found by analysis shall be used for establishing the surcharge or surcharges. However, the Board of Supervisors may, if it so elects, accept the results of routine sampling and analyses by the producer of such wastes in lieu of making its own samplings and analyses.
- C. In the event any industrial waste is found by the Board of Directors to have a B.O.D. in excess of three hundred (300) parts per million, the producer of said waste shall be surcharged an amount equal to the product of the actual volume of wastes in thousand gallons per billing period, exclusive of storm water runoff, discharged to the public sanitary sewerage system and the "B.O.D. surcharge rate. The "B.O.D. surcharge rate" shall be determined by the following formula:

$$R_c = 0.00834 P (C-300)$$

Where  $R_c$  = the BOD surcharge rate in cents per 1,000 gallons of waste discharged.

$P$  = the average annual fixed, operating and maintenance cost of secondary treatment processes per pound of BOD received at the treatment works. (Prior to completion of the first year of operation the value of "P" shall be assumed to be four (4) cents.)

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C = the average BOD of the industrial waste expressed in parts per million as determined in accordance with 7.07 B of these regulations.

The figure 300 appearing in the above formula corresponds to the maximum BOD permissible without surcharge. The figure 0.00835 is the factor to convert parts per million to pounds per 1,000 gallons. No discount will be permitted for sewage or industrial wastes having a BOD less than 300 parts per million.

D. In the event any industrial waste is found by the Board of Directors to have an average suspended solid concentration in excess of 350 parts per million, the producer of such waste shall be surcharged an amount equal to the product of the actual volume of wastes in thousand gallons per billing period, exclusive of storm runoff, discharged to the public sanitary sewerage system and the "suspended solids surcharge rate." The "suspended solids surcharge rate" shall be determined by the following formula:

$$Rs = 0.00834 \times B (S-350)$$

Where Rs = the suspended surcharge rate in cents per 1,000 gallons of Waste discharged.

B = the average annual fixed, operating maintenance cost of the sludge digestion, sludge drying and sludge disposal operations per pound of suspended solids received at the treatment works. (Prior to completion of the first year of operation the value of "B" shall be assumed to be four (4) cents).

S = the average suspended solids concentration of the abnormal industrial waste expressed in parts per million as determined in accordance with Section 7.07 B of these regulations.

The figure 350 appearing in the above formula corresponds to the maximum suspended solids concentration permissible without surcharge. The figure 0.00834 is the factor to convert parts per million to pounds per 1,000 gallons. No discount will be permitted for sewage or industrial wastes having a suspended solids concentration less than 350 parts per million.

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- E. The surcharges provided for in this section will be added to the service charges set forth in Section 7.06. They will be billed quarterly and shall be due at the same time and shall be subject to the same penalty as set forth in subsection C of Section 7.06.

7.09 Billing and Collection

- A. The service charge and the surcharge, where applicable, provided for in these regulations shall be payable in four (4) quarterly payments each year in accordance with Authority billing practices. Once the Authority commences monthly estimated billing and actual quarterly billing, payments shall be due within twenty (20) days of the date of the bill.
- B. Customer bills and notices relating to the service charges and surcharges will be in the name of and mailed or delivered to the owner(s) of the lot, building, apartment, condominium, house, garage, unit or any other type of structure or portion thereof having customers of the public sewerage system, and the owner(s) shall be responsible for the payment of said service and surcharges. Upon application made to the Board of Directors, the customer, if other than the owner(s) may be billed directly for the service and/or surcharge so long as the non-owner customer enters into a written contract with the Authority for the payment of said charges. Such a contract and nothing herein to the contrary shall preclude the Authority from filing a municipal lien against the property serviced by the public sewerage system for unpaid service and/or surcharges pursuant to the provisions of Section 7.09. In cases where the non-owner is billed, a copy of the bill will also be sent to the owner at the same time.
- C. Except in the case of new construction, the billing for a newly connected property or use shall commence at the time the property or use is connected to the Authority's system. In the case of new construction, the billing shall commence when potable water service is actually available to the property or use, i.e. when the Beaver Falls Municipal Authority meter is installed or in the case of a well customer, when the well is operational to serve the property or use. The initial base bill will be prorated according to the date of connection or potable water use (whichever is applicable) within the quarterly or monthly billing cycle.

