
BOOK NO.

ISSUED TO



**STANDARD CONSTRUCTION REQUIREMENTS
FOR**

**WATER SUPPLY SYSTEMS
SANITARY SEWER SYSTEMS
BICYCLE PATHS AND SIDEWALKS**

SEPTEMBER 2023

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September 18, 2023

TO ALL DEVELOPERS, CONSULTING ENGINEERS AND CONTRACTORS:

The Jamestown Charter Township Standard Construction Requirements for Water Supply Systems, Sanitary Sewer Systems, Bicycle Paths and Sidewalks, 2023 edition, were adopted by Jamestown Charter Township on September 18, 2023. The purpose of adopting these Standard Construction Requirements is to ensure the use of uniform, adequate, and acceptable construction methods and materials. The Township strives at all times to stay up to date regarding construction engineering developments.

These September 2023 Standard Construction Requirements are to apply to work and materials bid or contracted on or after October 1, 2023.

Jamestown Charter Township also has ordinances to administer, regulate, and provide for the connection to and use of the public water and sewer systems. These ordinances provide additional requirements and regulations related to the water and sewer systems. Owners, consulting engineers, contractors, and plumbers are encouraged to review the document ordinances for requirements pertaining to private water services, fire lines, and sanitary sewers.

Ms. Laurie Van Haitsma
Township Supervisor

EXPLANATION OF THIS DOCUMENT:

The purpose of this document is to provide Developers, Consulting Engineers, and Contractors working in Jamestown Township, the general requirements and standard construction requirements required by the Township for watermain, sanitary sewer, bicycle paths, and sidewalks, which, after acceptance by the Township, will become public facilities.

THESE STANDARD CONSTRUCTION REQUIREMENTS SHALL BE INCORPORATED AS PART OF THE CONTRACT DOCUMENTS BY REFERENCE, FOR THE ACQUISITION AND CONSTRUCTION OF THE WATERMAIN, SANITARY SEWER, BICYCLE PATH, AND/OR SIDEWALKS PROJECTS.

DEFINITIONS

Agreement - The written contract between the Owner and Contractor covering the work to be performed.

Contractor - The person, partnership, corporation, or other legal entity with whom the Owner has entered into an agreement to construct the Work.

Contract Documents - The Agreement, plus any or all of the following additional documents, if they exist: addenda (which pertain to the Contract Documents), contractor's bid (including documentation accompanying the bid and any post bid documentation submitted prior to the notice of award) when attached as an exhibit to the Agreement, the notice to proceed, bonds and insurance certificates, general conditions, supplementary conditions, the specifications and the drawings as the same are more specifically identified in the Agreement, together with all written amendments, change orders, work change directives, field orders, and Owner's Engineer's written interpretations and clarifications. THESE STANDARD CONSTRUCTION REQUIREMENTS SHALL BE INCORPORATED AS PART OF THE CONTRACT DOCUMENTS BY REFERENCE.

Development Contract - A written contract between the Owner and the Township covering various items regarding the Project.

Owner - The person, partnership, corporation, or other entity for whom the Work is being constructed and with whom the Contractor has entered into an Agreement.

Owner's Engineer - The Consulting Engineer employed by the Owner for the Project.

Plans - The drawings which show the scope, extent, and character of the Work to be furnished and performed by Contractor and which have been approved by the Township and are referred to in the Contract Documents.

Project - The watermain, sanitary sewer, storm sewer, or sidewalk construction project which will become a public facility.

Specifications - Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.

Township – Jamestown Charter Township, Ottawa County, Michigan.

Township's Engineer - The respective person, consultant, firm, or corporation used by Jamestown Charter Township for engineering purposes.

Work - The entire completed construction or the various separately identifiable parts thereof are required to be furnished under the Contract Documents. Work includes and is the result of performing or furnishing labor and furnishing and incorporating materials and equipment into the construction, and performing or furnishing services and furnishing documents, all as required by the Contract Documents.

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SECTION 1

GENERAL REQUIREMENTS

1.01 AGREEMENT

A Development Contract and/or an Agreement to construct water/sewer improvements shall incorporate by reference all of these Standard Construction Requirements and shall provide that the Township is a third party beneficiary of the Agreement and that all provisions of the Agreement in favor of the Owner and/or Township may be enforced by the Township. The Agreement shall be submitted to the Township for approval prior to its execution.

The Township shall require a Development Contract between the Developer and the Township and the Development Contract must be executed by all parties prior to the Pre-Construction Conference. (See Appendix “C”)

1.02 STANDARDS/ORDINANCES

All work shall conform to these Standard Construction Requirements and all applicable Township ordinances and rules and regulations.

To the extent applicable, the Township ordinances to administer, regulate, and provide for the connection to and use of the public water and public sewer systems, and all rules and regulations adopted there under, are considered part of these Standard Construction Requirements.

The Owner, the Owner’s Engineer, and the Contractor shall keep themselves fully informed of and shall at all times comply with all local, state and federal laws, rules and regulations applicable to the Project.

THE PROCEDURE FOR GRANTING OF EXCEPTIONS TO THESE STANDARD CONSTRUCTION REQUIREMENTS IS:

- A. A written request for an exception shall be prepared and filed by the Owner with the Township. This written request for exception shall be prepared by the Owner’s Engineer and shall be signed by both the Owner and the Owner’s Engineer.
- B. The Township will consider the exception requested and consult with the Township Engineer as necessary. The Township will then give a written notice to the Owner stating the Township’s decision on the exception requested. The Township decision shall be final and binding on the Owner.

PLAN REVIEW PROCESS**For watermain and sanitary sewer.**

- A. The Owner's Engineer shall supply to the Township the Owners name, mailing address and email address. Copies of all correspondence from the Township or the Township's Representatives shall be sent to the Owner.
- B. Owner's Engineer shall submit a preliminary site plan for the Project to Jamestown Township's Water & Sewer Department and the Township's Engineer concurrent with submittal to the Township Planning Commission for review of any preliminary plat, preliminary planned unit development plan, rezoning request, preliminary site condominium approval request, site plan or any other planning approval document pertaining to the Project. No water or sanitary sewer Project shall be undertaken unless the Project is in conformance with the Township Wastewater Collection System and Township Water Supply System Master Plans.
- C. Owner's Engineer shall submit one set of Plans (and Specifications if requested) to the Township Water and Sewer Department and one set of plans to the Township's Engineer. The Owner's Engineer shall provide one set of digital plans to all parties with each submission in a standard file format.
- D. After review of the Plans and Specifications, the Township and the Engineer will issue a joint review letter to the Owner's Engineer. The review will be valid for one (1) year from the date of its issuance.
- E. Upon receipt of a review letter, any changes required must be made by the Owner's Engineer prior to the Township submitting the Plans and Specifications to EGLE for construction permits. Total sets of Plans and Specifications required are: four (4) for watermain, two (2) for sanitary sewer, and; six (6) for *both* water main and sanitary sewer. In some cases, a digital set of construction plans may be required for the submittal and the Owner's Engineer shall provide the plans in a digital format as directed by the Township Engineer and/or the Township. Jamestown or Township Engineer will forward the plans and specifications to the Michigan Department of Environment, Great Lakes, and Energy for construction permits. Prior to commencing the Work, a copy of all permits must be submitted to the Township along with one copy of the final approved Plans and Specifications.

The following is a summary of the Jamestown Charter Township Plans and Specifications submittal process. All reference to Local Unit refers to Jamestown Township. The Owner's Engineer should consult directly with the Township Engineer as to any questions and/or amendments to the submittal process and copies of all documentation pertinent thereto.

- 1. The Plans and Specifications shall be submitted with a cover letter which shall contain a brief description of the proposed extension or connection, including the name, location and the lengths and sizes of the water mains and sewer lines per street to be constructed. The plans must indicate the project name, the location of the project and a location sketch.

2. The plans must be signed and sealed by a licensed professional engineer.
3. Jamestown must have evidence that the proposed Plans have been reviewed and approved by the Township and the Township's Engineer.
4. Easements for water and/or sewer lines must be detailed on the Plans. Platted easements must be so noted and all easement areas must be accompanied by the proposed easement document. (See Appendix "B")
5. A general note must be included on the Plans stating that the construction shall be done in accordance with the current "Jamestown Charter Township Standard Construction Requirements".
6. The plans must define all areas of construction adjacent to lakes, streams, water courses, or other erosion sensitive locations and reference acceptable control techniques, which must be used to control soil erosion and sedimentation.
7. If this project is within 500 feet of a lake or stream, or if the construction activity is within a 100 year floodplain and/or wetlands (Wetlands as defined by 30301(1)(m) of Part 303 of Act 451, PA 1994) copies of necessary permits or evidence of submittal or a request for determination from the Michigan Department of Environment, Great Lakes, and Energy - Land and Water Management Division regarding those activities must be submitted. The Plans must define all areas of construction adjacent to ponds, water courses, or other erosion-prone locations and reference acceptable control techniques, which must be used to control soil erosion and sedimentation.
8. For sanitary sewer projects, the permit application for wastewater systems as required by authority of Part 41, Act 451, PA 1994 as amended shall be completed and submitted.
9. The permit applications must define the quantities and locations of the facilities to be constructed (e.g. 800 ft. of 8 inch water line in 32nd Avenue from Riley Street north).