7.10 Delinquencies, Violations and Remedies

- A. All service charges, tapping and connection fees, and penalties imposed by these regulations shall be a debt due the Authority and shall be a lien on the property served if not paid upon the issuance of the statement or bill of the Authority. If the bill is not paid within thirty (30) days of the date of the bill or

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statement, the account shall become a delinquent account. All delinquent accounts shall be subject to the filing of a formal municipal lien and the initiation of water shut-off proceedings with the Beaver Falls Municipal Authority in order to collect and/or perfect the amounts due the Authority as a creditor.

1. In the event a sewer account becomes delinquent, the Authority shall cause the Solicitor to file a municipal lien against the property served. Thereafter at the direction of the Board of Directors, the solicitor shall be authorized to proceed with the formal collection procedures under general contract law or municipal lien law to expose the served property to sale to enforce the lien and collect the amount due the Authority.
2. In addition to, or in lieu of the remedy set forth in (1) above in the event a sewer account becomes delinquent, the Authority shall via the Manager invoke the water shut-off Agreement with the Beaver Falls Municipal Authority dated February 20, 1995, pursuant to the provisions of 53 P.S., Section 2201. All charges, fees and expenses incurred by the Authority in connection with the water shut-off, in addition to the outstanding balance of the account, shall be paid by the delinquent customer prior to restoration of water service to the premises.
3. The manager is hereby authorized in the discretion of the manager to accept and enter into a written forbearance agreement with a delinquent customer so as to avoid water shut off by the Beaver Falls Municipal Authority so long as the periodic payments to be made will bring the delinquent account current within a period not to exceed six (6) months. In the event the delinquent customer fails to make the agreed upon periodic payment or fails to pay the current charges of any subsequent quarterly bill before those charges become delinquent, the Authority shall forebear no longer and the manager shall forthwith initiate the water shut-off procedure and the water shall remain shut off until the account is paid in full.
4. When an account remains delinquent, in addition to the remedies of municipal lien and water shut-off, the Authority shall also be authorized to remove and close the sewer connection and shall have the right to enter upon the property served and take such steps as are necessary to accomplish the sewer removal and closing. The expense of such removal and closing, as well as the expense of restoring such service, shall likewise be a debt due the Authority and a lien upon the property served. Sanitary sewer service to the

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property shall not be restored until all such service charges, penalties, fees, cost and expenses have been paid in full.

5. When the sewer account is a commercial rather than residential account and is billed on a monthly, rather than quarterly basis, the account shall become subject to the municipal lien and water shut-off procedures stated in (1) and (2) above.

7.11 Termination of Sanitary Sewer Service

- A. No customer shall be relieved of the customer's obligation to pay the sewage service charges as provided in Section 7.06 unless and until the following conditions have been met:
  1. The property served by the public sanitary sewerage system will no longer be used for purposes requiring, by Township or Borough ordinance or laws of the Commonwealth of Pennsylvania, sanitary sewer services, and
  2. The property served by the public sanitary sewerage system has been vacated and any building thereon has been boarded, locked or otherwise duly secured, or demolished, and,
  3. The customer has, at the customer's expense, capped the property sewer service line at its tap or connection with the public sanitary sewerage system in accordance with the Chippewa Township Sanitary Sewer regulations and the capping of the line has been inspected by Authority personnel prior to backfilling; and
  4. All outstanding sewage service charges including the termination of application and inspection fees have been paid to the Authority.
- B. The customer desiring termination of sanitary sewer service shall make written application for the termination of service on a form supplied by the Authority to the Authority Manager. The customer shall certify in writing that the conditions listed in subsection A and B have been met and list the date and time when the capping of the tap will be made and available for inspection by Authority personnel prior to backfilling. No application shall be submitted more than fourteen (14) days prior to the scheduled capping of the sewage line.

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- C. There is hereby imposed an application and inspection fee of fifty dollars (\$50.00) for the termination of sanitary sewer service.
  - D. Whenever sewer service has been terminated in accordance with this section and application is received within two (2) years thereafter for connection into the same line for the same tract or parcel of land at or near the point of capping, such connection shall not require payment of a tapping and connection fee as per Section 3.03 et. seq. of these regulations provided the estimated EDU flow from the new connection does not exceed the actual estimated EDU flow from the new connection does not exceed the actual EDU flow from the original connection. If the estimated flow from the new connection exceeds the EDU flow from the original connection, the applicant shall pay the then existing applicable tapping and connection fee for the additional EDUs.