1.04 PERMITS AND APPROVALS

Prior to commencing construction of the Project, the following permits/approvals shall be obtained (if applicable) by the Owner's Engineer:

- A. Township Water and Sewer Department.
- B. Ottawa County Road Commission – for all work within County Right-of-Ways and for Soil Erosion Sedimentation Control (Part 91 of PA 451).
- C. Office of the Ottawa County Water Resources Commissioner - Note: Storm water detention may be required.
- D. Michigan Department of Environment, Great Lakes, and Energy

- 1) Watermain construction permits (Act 399).
- 2) Sanitary sewer construction permit (Part 41 of Act 451).
- 3) Inland Lakes and Streams (Part 301 of Act 451).
- 4) Soil Erosion and Sedimentation Control (Part 91 of Act 451).
- 5) Wetlands (Part 303 of Act 451).
- 6) Storm Water Discharge (Part 31 of Act 451).
- 7) Other.

No construction work on the Project shall commence until all of the above referenced permits/approvals which are applicable have been obtained, the Development Contract has been signed, any necessary agreements with the Township have been signed and delivered, all required easements have been signed and delivered to the Township, appropriate evidence that all required insurance is in force has been filed with the Township, the Township has reviewed and approved the Agreement, and the preconstruction conference has been held.

1.05 INDEMNITY/INSURANCE

1.05.01 Indemnity - General

The Contractor shall agree in the Agreement that as a condition of performing the Work, the Contractor agrees to assume all liability for and protect, indemnify and hold harmless the Township, Ottawa County Road Commission, the Office of the Ottawa County Water Resources Commissioner (including Road Commission's, Drain Commissioner's and Township's respective consulting engineers), their agents, consultants, officers, board members and employees (collectively, the "Indemnified Parties"), from and against all actions, claims, demands, judgments, losses, expenses of suits or actions and attorney fees for injuries to or death of any person or persons and loss or damage to the property of any person, or persons, whomsoever, arising in connection with or as a direct or indirect result of entering into and performance of the Work, due to or arising out of the acts of the Contractor or its agents, contractor, subcontractors, officers and employees, or by or in consequence of any negligence or carelessness in connection with the same or on account of liability of obligation imposed directly or indirectly upon any of the Indemnified Parties by reason of any law of the State of Michigan or the United States, now existing or which shall hereinafter be enacted, imposing any liability or obligations, or providing for compensation to any person or persons on account of or arising from the death of, or injuries to employees. The Contractor shall pay, settle, compromise, and procure the discharge of any and all such claims and all such losses, damages, and expenses. The Indemnified Parties shall have the option to retain their own attorney or attorneys and the reasonable expense thereof shall be paid by the Contractor.

1.05.02 Insurance Requirements

The Agreement shall provide that prior to commencing work, to protect against liability, loss and/or expense arising from damage to property or injury or death of any person or persons incurred in any way out of, in connection with or resulting from the Work; the Contractor, at its sole expense, shall secure and keep in force during the entire period of the Contract between Owner and Contractor, and shall file with the Township, the Ottawa County Road Commission and the Office of the Ottawa County Water Resources Commission a certificate of insurance acceptable to the Township as proof that the Contractor has secured the types and amounts of insurance required by this subsection for the Project. The Township shall have the right, in its sole discretion and at any time(s), to require the Contractor to file with the Township certified copies of any policies of insurance required by this subsection.

The following is required:

LIABILITY INSURANCE

1.05.02.01 Owner's & Contractor's Protective Liability Policy

Contractor shall furnish and maintain an Owner's & Contractor's Protective Liability Policy ("OCP policy"). The OCP policy will name the Owner, the Engineer, their consultants, agents, employees and such public corporations in whose jurisdiction the Work is located as the insureds (hereinafter collectively called the "named insureds"). The OCP policy will protect the named insureds for any actual or alleged liability arising out of the work performed by the Contractor, the Subcontractor(s) or Suppliers on this project. The OCP policy will provide primary, non-contributing coverage.

In lieu of the Owner's & Contractor's Protective Liability Policy, the Contractor must add to their Bodily Injury and Property Damage Policy:

- a. **Additional Insured.** The Bodily Injury and Property Damage Policy must name as additional insured the Township, the County, Vriesman and Korhorn, and all agents and employees thereof and, where indicated by the identity of the contracting parties, the protection must be extended to all participating political subdivisions and public corporations.
- b. **Per Project Aggregate.** The Bodily Injury and Property Damage Policy must be endorsed with an endorsement that provides the General Aggregate Limit to each designated construction Project.
- c. **Umbrella Policy.** An umbrella policy with a \$2,000,000 limit must be provided.

1.05.02.02 Commercial General Liability Policy

Contractor shall furnish and maintain a Commercial General Liability policy and/or Comprehensive General Liability Insurance Policy ("CGL policy"). The CGL policy shall include coverage for:

- a. All premises and operations;
- b. Explosion, collapse and underground hazards;
- c. Products and Completed Operations Coverage. This coverage shall extend through the contract guarantee period;
- d. Contractual Liability Coverage for the obligations assumed by Contractor in the Indemnification and Hold Harmless agreement found in the General Conditions and Supplementary Conditions of the Contract Documents;
- e. Personal injury, including employees (with no exclusions pertaining to employment);
- f. Advertising injury;
- g. Contractor's Protective Liability coverage for independent contractors or subcontractors employed by the Contractor.

The CGL policy shall be an occurrence policy.

1.05.02.03 Automobile Liability Policy

Contractor shall furnish and maintain a Comprehensive Automobile Liability Policy to cover bodily injury and property damage arising out of the ownership, maintenance or use of any motor vehicle, including owned, non-owned, and hired motor vehicles. In light of the standard policy provisions concerning (a) loading and unloading, and (b) definitions pertaining to motor vehicles licensed for road use versus unlicensed or self-propelled construction equipment, it is recommended that the Comprehensive Automobile Liability insurance and the Comprehensive general Liability insurance be written by the same insurance carrier, though not necessarily in one policy.

1.05.02.04 Worker's Compensation Insurance and Employer's Liability Insurance

Contractor shall furnish and maintain Worker's Compensation insurance including Employer's Liability insurance to cover employee injuries or disease compensable under the Worker's Compensation statutes of the States in which the Work is conducted, applicable disability benefit laws, if any, and Federal compensation acts, if applicable, such as the Merchant Marine Act, Federal Employers Liability Act, and the Longshore and Harbor Workers Compensation Act. Self-insurance plans approved by the regulatory authorities in the States in which the Work is performed are acceptable.

1.05.02.05 Umbrella or Excess Liability

Contractor shall furnish and maintain an Excess or Umbrella Liability policy applicable to both the Commercial General Liability/Comprehensive General Liability Policy and the Automobile Liability Policy. The Contractor is granted the option of arranging coverage under a single policy for the full limit required or by a combination of underlying policies with the balance provided by an Excess or Umbrella Liability policy equal to the total limits requested. Umbrella or Excess policy language shall be at least as broad as the primary or underlying policy(ies).

The umbrella or excess liability insurance shall be an occurrence policy.

1.05.02.06 Railroad Protective Liability

Contractor shall furnish and maintain a Railroad Protective Liability policy, where such an exposure exists, to provide coverage in the name of each railroad company having jurisdiction over rights-of-way across which Work under the Contract Documents is to be performed. The form of the policy and the limits of liability shall be determined by the railroad company(ies) involved.

PROPERTY INSURANCE

1.05.02.07 Builder's Risk

Contractor shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof. Contractor shall be responsible for any deductible or self-insured retention. This insurance shall:

- a. include the interests of Owner, Contractor, Subcontractors, Engineer, and [others as identified in 1.03.02] and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them, each of whom is deemed to have an insurable interest and shall be listed as a named insured, additional insured or loss payee;
- b. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss and damage to the Work, temporary buildings, falsework, and materials and equipment and shall insure against at least the following perils or causes of loss: fire, wind, lightning, mold, mildew, extended coverage, theft, vandalism, and malicious mischief, earthquake, actual and constructive collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, flooding and such other perils or causes of loss as may be specifically required by these Insurance specifications;
- c. include an endorsement extending coverage to provide insurance against risks not covered under the basic policy. "Extended coverage" is a term used in the insurance business. All basic insurance policies have exclusions - specific loss causalities that are not covered by the insurance company. An Extended Coverage (EC) policy or endorsement is required to cover any such exclusions;
- d. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
- e. cover materials and equipment that is in place, stored at the job site, stored elsewhere, or in transit at the risk of the insureds;
- f. allow for partial utilization of the Work by Owner;
- g. include testing and startup;

- h. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued; and
- i. contain a waiver where by Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by the policy. In addition, the waiver must contain a provision whereby the Owner and Contractor waive all such rights against Subcontractors, Engineer, and all other individuals or entities identified in the Insurance Specifications as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each of any of them) under such policy for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

OTHER INSURANCE REQUIREMENTS

1.05.02.08 Additional Insureds

Contractor is required to list as additional insureds on the commercial General Liability policy/Comprehensive General liability policy, the Worker's Compensation/Employer's Liability policy, the Automobile Liability policy, the Railroad Protective Liability policy, and the Builder's Risk policy, the following persons or entities:

- a. Jamestown Charter Township
- b. Vriesman and Korhorn Civil Engineers
- c. Ottawa County Road Commission
- d. Ottawa County Water Resources Commissioner

1.05.02.09 Loss Payees

Contractor is required to list as loss payees on each property insurance policy, including but not limited to the Builder's Risk policy, the following persons or entities:

- a. Jamestown Charter Township
- b. Vriesman and Korhorn Civil Engineers
- c. Ottawa County Road Commission
- d. Ottawa County Water Resources Commissioner

1.05.02.10 Notice of Cancellation or Intent Not to Renew

The policies required by these Insurance Specifications shall contain a provision or endorsement that the coverage afforded cannot be canceled, materially changed or renewal refused unless, at least 30 days prior to such cancellation, material change or refusal to renew, written notice of such action has been given to Owner, Engineer,

Contractor and to each other additional insured and loss payee. All notices of cancellation, material change or refusal to renew shall be made by certified mail or personal delivery to the Owner, Engineer, Contractor and each other additional insured and loss payee.

1.05.02.11 Evidence of Coverage

Prior to commencement of the Work, Contractor shall furnish to the Owner, Engineer and each other additional insured and loss payee identified in these Insurance Specifications, Certificates of Insurance on the form provided by the Owner, if any. Other forms of Certificate are acceptable only if (1) they include all of the information set forth on the form provided by the Owner, including but not limited to the cancellation provisions set forth in Paragraph 1.03.03; (2) show that all the insurance requirements set forth in these Insurance Specifications are met, and; (3) are approved for use, in writing, by the Owner.

If requested by Owner, Contractor shall furnish complete copies of the policies, including all declaration sheets, endorsements, riders, amendments and all other changes or attachments to the policy. Such policy copies shall be certified by the insurance carrier as true and accurate copies of the originals, or shall be designated by the insurance carrier as “Originally Signed Copies”.

1.05.02.12 Qualifications of Insurers

In order to determine the financial strength and reputation of insurance carriers, all companies providing the coverages required by these Insurance Specifications shall be authorized to do business in the State or States where the project is located and shall have a financial rating not lower than VIII and a policyholder’s service rating not lower than “A-” as listed in A.M. Best’s Key Rating Guide, current edition. Companies with ratings lower than A-:VIII will be acceptable only upon written consent of the Owner.

1.05.02.13 Deductible Liability

Any and all deductibles in the policies described in these Insurance Specifications shall be assumed by, for the account of, and be the sole responsibility of Contractor. The amount of any deductible is subject to approval by the Owner.

1.05.02.14 Insurance will be Primary

The insurance required to be obtained and kept in force by the Contractor under these Insurance Specifications shall be primary (i.e. pay first) as respects any insurance, self-insurance or self-retention maintained by the Owner, Engineer, and any additional insureds or loss payees. Any insurance, self-insurance or self-retention maintained by the Owner, Engineer or any additional insureds or loss payees shall be in excess of the insurance obtained and kept in force by the contractor under these Insurance Specifications and shall not contribute with it.

MINIMUM LIMITS

- | | | |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| 1.05.02.15 | The minimum limits for the insurance required by these Insurance Specifications shall provide coverage for not less than the following amounts or greater where required by Laws or Regulations: | |
| 1.05.02.16 | Owner's & Contractor's protective Liability Policy | |
| | a. Each Occurrence | <u>\$1,000,000</u> |
| | b. General - Aggregate | <u>\$2,000,000</u> |
| 1.05.02.17 | Contractor's Commercial General Liability and/or Comprehensive General Liability: | |
| | a. General - Aggregate | <u>\$2,000,000</u> |
| | b. Products - Completed Operations Aggregate | <u>\$2,000,000</u> |
| | c. Personal and Advertising Injury | <u>\$1,000,000</u> |
| | d. Each Occurrence | <u>\$1,000,000</u> |
| | e. Fire Damage | <u>\$ 50,000</u> |
| | f. Medical Expense | <u>\$ 5,000</u> |
| 1.05.02.18 | Comprehensive Automobile Liability | |
| | a. Combined Single Limit of | <u>\$1,000,000</u> |
| 1.05.02.19 | Worker's Compensation and Employer's Liability: | |
| | a. State: | Statutory |
| | b. Employer's Liability: | |
| | Each accident | <u>\$ 500,000</u> |
| | Disease - Each employee | <u>\$ 500,000</u> |
| | Disease - policy limit | <u>\$ 500,000</u> |
| | c. Federal, if applicable (e.g. FELA, Longshoreman's, etc): | Statutory |
| 1.05.02.20 | Excess or Umbrella Liability | |
| | General Aggregate | <u>\$2,000,000</u> |
| | Each Occurrence | <u>\$2,000,000</u> |
| 1.05.02.21 | Builder's Risk "all risk" policy
If requested | Full Replacement Cost |
| 1.05.02.22 | Railroad Protective Liability
If requested | Limit as required by railroad |

1.06 PRE-CONSTRUCTION CONFERENCE

A pre-construction conference shall be held with the Township, the Ottawa County Road Commission, the Office of the Ottawa County Water Resources Commissioner, the Township's Engineer, the utility companies and other agencies affected by the proposed construction. The Township's construction observation procedures will be reviewed with regards to watermain, sanitary sewer, and sidewalks.

At the pre-construction meeting, if the Project is for watermain or sanitary sewer, Auto CAD digital drawing files shall be provided to the Township in a format specified by the Township.

1.07 ASSESSMENTS/CHARGES/FEES

Water and sewer assessments/charges/fees include, but are not limited to, availability fees, trunkage fees, sewer plant connection fees, lateral fees, water service fees, meter fees and Plan review fees and construction observation fees. These assessments/charges/fees will be established by the Township Board by Ordinance and Resolution. These assessments/charges/fees are subject to change without notice. It is the responsibility of the Owner to make inquiry as to the amount of assessments, charges and fees applicable to the Project. Payment terms, if any, shall be as agreed upon in writing with the Township.

See Appendix "A" for additional information.

1.08 CONNECTIONS/FINAL ACCEPTANCE

Prior to service connections or final approval of the Project by the Township, the following items shall, if applicable to the Project, be submitted to the Township:

- a) Signed Certification and Approval for Water and/or Sanitary Sewer Construction (required form is included as page 1-21).
- b) Executed Bill of Sale (required form is included as page 1-22).
- c) Copies of Michigan Department of Environment, Great Lakes, and Energy permits.
- d) Final plat showing dedicated easements if applicable.
- e) Letter of credit for uncompleted work. See Development Contract (Appendix "C") between Owner and Township.
- f) All easements signed and provided to the Township (to be provided prior to the Pre-Construction Conference).

In addition, all testing shall have been completed and all defects, deficiencies, and/or incomplete items shall have been resolved to the satisfaction of the Township. Record plans shall be provided to the Township as indicated in these specifications within a period of 6 months after the date of approval for connections or final acceptance.

1.09 BUILDING CONNECTIONS

Separate permits will be required for any water services or sewer connections into buildings. See the Township's Ordinance to administer, regulate, and provide for the connection to and use of the public water and sewer systems for requirements and regulations pertaining to private water systems, fire lines, sanitary sewer and storm sewer, as well as these Standard Construction Requirements.

1.10 GUARANTEE

The Agreement shall provide that the Contractor shall guarantee the completed Work for one year and shall promptly repair, replace, restore, or rebuild, as the Township may determine, any finished Work in which defects of materials or workmanship may appear or to which damage may occur (or has occurred) because of such defects during the one-year period, except where other periods of maintenance and guarantee are provided. The one-year period shall begin upon the date of certification and approval for water and sewer construction by Jamestown Charter Township.