#### 7.12 Gravity Connection to Public Sanitary Sewer System

- A. International Plumbing Code -The International Plumbing Code (IPC), latest revision, is hereby incorporated by reference into the CTSA Manual of Rules and Regulations. When requirements differ between the IPC and the CTSA Manual of Rules and Regulations, the more stringent or restrictive requirement shall apply. The CTSA, or its duly authorized representative, shall be the final authority in determining whether the IPC or the CTSA Manual of Rules and Regulations are more stringent or restrictive.

The IPC shall be utilized for all plumbing inside of buildings.

The IPC shall be referenced for minimum slopes applicable to lateral pipes between the customer's building and the main sewer line. The CTSA Manual of Rules and Regulations, as amended, shall be referenced to determine slopes applicable to main sewer lines.

- B. Points of Connection – The new service sewer pipe or house lateral must be installed from the point where it exits the structure to the public sanitary sewer connection point (referred to as the wye). The wye location should have been previously located at the time of construction. The existing on-lot sewage system must be connected so that no flow from the on-lot system is connected to the public sanitary sewer.
- C. Size of Line – The “Drainage Fixture Unit” method described in the International Plumbing Code (Sections 709 and 710) shall be utilized for sizing service laterals, but in no case shall the service lateral size be less than four (4) inches diameter for a single family dwelling, or six (6) inches

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diameter for multi-family dwellings and commercial units.

- D. Type of Pipe and Fitting – The following types of sewer pipe are the only types of pipe that can be used. All PVC pipe and joints must meet the ASTM standards referenced in the CTSA Manual of Rules and Regulations.
1. PVC-SDR-35 conforming to the requirements of ASTM-D-3034 with ASTM-D-3212 with solvent cemented or compressed gasket type joints.
  2. PVC-Schedule 40 conforming to the requirements of ASTM D-1785 with solvent cemented or compressed gasket type joints.
  3. PVC-Schedule 40 conforming to the requirements of ASTM D-2665 with solvent cemented joints.

Each section of pipe or fitting shall be clearly stamped with the manufacturer's specification. All items not stamped will be refused.

Whatever combination of pipe, vent, cleanout, traps, etc. are used, it is the responsibility of the contractor or property owner to supply proper gaskets, clamps or adapters in order to effect a water tight and air tight connection.

- E. All laterals shall be placed at least 3 1/2 feet below grade level with a minimum slope of 1/4 inch per foot or 2% grade. Conditions may exist that would prohibit strict adherence to this requirement. The sewer should be taken to the 3 1/2 foot depth as soon as conditions permit.

The entire house lateral pipe must be placed on a bed of AASHTO 57 crushed aggregate with a minimum depth of four (4) inches.

The entire house lateral pipe must be covered after final inspection with an additional six (6) inches of AASHTO 57 crushed aggregate.

- F. Vents and Cleanouts – A capped vent pipe and trap must be installed within five (5) feet of the house. Cleanouts are required for sewer lines less than eight (8) inches in diameter at all changes of direction, as specified in the IPC, Section 708.3.3.

A plugged cleanout must also be installed within one (1) foot of the vent pipe. This cleanout shall be installed with a cast iron cap as per Drawing No. B-13/B-13A.

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When the lateral line is more than one hundred and ten (110) feet, a plugged cleanout must also be placed every one hundred (100) feet beyond the initial cleanout. This cleanout shall be installed with a cast iron cap as per Drawing No. B-13/B-13A.

At the wye connection, a six (6) inch plugged stack pipe with inspection tee fitting shall be installed.

The vent pipe shall be at least six (6) inches above grade.

Plugged cleanouts and inspection stacks shall be at grade level.

Manholes are required on eight (8) inch building sewer lines as specified in the International Plumbing Code, Section 708.3.2.

- G. Inspection and Testing – No backfill shall be placed over the house lateral pipe until the pipe has been inspected and approved by Authority personnel. Unexposed pipe will have to be re-excavated to receive inspection approval.

The connection to the main line sanitary sewer system is not permitted until the house lateral pipe is properly air tested and approved by Authority personnel. Main line sewer connections shall be made only in the presence of Authority personnel.

The Authority inspector shall not be permitted to enter a ditch or trench exceeding four (4) feet in depth unless proper cribbing is in place.

If more than two (2) inspection and tests are required, a minimum fee of fifty (\$50.00) dollars per additional inspection will be charged.