All subcontractors, manufacturer, or supplier warranties and guarantees, expressed or implied, with respect to any material or equipment used in or incorporated as a part of the Work shall be obtained by the Contractor as agent for the Township, and all such warranties and guarantees shall inure to the benefit of the Township without the necessity of separate transfer or assignment thereof; provided that if required by the Township, the Owner and Contractor shall cause such subcontractors, manufacturers, or suppliers to execute such warranties and guarantees in writing to the Township and, further, that the Agreement shall provide that the Contractor will assign all such warranties and guarantees to the Township on request.

1.11 CONTRACTORS AND SUBCONTRACTORS

The Work shall be performed by responsible contractors and subcontractors known to be skilled and regularly engaged in work of similar character and magnitude. The Owner shall receive written approval from the Township of all contractors and subcontractors prior to entering into the Agreement.

1.12 CONTRACTOR RESPONSIBILITIES

1.12.01 General

All of the following Contractor responsibilities shall be incorporated as part of the Agreement.

1.12.02 Safety and Protection

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. The Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

The public and all persons on the Work site or who may be affected by the Work; all the Work and materials and equipment to be incorporated therein, whether in storage on or off site; and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, driveways, roadways, sidewalks/bike paths, structures, utilities and underground facilities not designated for removal, relocation or replacement in the course of construction.

The Contractor shall comply with all applicable laws and regulations of any public body having jurisdiction for safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. The Contractor shall notify owners of adjacent property and of underground facilities and utility owners when construction of the work may affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property. All damage, injury or loss to any property referred to in this paragraph caused, directly or indirectly, in whole or in part, by the Contractor, any subcontractor, supplier or any other person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by the Contractor. The Contractors' duties and responsibilities for safety and protection of the Work shall continue until such time as all the Work is completed and accepted.

1.12.03 Safety Representative

The Contractor shall designate a qualified and experienced safety representative at the Work site, whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

1.12.04 Emergencies

In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the Owner or the Township, is obligated to act to prevent threatened damage, injury or loss. The Contractor shall give the Owner and the Township prompt written notice if the Contractor believes that any significant changes in the Work or variations from the Work have been caused thereby. If the Owner determines that a change in the Work is required because of the action taken by the Contractor in response to such an emergency, with prior written approval of the Township, the Owner may issue a change order or otherwise authorize a change in the Work to account for the consequences of the action taken with respect to the emergency.

1.12.05 Supervision and Superintendence

The Contractor shall supervise, inspect and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work. The Contractor shall be solely responsible for the means, methods, techniques, sequences and procedures of construction. The Contractor shall be responsible to see that the complete Work complies accurately with the Plans and Specifications.

The Contractor shall keep on the Work at all times during its progress a competent superintendent, who will cooperate fully with the Township at all times, and who shall not be replaced without written notice to the Township. The superintendent will be the Contractor's representative at the site and shall have authority to act on behalf of the Contractor. All communications given to the superintendent shall be as binding as if given to the Contractor.

1.12.06 Labor, Materials and Equipment

The Contractor shall provide competent, suitably qualified personnel to perform the Work. The Contractor shall at all times maintain good discipline and order at the site.

The Contractor shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up, and completion of the Work.

All materials and equipment shall be of good quality and new, except as otherwise provided in the Plans and Specifications. If required by the Township, the Contractor shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with instructions of the applicable supplier, except as otherwise provided in the Plans and Specifications.

Where existing public water or sanitary sewer system components are being removed as part of a project, the Township reserves the right to retain ownership of the components. If the components are not desired by the Township, the components are to be removed from the site by the contractor.

1.12.07 Construction Records

The Contractor shall provide construction record information and utilize standard record forms as provided by the Township.

1.13 ASBESTOS, PCBs, PETROLEUM, HAZARDOUS WASTE OR RADIOACTIVE MATERIALS:

If, during the course of construction, any asbestos, PCBs, petroleum, hazardous waste or radioactive materials are uncovered or revealed at the Work site which were not shown or indicated on the Plans and Specifications, to be within the scope of the Work and which may present a substantial danger to persons or property exposed thereto in connection with the Work at the site, the Contractor shall cease operations affecting the find and shall notify the Township and also the Owner in writing, who shall notify the necessary parties. No further disturbance of the materials shall ensue until the Contractor has been notified by the Owner and the Township that the Contractor may proceed.

1.14 PAYMENT

Payment shall be made by the Owner to the Contractor. The Township, unless it is the owner, shall not have any liability to the Contractor for amounts due the Contractor under the Agreement, or for any part of the cost of the Project. The method of payment (lump sum, unit prices, etc.) is between the Owner and the Contractor.

1.15 COST SHARING

All cost sharing agreements (if any) between the Township and Owner shall be in writing and shall be signed and delivered prior to the start of construction.

1.16 WORK SITE

The Contractor shall confine its work to the public rights-of-way, easements and Owner's property. Any other area required for equipment or material storage or for construction operation shall be the Contractor's responsibility.

1.17 ACCESS

The Township and its representatives shall be allowed access to all parts of the Work at all times and shall be furnished such information and assistance by the Contractor as may be required to make a complete and detailed observation of all construction operations and activities.

1.18 CONSTRUCTION OBSERVERS

Authority and Duties of Township Construction Observers:

Township construction observers shall not supervise, direct, or have control of the Contractor's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto. Township construction observers are not authorized to revoke, alter, enlarge or relax any of the Specifications nor to change the Plans in any particular way. Township construction observers are not authorized to increase or decrease any Agreement item nor to add new items to the Agreement. Township construction observers will inform the Township as to the progress of the Work and the quality of the completed Work, and the quality of the materials being used. In no instance shall any action or omission on the part of the Township construction observers relieve the Contractor of the responsibility for completing the Work in accordance with the Agreement and these Standard Construction Requirements.

The Township shall make an observation of the completed Work, or such portions thereof which are eligible for acceptance, upon notification by the Contractor that the Work is complete or substantially complete. If the completed Work is not acceptable to the Township at the time of such observation, the Township shall inform the Owner and the Contractor orally or in writing as to the particular defects to be remedied.

Observation may be done by the Township, its representative, or the Township's Engineer. Observation will consist of daily viewing of watermain and sanitary sewer installation, testing of watermain and sanitary sewer and gathering of construction record information of all items related to watermain and sanitary sewer construction, including laterals and water services.

All construction staking, compaction testing, major field changes and pay estimates will be the responsibility of Owner's Engineer.

The Owner's Engineer shall periodically review the work for conformance to the Plans and Specifications and these Standard Construction Requirements. The Owner's Engineer shall complete, sign and submit to the Township the Engineer's Certificate contained on page 1-29.

The Township must accept the Work prior to placing watermain, sanitary sewer, or sidewalk in service.

1.19 DEFECTIVE MATERIALS AND WORK

All materials, which do not meet the requirements of the Specifications at the times they are to be used, shall be rejected, unless otherwise authorized as acceptable by the Township in writing.

All completed Work that is found to be defective before the final acceptance of the completed Work, shall be corrected and replaced immediately in conformance with the Specifications.

1.20 SCHEDULING

The Contractor shall file a construction schedule with the Township and the Ottawa County Road Commission and shall receive approval in writing prior to commencing construction.

The Contractor shall give 48 hours' notice to the Township construction observers prior to commencing water or sanitary sewer work.

Certain projects may require street closings. The Contractor shall coordinate its work with the Ottawa County Road Commission and the Township and shall take all necessary precautions required by the Road Commission to minimize traffic interference.

All traffic control that may be necessary for a project must be approved by the Ottawa County Road Commission.

The Contractor's emergency telephone number shall be filed with the Township.

1.21 MAINTENANCE OF TRAFFIC

When working within the limits of existing streets, the Contractor shall accommodate vehicular traffic in road rights-of-way as provided in the Specifications. Access to fire hydrants, water and gas valves shall be maintained at all times during construction.

Where streets are partially obstructed, the Contractor shall place and maintain temporary driveways, ramps, etc., which, in the opinion of the Ottawa County Road Commission and/or the Township, are necessary to accommodate the public.

The Contractor shall inform the local police, schools, ambulance services and fire department in advance of its program of street obstruction and detours. Detouring and construction signage shall be in accordance with MDOT Standards for Uniform Traffic Control and in accordance with the directions of the Ottawa County Road Commission.