- H. Infiltration – Surface storm water and subsurface water are not permitted to enter the public sanitary sewer system. Downspouts, driveway and stairwell drains, French drains, and sump pumps cannot be connected to the house lateral pipe or the public sanitary sewer system.

- I. General – No hazardous wastes or toxic material shall be placed into the public sanitary sewer system per Section 7.03, 7.04 and 7.05 of the Authority Rules and Regulations.

Once connected to the sanitary sewer system, you will be billed quarterly. At some future time, billing will be on a monthly basis.

A typical service sewer (lateral) connection detail can be found in *Appendix B*, Drawing No. B-13 or B-13A.

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7.13 Grease Traps / Interceptor

- A. Any commercial account dealing in the preparation, distribution and/or sale of food shall install and maintain proper grease traps or grease interceptors as determined by the total flow-through rate of potential grease laden fixtures discharging through the building sewage lines. A “grease trap” or “grease interceptor” shall be utilized depending on the anticipated flows. Generally the grease trap may be located inside a building and the grease interceptor used for higher flows, may be located underground outside the building. In all cases, means shall be provided to clean both facilities. Said grease trap or interceptor shall be installed at an appropriate location along the sewer line between the restaurant and/or food preparation facilities and the line’s entry into the main public sewer line. No solid waste devices such as waste grinders, disposals, potato peelers etc. shall discharge through the grease trap or grease interceptor. Only potential grease laden fixtures may discharge through the trap or interceptor. A means to enable inspection of the grease trap or grease interceptor shall be provided.
- B. The Authority shall have the right to go upon the premises of any such business on a periodic and unannounced basis to inspect the use and maintenance of the grease traps/interceptors. The actual cost of periodic inspections, and any maintenance or corrective action required to be done by Authority employees due to the customer's failure to properly use and/or maintain said grease trap/interceptor shall be billed directly to the customer in addition to the surcharge rate provisions of Section 7.08. The minimum inspection fee shall be the sum of \$40.00 per inspection. In the event the Authority has to take corrective action due to improper maintenance of the grease trap, the minimum maintenance fee shall be \$75.00. The Authority shall have the right to subcontract for the maintenance of said grease traps.

7.14 Deduct Water Meter

- A. All residential and commercial customers may at their own cost and expense install one (1) second water meter on a single cold water line which supplies an exterior faucet at a point on the interior of the home or building in the closest proximity possible to the location of the exterior faucet.
- B. This second water meter shall be called the deduct meter for sewer billing purposes and all water flowing through this meter shall be excluded from the calculation of the customer’s sewer user bill.
- C. The meter may be installed on cold water lines with a diameter of not less than one-half (1/2) inch and not more than two (2) inches.

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- D. The meter must be of a remote read-out nature and supplied to the customer for installation by the Beaver Falls Municipal Authority.
1. The Beaver Falls Municipal Authority shall supply a list to Chippewa Township Sanitary Authority of the approved types of meters.
  2. Only customers with a remote read-out for the main water meter are eligible for a deduct water meter.
  3. The exterior deduct meter panel must be installed and mounted within five (5) feet of the main meter remote panel.
- E. Once installed, the customer shall contact the Beaver Falls Municipal Authority for a deduct meter reading. The value shown on the meter at the time of the initial reading shall be the basis from which the initial deduction from the main meter shall be made.
- F. Thereafter the Beaver Falls Municipal Authority shall for all deduct meter customers make and supply the Chippewa Township Sanitary Authority with two simultaneous meter readings, one for the main meter and one for the deduct meter.
1. The meter readings will show the number of gallons (in thousands) of water which flowed through the main meter since the last reading and the number of gallons (in thousands) which flowed through the deduct meter during the same period.
  2. The Chippewa Township Sanitary Authority shall calculate the sewer user bill for the deduct meter customer by subtracting the deduct meter flow from the main meter flow to arrive at the number of gallons (in thousands) subject to the sewer user charge.
  3. An administration charge of \$3.00 shall be added to each deduct meter customer's bill for the cost incurred by the Authority in paying for the deduct meter reading and the processing thereof.
- G. Water which flows through the deduct meter shall only be used for exterior purposes such as exterior cleaning and water pressure cleaning; the watering of plants, trees and grass; swimming pools and other recreational water devices, and washing of cars.