1.22 LIMITATION ON OPERATIONS

When working within the limits of existing streets, the Contractor shall at all times conduct its work so that there is a minimum of inconvenience to the residents and traveling public within the Project area. Unless otherwise approved by Jamestown Charter Township, hours of operation are limited to 7:00 am to 7:00 pm on Mondays through Fridays, and 7:00 am to 1:00 pm on Saturdays. No work shall be performed on Sundays or legal holidays.

1.23 PROTECTION OF WORK

The Contractor shall protect the Work until it is accepted by the Township in writing. Any part of the completed Work that is damaged prior to acceptance by the Township shall be replaced at the Contractor's expense.

1.24 DUST CONTROL

All haul roads, detour roads and other public and private roads (including backfilled trenches), driveways and parking lots used by the Contractor must be maintained in a dust free condition. The control of the dust shall be accomplished by the application of dust control materials and methods of application as approved and/or sweeping shall be applied as often as is necessary to control the dust or if directed to do so by the Township (within 12 hours after notifications).

Cost of providing dust control shall be considered incidental to the Project price and shall not be charged back to the Township.

1.25 MATERIAL HAUL ROADS

Any spillage on public roadways used as haul routes shall be cleaned daily.

Gravel roads shall only be used by the Contractor when permission is given to the Contractor in writing by the Ottawa County Road Commission and only if the Contractor assumes responsibility of maintenance, dust control and restoration of the gravel roads to the satisfaction of the Ottawa County Road Commission.

1.26 COLOR AUDIO-VIDEO TAPING

The entire Project area involving existing streets may be videotaped by Jamestown Charter Township or the Ottawa County Road Commission. Other Project areas may be videotaped by the construction observers. These tapes will be available to the Contractor, Owner, and the Township during construction of the project.

1.27 MAIL BOXES

The Contractor shall temporarily relocate mail boxes interfering with construction so that mail service is not interrupted. Mail boxes shall be replaced in a condition and location equal to that prior to construction or as required by the U.S. Postal Service. All mail boxes shall be replaced with a turn-out of six (6") inches of MDOT 23A gravel.

1.28 TREES/CLEARING AND GRUBBING

Trees marked "REMOVE" on the Plans shall be taken down and removed from the right-of-way or easement in a manner that does not endanger the adjoining property or persons, or traffic using the right-of-way. The wood shall become the property of the adjoining property owner when in an existing right-of-way, or the property owner who granted the easement. If the adjoining property owner or property owner does not want the wood, it shall become the property of the Contractor. Burning or burying will not be permitted unless first approved in writing by the Township.

Existing stumps and stumps of trees which are removed shall not be ground down but shall be completely removed. Because of the special concern for preservation of trees in the Townships, only those trees, which have been indicated for removal on the Plans, may be removed. All other trees are to be preserved unless written permission for removal is obtained from the Township and the property owner. Selective pruning of trees will be permitted to allow operation of the Contractor's equipment.

Tree branches and roots shall be pruned neatly and the scars shall be covered with an approved tree dressing.

1.29 DEWATERING

Where dewatering is required, the Contractor shall limit the dewatering operation to the minimum time and depth required for construction. The Contractor will be required to furnish and maintain temporary water service to property owners whose wells may be affected by the dewatering operations. The Contractor shall also be responsible for any necessary repairs to existing wells required to place them back in operation after construction is completed. If the Contractor does not provide temporary water in a timely manner, the Township will cause temporary water to be provided and the Contractor shall promptly reimburse the Township for all of its expenses.

1.30 USE OF SLAG

No slag shall be permitted for use as backfill for any utility construction.

1.31 EXISTING UTILITIES

Various utilities and underground structures are shown on the Plans. There is no guarantee that the location shown for existing utilities and underground structures on the Plans is accurate, nor that additional underground utilities or structures may not be encountered.

The Contractor shall notify MISS DIG and the utility companies for utility locations before starting any open cut or tunnel construction or before drilling holes for

construction purposes. The Contractor shall cooperate with the utility companies in any repair, relocation or other work to be performed on the utility caused by the construction of the Project.

The Contractor shall be fully responsible for the location, protection, relocation, replacement, etc. for all existing underground utilities, which may reasonably be expected in any area, regardless of whether or not such utilities are shown on the Plans. Items in this category shall include, but not necessarily be limited to: watermains and services, gas mains and services, storm sewer and catch basin leads, telephone, electric, and cable TV wire, etc. Such work shall be considered incidental to the major items of construction unless otherwise noted on the Plans.

A. Water Mains

It shall be the responsibility of the Contractor to uncover such mains for a reasonable distance ahead of his construction operation to permit field adjustments where such might be made in grade, location or alignment of the proposed sewer and watermain and/or appurtenances.

An existing watermain, including water services, shall be raised to pass over the sewer (where the elevation of the watermain conflicts with the elevation of the sewer), provided a minimum cover of five feet is maintained on the watermain. The existing watermains may be lowered where the elevation of the watermain conflicts with the elevation of the sewer. The raising or lowering of existing watermains shall be accomplished by using vertical bends properly anchored. A sand cushion shall be provided between the watermain and the sewer. The Contractor shall notify the Township before any work on existing watermains is begun. The Township shall approve the configuration of the bends and thickness of the sand cushion. (A minimum of 18" is recommended.)

B. Sewers (Sanitary, Storm, Culverts, and Under Drains)

All existing sewers crossing or parallel to proposed sewers and watermains (even if not shown on the Plans) shall be saved or re-laid by the Contractor if damaged during construction, unless otherwise indicated on the Plans.

Existing manholes, catch basins and inlets shall be saved and protected unless otherwise indicated on the plans to be removed. Catch basins and inlets shall be reconstructed if damaged during construction. Costs for rebuilding, removing and/or repairing existing sewer, manholes, catch basins, inlets, house leads, headwalls, etc. shall be considered incidental unless otherwise noted on the construction Plans or in the Specifications.

C. Electric Services

Consumers Energy operates electrical systems in the Townships.

D. Gas

D.T.E. Energy Company (previously Michcon) provides natural gas service in the Townships.

E. Telephone

AT&T (previously Ameritech) provides telephone service in the Townships.

F. Cablevision

Charter Communications (known also as Spectrum) provides cable T.V. service in the Townships.

G. MISS DIG

The Township and other local units of government, Consumers Energy, D.T.E. Energy Company, AT&T, and Charter Communications are members of a utility communication system called "MISS DIG" that provides service to participating units of government and utilities. The Contractor shall contract "MISS DIG" not less than 72 hours before starting construction for assistance in locating utilities or for any work to be done on utilities. The toll free phone number is (800) 482-7171 or 811.

H. Utilities

The Contractor shall notify other units of government and the utility companies of the Contractor's schedule and obtain any necessary permits from them. These units of government and companies include the Township, Consumers Energy, D.T.E. Energy Company, AT&T, and Charter Communications.

The Contractor shall pay for any charges by the units of government and utility companies for permits, inspections, or similar charges required to construct the Project as shown on the Plans.

I. Water and Sewer

The Township operates and maintains the water and sewer systems in the Township.

1.32 UTILITY POLES

When necessary, the Contractor shall shore and brace utility poles that interfere with construction. Shoring and bracing shall be such that sinking or excessive tilting does not take place. All relocation or removing and replacing of power poles, light poles and telephone poles shall be done in accordance with the pole owner's standards and all expenses shall be paid for by the Contractor. All arrangements for pole relocations shall be completed by the Contractor with the pole owner at least 72 hours prior to need for relocations.

1.33 TELEPHONE

An emergency telephone system (listing of number) shall be set up and given to the Township so that the Contractor may be immediately notified of any unsafe conditions or emergencies encountered during times that the Contractor is not working on the Project.

The Contractor shall provide a local number and a local employee so that the Contractor may be contacted at any time (including weekends and holidays) 24 hours a day.

1.34 EXISTING PRIVATE FACILITIES

Existing wells, septic tank, tile field, lawn irrigation sprinklers or other facilities which are not on the Owner's property which are disturbed or damaged by the Contractor, shall be repaired and restored to working condition before the end of that working day. Under no circumstances will such interruptions be extended overnight. The Contractor shall take necessary precautions not to allow any discharge from the above to enter any lake, stream, or canal along the line of work. Costs for repairs or temporary service caused by the Contractor shall be at the Contractor's expense.

All precautions necessary shall be taken to insure no damage occurs to homes, including basements.

1.35 CASTING ADJUSTMENTS

Casting adjustments (manholes, watermain valves, gas valves, etc.) required in order to meet the new/restored grade shall be made by the Contractor.

1.36 MATERIAL TESTING

Jamestown Charter Township reserves the right to sample and test any of the materials required for the proposed construction, either before or after delivery to the Project and to reject any material represented by any sample which fails to comply with the minimum requirements specified.

The Contractor shall furnish all materials reasonably required by the Township for sample testing and analysis necessary for the testing of materials as required by the Specifications.

If any pipe fails to meet the specified requirements, all pipe represented by the sample shall be rejected unless the Contractor can demonstrate through additional tests, at the Contractor's expense, that the remainder of the pipe is satisfactory.

As a minimum requirement, the following shall be submitted to the Township by the Contractor (at no extra cost to the Owner).

A. Pipe: Certified test reports for strength from the manufacturer.

B. Material list: Valves, pipe, hydrants, etc. by type and manufacturer.

1.37 BONDS

The Township may require performance bonds for all of the Work or, as a minimum, for that portion of the Work within existing rights of way. (Bonds will be required when the Township is the Owner.)

1.38 FUNDING

Prior to the Contractor starting work, the Owner shall submit in writing to the Township documentation that the Owner has available sufficient funds to complete the Project.

1.39 AUTHORITY OF THE TOWNSHIP AND THEIR AUTHORIZED REPRESENTATIVES

The Township and their authorized representatives have the authority to verify that the Project is being constructed in accordance with the Plans and Specifications, the Standard Construction Requirements, the Township's Rules and Regulations and the Development Agreement.

1.40 DISPUTES

All disputes between the Owner and Contractor shall be reviewed and resolved in a timely manner.

1.41 SUSPENSION OF WORK AND TERMINATION

The Township reserves the right to suspend the Work until all disputes between the Owner and Contractor are resolved.

1.42 CONTRACT AMENDMENTS/CHANGE ORDERS/NOTIFICATION/ CONCURRENCE

When necessary, the Owner or the Owner's Engineer will prepare for the Township's prior written approval Agreement amendments and change orders.

1.43 SITE CLEANLINESS

The Contractor shall confine construction equipment, the storage of materials and equipment and the operations of workers to the site and land areas identified in and permitted by the Plans and Specifications and other land and areas permitted by law, rights-of-way, permits and easements, and shall not unreasonably encumber the Work premises with construction equipment or other materials or equipment. The Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any adjacent land or areas, resulting from the performance of the Work.

1.44 SUBSURFACE CONDITIONS

Any utilities shown on the Plans are located according to the latest available information. The Contractor shall make a conscientious effort and shall provide reasonable assistance to the Township, and their representatives as may be required to verify the locations and/or elevations of all existing utilities, which may be affected by the proposed construction.

At points where the Contractor's operations are near the properties of railroad, telephone and power companies, or are near existing underground utilities, damage to which might result in considerable expense, loss or inconvenience, work shall not be commenced until all arrangements necessary for the protection thereof have been made by the Contractor.

The Contractor shall protect, shore, brace, support and maintain all utilities affected by his operations. The Contractor shall be responsible for all damage to utility properties or facilities and shall make his own arrangements satisfactory to the Owner, with the agency or authority having jurisdiction thereover, concerning repair or replacement or payment of costs incurred with said damage.

In the event of interruption to water or other utility services as a result of accidental breakage or as a result of being exposed or unsupported, the Contractor shall promptly notify the Township or other utility owner and shall cooperate with the Township and/or such Owner in the restoration of service. If water service or other essential service is interrupted, repair work shall be continuous until the service is restored. No work shall be undertaken around fire hydrants until provisions for continued service have been approved by the Township Fire Department.

1.45 WASTEWATER PUMPING STATIONS

All wastewater pumping stations to be operated by the Township will be designed by the Township's Engineer. However, if individual (private) pump stations (grinder pumps) are required and approved by the Township, they can be designed by the Owner's Engineer provided they discharge into a public gravity sewer.

1.46 FIRE PROTECTION SYSTEMS/FIRE HYDRANTS

The Township shall review/approve all fire protection systems except where an exception is authorized as is provided in the Water Rules and Regulations. All fire hydrants shall be on a public watermain operated by the Township. Easements will be required when the watermain and/or fire hydrants are on private property.

1.47 MASTER PLANS

The Township's watermain and wastewater collection system master plans shall be followed by the Owner's Engineer in the design of the Project. It is recommended that prior to any design being completed, that a meeting be scheduled with the Township to review these master plans.

1.48 ROOF DRAINS/FOOTING DRAINS/SUMP PUMP DISCHARGES

All buildings and other structures shall provide for positive points of discharge for roof drains, footing drains and sump pumps.

Roof drains, footing drains and sump pump discharges will not be permitted in the sanitary sewer.

1.49 EASEMENTS

All easements to be granted to the Townships will be on forms as provided by the Townships. All easements must be delivered to the Township Engineer prior to the commencement of construction. All easements are required to be recorded before water and/or sewer construction is given final approval.

See Appendix B for standard utility line easement forms and standard sidewalk easement forms.

1.50 RECORD PLANS

Record plans shall be prepared by the Township Engineer. The Owner's Engineer and the Owner's Contractor shall provide all field notes and the original AutoCAD drawings (compatible with the Township Engineer's computer software/hardware or as directed) including all .dwg files, .ctb files and any other digital files necessary to complete the record plans. A PDF file of each sheet shall be included.

Record plans shall be printed on Four mil double sided Mylar sheets and AutoCAD .dwg files (all digital files shall be compatible with the computer systems and software of the Township) and PDF's of each sheet shall be provided to the Township's construction observation representative by the Owner and/or the Owner's Engineer within one month after the date of final approval or connections or final acceptance, if required.

The record plans shall show all measurements and witnesses provided to the Owner's Engineer by the Township construction observers. The Owner shall be responsible to obtain surveyed rim and invert elevations for all sanitary sewer manholes. All record plan notes and linework added to the plans shall be AutoCAD color 16 (Red). Notes shall be in font ***Times New Roman*** – bold, italic, and shall have a height of 0.15. Shorter heights are appropriate for detail dimensions. The record plan notes shall be placed on each sheet in the set of record plans.

1.51 RECORD PLAN NOTES

The following notes shall be placed on each sheet in the set of record plans.

Record Plan Notes for Sanitary Sewer:

1. Uncover the lateral to verify the location and depth prior to any work on the building sewer. Notify Jamestown immediately concerning any variations from the information shown on the plans.
2. Lateral information shown as follows: (The E+ and X witnesses are based on measurements taken to a stake placed at the end of a lateral)

Y+ = Distance to wye along sewer main from downstream manhole

E+ = Distance along sewer main from the downstream manhole to a point where the end of the lateral is at 90 degrees to the main sewer

L = Length along the lateral pipe (including risers) based on horizontal measurements from the center of the sewer main.

X = Length from the E+ to the end of the lateral (including risers)

ER = Pipe length measurement of main line riser length from the top of main (typically placed at a 45 degree angle)

MLR = Pipe length measurement of main line riser length from the top of main (typically placed at a 45 degree angle)

3. Sewer laterals are 6-inch diameter PVC solid wall pipe unless otherwise noted on the plan.

Record Plan Notes for Water Services:

1. Water services are 1-inch copper unless otherwise noted.
2. Water service information is shown as follows:

T = Distance from tap to hydrant valve or main valve

L = Distance from main to curb stop

EP = Length of pipe beyond curb stop

3. Additional information may be found on the Water Service Record card.

EXCEPTIONS

Exceptions to these Standard Construction Requirements may be granted in writing by the Township Water and Sewer Administrator and/or the Township Engineer. Exceptions shall only be granted when applied for in writing and in circumstances where compliance with the Standard Construction Requirements is impossible or would cause extreme hardship. All requests for exceptions shall be in writing and signed by the Owner. The exception request shall include all relevant supporting documentation and information, including information supplied by the Owner's Engineer. The burden of proof shall be on the Owner to provide convincing proof that the exception is necessary because it is impossible to comply with the Standard Construction requirements or compliance will cause extreme hardship. Additional cost alone is not justification for the granting of an exception. If granted, the exception shall be granted in writing by the Township. The decision of the Township shall be final.

JAMESTOWN CHARTER TOWNSHIP

2380 RILEY ST. HUDSONVILLE, MI 49426
TELEPHONE: (616) 896-8376 FAX: (616) 896-7271

CERTIFICATION AND APPROVAL FOR WATER AND/OR SANITARY SEWER CONSTRUCTED

Project Name: _____

Section _____, Jamestown Charter Township, Ottawa County, Michigan

I hereby certify that _____ has designed the above named project on behalf
(Engineering Firm)
of the Developer. The design was completed in accordance with the Jamestown Charter Township
Standard Construction Requirements.

Exception(s): _____

Signed: _____ Date: _____
(Project Engineer)

I hereby certify that the work has been installed and completed for the above named project, that all
construction materials meet the approved specifications, and required testing was performed and
passed, in accordance with the Jamestown Charter Township Standard Construction Requirements.