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## 8.0 PUBLIC RECORDS POLICY

The following is the Public Records Policy of the Chippewa Township Sanitary Authority and is made pursuant to 65 P.S. §66.8.

### 8.01 Definitions

The following words and phrases when used in this policy shall have the meanings given to them in this section unless the context clearly indicates otherwise:

- A. “Agency.” Any office, department, board or commission of the executive branch of the Commonwealth, any political subdivision of the Commonwealth, the Pennsylvania Turnpike Commission, the State System of Higher Education or any State or municipal authority or similar organization created by or pursuant to a statute which declares in substance that such organization performs or has for its purpose the performance of an essential governmental function.
- B. “Chippewa Township Sanitary Authority.” A non-Commonwealth agency with its administrative offices located at 2811 Darlington Road, Beaver Falls, Pennsylvania 15010, hereafter called “Authority.”
- C. “Commonwealth agency.” An agency that is a Commonwealth agency as that term is defined under 62 Pa.C.S. §103 (relating to definitions).
- D. “Non-Commonwealth Agency.” An agency that is not a Commonwealth agency.
- E. “Public record.” Any, account, voucher or contract dealing with the receipt or disbursement of funds by an agency or its acquisition, use or disposal of services or of supplies, materials, equipment or other property and any minute, order or decision by an agency fixing the personal or property rights, privileges, immunities, duties or obligations of any person or group of persons: Provided, That the term “public records” shall not mean any report, communication or other paper, the publication of which would disclose the institution, progress or result of an investigation undertaken by an agency in the performance of its official duties, except those reports filed by agencies pertaining to safety and health in industrial plants; it shall not include any record, document, material, exhibit, pleading, report, memorandum or other

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paper, access to or the publication of which is prohibited, restricted or forbidden by statute law or order or decree of court, or which would operate to the prejudice or impairment of a person's reputation or personal security, or which would result in the loss by the Commonwealth or any of its political subdivisions or commissions or State or municipal authorities of Federal funds, excepting therefrom however the record of any conviction for any criminal act.

- F. "Record" Any document maintained by an agency, in any form, whether public or not.
- G. "Requester" A person who is a resident of the Commonwealth and requests a record pursuant to this act.
- H. "Response" Access to a record or an agency's written notice granting, denying or partially granting and partially denying access to a record.

#### 8.02 Written Request

- A. All requests for a public record shall be in writing and shall be directed to the Manager of the Authority at 2811 Darlington Road, Beaver Falls, Pennsylvania 15010.
- B. In the absence of the Manager for more than the five (5) day response period, a request for a public record shall be referred by the staff to the Chairman of the Board of Directors of the Authority.
- C. All requests shall be acted upon by the Authority within five (5) business days of the day the request is actually received by the Manager or Chairman. Notation of the date and time of the receipt of the request shall be placed on the request.
- D. If a request for a public record is verbally made, the requester shall be advised that the Authority does not consider verbal requests for public records and that the request must be reduced to writing and either mailed, delivered personally or telefaxed to the Authority.
- E. Requests which do not specify in sufficient detail which public records are being sought shall be denied.
- F. A written response shall be made to any written request and directed to the person or organization stated in the written request.

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8.03 Duties of Manager

- A. Upon receipt of a written request for access to a record, the Authority Manager shall make a good faith effort to determine if the record requested is a public record and to respond in writing as promptly as possible under the circumstances existing at the time of the request, but the written response shall not exceed five (5) business days from the date the written request is received by the Manager or Chairman in his absence.
- B. If the Authority fails to send the written response within five (5) business days of receipt of the written request for access, the written request for access shall be deemed denied.

8.04 Time of Response

- A. Upon receipt of a written request for access, if the Authority determines that one of the following applies:
  - 1. the request for access requires redaction of a public record in accordance with Section 8.10; or,
  - 2. the request for access requires the retrieval of a record stored in a remote location; or,
  - 3. a timely response to the request for access cannot be accomplished due to bona fide and specified staffing limitations; or,
  - 4. a legal review is necessary to determine whether the record is a public record subject to access under this act; or,
  - 5. the requester has not complied with the Authority's policies regarding access to public records; or,
  - 6. the requester refuses to pay applicable fees authorized by Section 8.09;

The Authority shall send written notice to the requester within five (5) business days of the Authority's receipt of the request notifying the requester that the request for access is being reviewed, the reason for the review and a reasonable date that a response is expected to be provided.

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- B. If the date that a response is expected to be provided is in excess of thirty (30) days, following the five (5) business days allowed in subsection (a), the request for access shall be deemed denied.

#### 8.05 Denial of Request

- A. If the Authority's response is a denial of a written request for access, whether in whole or in part, the written response shall be issued and include:
  - 1. A description of the record requested;
  - 2. The specific reasons for the denial, including a citation of supporting legal authority. If the denial is the result of a determination that the record requested is not a public record, the specific reasons for the Authority's determination that the record is not a public record shall be included.
  - 3. The typed or printed name, title, business address, business telephone number and signature of the public official or public employee on whose authority the denial is issued.
  - 4. Date of the response.
  - 5. The procedure to appeal the denial of access under the Right to Know Law.
- B. If the Authority's response grants a request for access, the Authority shall, upon request, provide the requester with a certified copy of the public record if the requester pays the applicable fees pursuant to Section 8.09.

#### 8.06 Exceptions to Denial

- A. If a written request for access is denied or deemed denied, the requester may file exceptions with the Chairman of the Board of Directors or in the case where the Chairman makes the initial decision, the entire Board of Directors, for access within 15 business days of the mailing date of the Authority's response or within 15 days of a deemed denial.
- B. The exceptions shall state grounds upon which the requester asserts that the record is a public record and shall address any grounds stated by the Authority for delaying or denying the request.

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8.07 Determination by Chairman or Board of Exceptions

Unless the requester agrees otherwise, the Chairman or Board shall make a final determination regarding the exceptions within 30 days of the mailing date of the exceptions. Prior to issuing the final determination regarding the exceptions, the Chairman or Board may conduct a hearing. The determination shall be the final order of the Authority. If the Authority Chairman or Board determines that the Authority correctly denied the request for access, the Chairman or Board shall provide a written explanation to the requester of the reason for the denial.

8.08 Right to Know Law

In addition to the reason for the denial, the Chairman or Board shall provide the requester with a copy of the Right to Know Law and advise the requester of his right to appeal as set forth in the Right to Know Law.

8.09 Fees

- A. The Authority shall be permitted to charge a fee for the duplication by photocopying, printing from microfilm or electronic media, and transmission by telefax based upon the actual total cost (exclusion of labor) for the duplication. Actual cost shall, however, include the cost of the duplicating equipment, supplies and maintenance charges prorated to an actual value per page duplicated or transmitted.
- B. Should the requester request that the public records be verified for the purposes of verifying the public record, the Authority's fee shall be \$25.00.
- C. The Authority shall charge the requester for the actual cost of mailing the public records to the requester. No charge shall be made if the requester picks up the copies in person or by an agent designated for such purpose in writing and delivered to the Authority at the time the documents are delivered. No in-person delivery will be made to an agent without such a written authorization.
- D. The Authority shall not be required to offer to any requester any enhanced electronic access to any of its public records.
- E. No public records of the Authority shall be permitted to leave Authority property for duplication by the requester or anyone acting on his behalf.
- F. When the Manager or Chairman reasonably believes that the actual duplicating fees for the public records will exceed the sum of \$100.00, the

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Manager shall require the requester to prepay the estimated fees before the request is granted. When the requester fails to prepay, the request shall be denied for the failure to prepay.

8.10 Redaction

If part of an integrated record is public and other parts of the document are not public, the Authority shall be permitted to separate or eradicate from the record that which is not a public record.

8.11 Reasons Not Permitted

The Authority shall not be permitted to ask the requester the purpose of his request, except to the extent that the purpose may assist the Authority in identifying or locating a record or determining if the record is a public record.

8.12 Frivolous Appeals

When a frivolous appeal is taken to the Authority's denial of a request for a record, it shall be the policy of the Authority to demand from the Court that reasonable attorney's fees, cost and expenses be awarded the Authority in defending the frivolous appeal.

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**9.0 RULES AND REGULATIONS PERTAINING TO PRIVATE PROPERTY INSPECTIONS FOR IMPROPER DISCHARGE AND INFILTRATION AS PROHIBITED BY ARTICLE VII, SECTION 7.03 AND CHAPTER 18, SECTION 203 OF THE CHIPPEWA TOWNSHIP CODE OF ORDINANCES**

These Rules and Regulations shall apply to all private property sanitary sewer inspections pertaining to the identification of sources of surface, storm and subsurface (sometimes hereafter referred to as extraneous flow) water inflow and/or infiltration into the public sanitary sewer system of the Chippewa Township Sanitary Authority.