Exception(s): _____

Signed: _____ Date: _____
(Inspection Supervisor)

Inspection Firm: _____

JAMESTOWN CHARTER TOWNSHIP

2380 RILEY ST. Hudsonville MI 49426

TELEPHONE: (616) 896-8376 FAX: (616) 896-7271

Warranty Bill of Sale

Improvements to the Jamestown Township water and sewer system have been made by an independent entity; _____, whose address is: _____, (hereinafter referred to as "Seller") for and in consideration of One (\$1.00) Dollar and other good and valuable consideration, does hereby grant, dedicate, transfer, and deliver to JAMESTOWN CHARTER TOWNSHIP, whose address is 2380 Riley Street, Hudsonville, MI 49426 (hereinafter referred to as the "Township"), the following utilities:

_____ (the "Improvement").

Seller hereby warrants and certifies to the Township that the Improvement has been acquired, constructed and completed in accordance with the Plans and Specifications of Jamestown Charter Township for the Improvement previously approved by the Township, with only those change orders approved in writing by the Township, and that no claim, action, or liability exists with respect to the Improvement and its construction and installation.

Seller further warrants and represents to the Township that it is the lawful owner of the Improvement, and that the Improvement is free of all liens and encumbrances of any kind. Seller further represents that it has the authority to transfer the Improvement and that Seller will warrant and defend the Township against all claims asserted by any entity or person arising out of the installation, construction and completion of the Improvement. Seller also warrants that the Improvement is free from defects in materials and workmanship. All warranties and guarantees pertaining to the Improvement are hereby assigned and transferred to the Township.

Dated: _____, _____.

Signatures:

(Township)

(Developer)

By: _____

Its: _____

By: _____

Its: _____

SECTION 2 CONTENTS

SPECIFICATIONS FOR EXCAVATING, TRENCHING, AND BACKFILLING FOR UTILITIES

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SECTION 2
SPECIFICATIONS FOR
EXCAVATING, TRENCHING, AND BACKFILLING FOR UTILITIES

2.01 DESCRIPTION OF WORK

The work shall consist of furnishing all materials, equipment, and labor for excavating, trenching, and backfilling for utilities. The work also shall include the necessary clearing, sheeting and shoring, boring and jacking, dewatering, pipe embedment, and other appurtenant work.

2.02 CLEARING, BRUSHING AND TREE REMOVAL

2.02.01 General

The contractor shall perform all clearing, brushing, and tree removal required for the proposed construction. Where indicated on the plans for a specific area, that area shall be completely cleared in accordance with Section 201 of the current MDOT Standard Specifications. Clearing and brushing shall be confined to the limits of the right-of-way, easements, and project site unless otherwise directed and shall be kept to a practicable minimum.

Trees marked "Remove" on the plans shall be taken down and removed from the right-of-way in a manner that does not endanger the adjoining property or persons or traffic using the right-of-way. Existing stumps and stumps of trees which are removed shall not be ground down but shall be completely removed.

Selective pruning of trees will be permitted to allow operation of the Contractor's equipment. Trees shall be pruned neatly, and the scars from pruning or other damage by the contractor's equipment shall be covered with a preservative.

2.02.02 Preservation of Trees

Because of the special concern for preservation of trees, all trees six (6") inches in diameter and larger, measured at a point 4 1/2' above the ground line at the base of the tree, which are to be removed have been marked on the plans. All other trees are to be preserved unless written permission for removal is obtained from the Owner and the Township. Where tunneling is necessary to preserve a tree, it shall be incidental to the construction. Trees that may have to be tunneled may or may not be specified on the plans. Where tunneling is necessary, excavation may have to be done by hand to prevent damage to the tree or to its roots. When tunneling or excavating close to a tree to be preserved, every effort shall be made to preserve the main roots.

2.02.03 Disposal of Debris

All trees, brush, and stumps from clearing and brushing operations shall be disposed of by the Contractor by hauling from the site, or other suitable means approved by the Township. The Contractor shall obtain the necessary burning permits and shall comply with the safety regulations required.

2.03 **REMOVAL OF SURFACE IMPROVEMENTS**

Surface improvements such as sidewalks, improved lawns, drives, curb and gutter, and all types of pavement shall be removed just prior to excavating or trenching operations. All improvements shall be cut at the expected trench width prior to excavating using suitable equipment, which does not damage the improvement outside of the trench area.

Concrete and bituminous pavement and drives shall be cut with a pavement cutting saw. The depth of the cut shall be the full depth of the pavement. Pavement crushers or breakers of any type are prohibited unless specifically authorized by the Township. Pavement, which is removed, shall not become mixed with backfill material. Power equipment may be used for pavement removal, provided that damage is not caused to improvements which are to remain.

2.04 **EXISTING UNDERGROUND UTILITIES AND STRUCTURES**

2.04.01 Location

The Contractor shall notify the owners of all underground utilities before starting any work. House sewer connections, water and gas services, irrigation lines and heads, and other utility lines may not be indicated on the plans. However, the Contractor shall make every effort to locate all underground utilities from information obtained from the utility owner or by prospecting in advance of trench excavation.

2.04.02 Replacement

Certain underground utilities, such as sewers, may require removal and subsequent replacement in lieu of supporting or bracing during the proposed construction, or the Contractor may elect this option when temporary provisions to maintain essential services have been previously approved by the Township.

Unless otherwise specified, any utilities removed during the proposed construction shall be replaced by the Contractor. Materials and installation shall be equal to or better than original construction in every way. Salvaged materials may be reused when they are in good condition, and a satisfactory installation can be accomplished in the judgment of the Township.

2.04.03 Relocation

Should any pipe or other existing utility require raising or lowering or moving to another location because of interference with the pipe or structure being constructed under these

specifications, such changes, which in the opinion of the Township are necessary, shall be made by the Contractor unless otherwise specified.

2.04.04 Reconnection

Where lateral services, house connections, or other pipe lines require reconnection to the proposed utility, as is the case when an existing utility is being reconstructed, the Contractor shall make these connections as specified or as shown on the plans.

2.04.05 Utilities to be Abandoned

When pipes, conduits, sewers, or other structures are removed from the trench leaving dead ends in the ground, such ends shall be fully plugged or sealed with brick and mortar by the Contractor. Abandoned structures such as manholes or chambers shall be entirely removed unless otherwise specified or shown on the plans.

All materials from abandoned utilities which can be readily salvaged shall be removed from the excavation by the Contractor. All salvageable materials remain the property of the Owner.

2.05 EXCAVATING AND TRENCHING

2.05.01 General

Excavating and trenching operations shall at all times be conducted in a safe, orderly manner using methods and equipment designed and suited to the intended use by personnel experienced in the work being performed.

None of the requirements or provisions specified herein or shown on the plans shall nullify or restrict any safety provisions required by any regulation or law governing the protection and/or safety of persons or property.

2.05.02 Width of Trench

The width of the trench shall be ample to permit the pipe to be laid and joined properly and the pipe embedment material and backfill to be placed and compacted as specified. Trenches shall be of sufficient extra width when required as will permit the convenient placing of trench supports, sheeting, and bracing.

2.05.02.01 Width of Trench for Rigid Pipe

In order to limit excessive loads on rigid pipe, the maximum width of trench for pipe 36 inches and larger in diameter shall not be more than twice the nominal diameter; for smaller sizes of pipe, the maximum width of trench shall be not more than three (3) feet greater than the nominal diameter of the pipe, except as otherwise specified or directed. The above limiting restrictions on trench width apply from outside bottom of pipe to outside top of pipe.

Where the width of trench within these limits exceeds the maximum limit specified, the Contractor shall install a heavier class of pipe or use other means to provide additional load-carrying capacity. Any changes in class of pipe or other variation shall be approved in writing by the Township before the work progresses.

2.05.02.02 Width of Trench for Flexible Pipe

Unless otherwise specified or approved by the Township, a minimum trench width of at least 18 inches on each side of the pipe for placement of select embedment material will be required.

2.05.03 Excavating to Grade

The trench shall be excavated to a depth required for the proper installation of the pipe and placing of the pipe embedment material as specified.

Any part of the bottom of the trench excavated below the specified subgrade shall be refilled with approved materials compacted to 95% of maximum unit weight in accordance with MDOT procedures. If additional excavation is required to correct unstable foundation conditions, the Contractor shall notify the Owner and agree on the cost prior to commencing work.

2.05.04 Sheeting, Shoring, Bracing, and Shelving

2.05.04.01 General

The Contractor shall brace or slope back the sides of all excavations in accordance with current MIOSHA and OSHA regulations. The Contractor shall be responsible for compliance to such regulations and for the design, installation, and maintenance of all excavation safety measures.