9.01 Personnel Conducting Inspection

- A. Only people employed by the Chippewa Township Sanitary Authority or any independent contractor hired by the Authority and their employees, including directors, supervisors and employees, shall be authorized to enter upon private property for the purpose of conducting an improper inflow and/or infiltration inspection.
- B. All such personnel shall be wearing a name badge indicating the person's name, position with the Authority, and a recent photograph not smaller than 1 inch by 1 inch.
- C. No Authority director, supervisor, employee or agent shall enter upon private property for inspection purposes alone and there shall always be at least two (2) employees and/or supervisors, agents and/or directors who conduct the private property infiltration inspection jointly. Where it is not possible to have two (2) employees of the Authority present, the Authority may hire police officers to accompany the Authority representative on the inspection.

9.02 Advance Notice of Inspection

- A. All customers of the Authority in Chippewa Township shall be sent a letter explaining the purpose of the improper inflow and/or infiltration inspection program and ask for the property owner's voluntary cooperation in identifying and remedying sources of storm, surface and subsurface water discharge and/or infiltration into the public sanitary sewer system. The letters shall suggest sources of potential inflow and/or infiltration and suggestions on how to remedy the situation.
- B. Any property owner who shall voluntarily come forth with an admission of storm, surface or subsurface inflow and/or infiltration on his or her property shall be given one (1) year to remedy the problem without any enforcement action being taken by the Authority to enforce the penalty provisions of Chapter 18, Section 209 of the Township of Chippewa Code of Ordinances.

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- C. The length of time given to the customer may be extended depending upon the extent of the corrective measures that need to be taken, the cost of the corrective measures, the time of year and the potential weather conditions.
  - D. Any property that is sold or exchanged and is connected to the Authority's system will be required to be inspected. The inspection must be accomplished prior to the closing. If the property passes the inspection, a certificate of compliance will be issued. If it does not pass, a letter will be sent to the closing agency identifying what needs to be corrected. It will be between the buyer and the seller to determine who will conduct the necessary repairs. A follow up inspection by the Authority will be required. Repairs must be made within one year of the original inspection date.

9.03 Specific Advance Notice of Inspection

- A. After the initial letter referred to in Section 9.02 A above, the Authority shall designate neighborhood areas where it is suspected that extraneous flow from private property is occurring.
- B. Once a neighborhood is identified, a second notice shall be sent to all the property owners and tenants occupying property in said designated neighborhood that the Authority desires to inspect the sanitary sewer service lines of the homes in the neighborhood. The notice shall indicate that the Authority desires to enter upon the owner/occupant's property for the purpose of conducting any inflow/infiltration inspection and possible water smoke and/or dye test and state the day and time of the inspection and test. The owner/occupant shall be given the opportunity to reschedule the appointment to a more convenient time and/or date if the date stated in the letter is not convenient for the owner/occupant. At least two (2) weeks advance notice shall be given in all cases.
- C. Neighborhood areas for inspection shall be identified based upon the following criteria:
  - 1. High water flows from the area into the Authority's main lines during rain or wet ground conditions;
  - 2. Age of the homes and the age of the sewer pipe and type of sewer pipe used;
  - 3. Homes with exterior basement stairwells;

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4. Homes with garages at or below the abutting road elevation that have drains at or near the garage;
  5. Neighborhoods with known springs in the area.
  6. Pump station bypasses or near capacity levels of flow through a pump station which services the neighborhood area.

9.04 Visual Inspection Testing

- A. Where a visual inspection of the property reveals stairwell drains, exterior drains, driveway drains or drains at or near the garage entrance, these devices shall be smoke and/or water and dye tested to ascertain whether or not they are connected to the public sanitary sewer system.
- B. Where a visual inspection indicates the existence of a sump pump, the pump and sump area shall be visually inspected to ascertain its point of discharge. If the point of discharge cannot be visually ascertained, the sump pump shall be tested with water and dye so as to ascertain the point of discharge or eliminate the sanitary sewer as a point of discharge. A Certificate of Inspection or Certificate of Compliance shall be given to the property owner upon completion of the inspection.
- C. Any exterior drains and sump pumps which are connected either directly or indirectly to the public sanitary sewer system shall be removed. The owner/occupant of any property having exterior drain downspouts or sump pump connected will be given up to one (1) year to remove the connection(s) from the public sanitary sewer system or take such other approved action so that storm and surface water do not enter the sanitary sewers.
- D. The period of remedial time given shall be dependent upon the time of year, the anticipated weather conditions, the type of remedial work involved and the cost of said work.
- E. Upon the expiration of the remedial work period or at the completion of the remedial work itself (whichever shall first occur), the property shall be re-inspected by Authority personnel for compliance. If the violation(s) still continues to exist, the Authority shall forthwith invoke the enforcement proceedings of the applicable municipality's ordinances. Where the property is found to be in compliance and sources of infiltration are determined to be minimal or nonexistent, the Authority shall issue a Certificate of Compliance to the property and its owner.

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9.05 Camera Inspection

- A. Where visual inspection of the property has eliminated downspouts, drains and sump pumps as a source of infiltration yet the property still shows high and/or clear water flows in rainy or wet ground conditions, the property may be inspected via a sewer line camera to ascertain the condition of the property service line and whether or not french drains are connected to the sanitary sewer service line.
- B. Where the camera inspection reveals broken line and/or french drain connection, the property owner shall be given an opportunity to review the tape together with a copy of the Certificate of Inspection indicating the conditions and sources of inflow/infiltration found.
- C. The property owner shall be given up to one year (1) year from the date of this inspection to repair and replace the broken service line and disconnect french drains so that storm, surface or subsurface water does not enter the public sanitary sewer system from french drains or broken service lines.
- D. The period of remedial time given shall be dependent upon the time of year, the anticipated weather conditions, the type of remedial work involved and the cost of said work.
- E. At the expiration of the remedial period or upon the completion of the remedial work, the property shall be re-inspected for compliance. If the violation still continues to exist the Authority shall forthwith invoke the enforcement procedures of the applicable municipality's ordinance. Where the property is found to be in compliance and sources of infiltration are found to be nonexistent, the Authority shall issue to the property owner a Certificate of Compliance.
- F. Camera inspection shall be conducted with the same written notice procedure specified in Section 9.02 above.

9.06 Voluntary Issuance of Certificate of Compliance

Any property owner may voluntarily make arrangements for his or her property to be inspected for sources of inflow and/or infiltration by contacting the Authority or arranging an inspection per Section 9.04 above. When the inspection reveals that sources of infiltration are nonexistent, the Authority shall issue a Certificate of Compliance to the property and its owner.

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9.07 Non Access to the Property

- A. Where the property owner and/or occupant fail to voluntarily grant access to the property for inspection and fail to reschedule an inspection, the Authority shall have the right to seek entry onto the property via the provisions of the tap service agreement. See *Appendix A* for an example Sanitary Sewer Tap/Service Agreement. Where a service agreement is in existence for the property but the property owner fails to cooperate and/or schedule and allow the inspection, the Authority shall enforce the provisions of the tap service agreement that allows for inspections upon reasonable notice via civil action proceedings and/or an equity action to compel inspection and testing.
- B. When the property is not covered by a tap service agreement and the owner/occupant fails to schedule and cooperate with an inspection, the Authority shall issue a notice of violation for the property based upon any probable cause evidence it may have that the property is a source of storm, surface or subsurface water infiltration into the sanitary sewer system.
- C. Any and all remedial work needed to be done to remove a source of inflow and/or infiltration shall be approved by the Chippewa Township Sanitary Authority prior to the work being done. The remedial work shall be the most cost effective way to eliminate the actual source of infiltration to the property. All remedial work shall, when applicable, be in accordance with the existing rules and regulations of the Authority.

9.08 Certificate of Compliance

- A. The issuance of a Certificate of Compliance by the Authority for a particular property shall mean that the property as it existed on the date of the inspection is not a suspected source of infiltration and in need of remedial work.
- B. The fact that a property has not been issued a Certificate of Compliance shall mean that: (a) the property has not been inspected or, (b) the property has been inspected and the sources of infiltration discovered have not been remedied.
- C. Copies of a Certificate of Completion shall be kept on file with the Authority and a copy delivered to the Township of Chippewa and the property owner.

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9.09 Example Documents

See *Appendix F* for an example Certificate of Compliance and *Appendix G* for an example Certificate of Inspection.