2.05.05 Rock Excavation

2.05.05.01 General

Wherever the word rock is used in these specifications, it shall mean boulders, solid ledge rock, and other minerals geologically placed and of a hardness when first exposed of three (3) or greater in scales of mineral hardness, which in the opinion of the Engineer requires continuous use of drilling and blasting or special power equipment for its removal.

Soft disintegrated rock which can be removed with a power-operated excavator or with hand tools and loose, shaken, or previously blasted rock and broken stone in rock fillings shall not be classified as rock.

2.05.05.02 Blasting

Where blasting is necessary, the Contractor shall obtain the required permits and licenses at his own expense. This work shall be done with due regard to the safety

of workmen, other people, and public and private property. The method of covering blasts, amounts of charges used, and the general procedure for doing this work shall conform to the standard practice and shall meet all requirements of local ordinances and other regulations and shall be subject to the approval of the Township.

2.05.05.03 Clearance

Rock shall be removed to provide a clearance for all pipes, appurtenances, or structures of at least six (6) inches below, and a minimum of six (6) inches on each side of the pipe, appurtenance, or structure.

The specified minimum clearances are the minimum clear distance which will be permitted between any part of the pipe or appurtenances being laid and any part, point, or projection of the rock.

2.05.06 Dewatering

The Contractor shall provide and maintain adequate dewatering equipment to remove and dispose of all surface and ground water, including water or sewage from exposed sewers or watermains, from all excavations and trenches, or other parts of the work. Each excavation shall be kept dry during the preparation of the subgrade and continually thereafter until the structure to be built or the installation of the pipe line is completed to such extent that no damage from hydrostatic pressure, flotation, or other cause will result.

Where work is in soil containing an excessive amount of water, the Contractor shall provide, install, and maintain suitable well points or wells connected to manifolds or reliable pumping equipment, or other suitable dewatering methods, and shall so operate the dewatering system to insure proper construction of the work. If the Contractor elects to use a trench underdrain or similar dewatering system, he shall receive prior approval of the Township as to location and installation methods for this type of system. The Contractor shall make every effort to prevent sand, sediment, or debris from entering any existing pipe line or conduit which he may use for drainage purposes. The repair or cleaning of drainage structures made necessary by the Contractor's operations shall be performed by and at the expense of the Contractor.

Arrangements for discharge of ground water into any public storm sewer shall be previously approved by the Township and/or the Office of the Ottawa County Water Resources Commissioner and/or the Ottawa County Road Commission.

2.06 **BORING AND JACKING**

2.06.01 General

Where so specified on the drawings, railroad tracks, streets, or other obstructions to be crossed by utilities shall be bored and/or jacked as hereinafter specified. These specifications describe the general method of conducting the boring and jacking operations and set forth minimum conditions. The location and details of the proposed installation will be shown on the Plans.

Unless otherwise specified, the Contractor shall be responsible for obtaining any permits required for the work under the right-of-way, or other facility to be crossed, and shall carry out the details of his work in a manner that will fully meet the requirements of the authority having jurisdiction over the facility affected. No interruption of traffic will be permitted, and the Contractor shall take all precautions to that effect.

2.06.02 Casing Method

When the casing method is specified, a casing pipe shall be jacked into place and a carrier pipe shall then be installed in the casing pipe. The casing pipe shall be jacked into place by approved methods that will provide accurate alignment and grade and that will allow the carrier pipe to be installed within the casing at the specified alignment and grade.

The carrier pipe shall be joined together to form a continuous run through the casing. It shall be supported on wooden or plastic shoes or blocks which shall be securely fastened to each piece of pipe. Three or more shoes or blocks are required to insure the carrier pipe does not come into contact with the casing pipe. Metal bands used to fasten shoes or blocks to the carrier pipe may not come in contact with the carrier pipe. The carrier pipe shall then be drawn or pushed through the casing.

Junctions with pipes at each end shall be made as shown on the Plans. After the carrier pipe has been inspected and accepted, the annular space between the carrier pipe and the casing pipe shall be filled with materials approved by the Township, such as peastone or flowable fill. After the casing pipe has been filled, the ends of the casing pipe shall be sealed as shown on the plans or in the specifications.

2.06.03 Jacking Pipe Method/Directional Bore

When specified or indicated on the Plans, the casing pipe to be jacked shall also be utilized as the carrier pipe. The pipe shall be jacked into place by approved methods that will provide accurate alignment and grade. Excavation shall be performed ahead of the pipe by working inside the pipe or shall be performed by boring machine with approved equipment suitable for the intended use.

2.07 **SUBGRADE**

The subgrade for pipe and/or structures shall be firm, dense, and thoroughly compacted and consolidated, free from mud and muck, and sufficiently stable to remain firm and intact under the feet of the workmen.

2.07.01 Unstable Foundation

When the soil beneath the normal pipe embedment area is soft or unstable, even with adequate dewatering, or in the opinion of the Township cannot support the pipe or utility, further depth of soil shall be excavated and replaced to the proposed grade with approved materials compacted in twelve (12) inch layers as specified in Section 2.08.05, or other approved means shall be employed to assure a firm foundation for the utility. The volume of unstable foundation removed and replaced with approved materials for which payment will be allowed shall be determined in cubic yards unless otherwise specified on the plan

or in the proposal. Said volume to be computed by assuming that the cross section area of the unstable foundation takes the form of a trapezoid as shown on the Standard Detail for Unstable Soil Removal for Utility.

2.07.02 Special Foundations

Where the subgrade at the bottom of the excavation consists of soil which is unstable or yielding to such a degree that, in the opinion of the Township Engineer, it cannot properly support the pipe or structure, the Contractor shall construct such additional foundation or reinforcement of the subgrade as may be specified, such as timber piling, geotextiles, or other means as approved by the Township Engineer to provide a proper foundation.

2.08 PIPE EMBEDMENT

2.08.01 General

Pipe embedment shall include the furnishing and placing of approved materials as specified or as directed from four (4) inches under the outside bottom of the pipe to twelve (12) inches over the outside top of the pipe. Various classes of pipe embedment may be specified or shown on the Plans or Standard details in which case the limits of the various types will also be specified.

2.08.02 Flexible Pipe Embedment

Flexible pipe is any pipe having a pipe stiffness of less than 200 psi. as defined under the requirements of ASTM Designation D-2412 (this includes all plastic pipe except Composite (Truss) pipe, and may include corrugated metal pipe, ductile iron pipe, and steel pipe, depending on pipe diameter and wall thickness).

Pipe embedment for flexible pipe shall be Class B. For pipes less than fifteen (15) inches in diameter, bedding material meeting the requirements of the current MDOT Standard Specifications for granular materials Class II, modified to 100% passing a 1" sieve shall be used. If stone is used for bedding, it shall be crushed and meet the requirements of Class I backfill modified to 100% passing a 1" sieve. Stone bedding must be placed at least up to the spring line of the pipe and must be wrapped in geotextile fabric. For pipes fifteen (15) inches in diameter and larger, bedding material meeting the requirements of the current MDOT Standard Specifications for granular materials Class I, modified to 100% passing a 1" sieve shall be used.

2.08.03 Class B Pipe Embedment

Unless otherwise specified or shown on the Plans, all pipe embedment shall be Class B pipe embedment as shown on the Standard details. When the soil in the bottom of the trench at pipe subgrade meets all the requirements for Granular Material Class II as specified in the current MDOT Standard Specifications Section 902.12 and in the opinion of the Township Engineer will provide suitable bedding for the pipe, such soil may be utilized as bedding material and prepared to receive the pipe as specified without undercutting and subsequent replacement.

2.08.04 Special Pipe Embedment

Various types of special pipe embedment may be specified or shown on the Plans in locations where special conditions require their use.

The Contractor shall perform all the work of constructing special pipe embedment where specified.

2.08.05 Placing Pipe Embedment Material

Pipe embedment material shall be placed in the bottom of the trench and shaped by hand to provide a firm and uniform bearing for the barrel of the pipe with additional shaping to accommodate the bells on bell and spigot pipe.

After each pipe has been graded, aligned, and placed in final position on the bedding material and jointing is complete, additional embedment material shall be carefully placed and compacted under and around each side of the pipe and over the pipe until it is completely covered by 12 inches of embedment material. Said material shall be distributed along both sides of the pipe uniformly and simultaneously to prevent lateral displacement of the pipe. All granular embedment material shall be compacted to 95% of maximum unit weight in accordance with MDOT procedures.

All of the work of placing pipe embedment shall be considered an integral part of installing the pipe and shall be completed immediately after the pipe is laid to the correct alignment and grade.

2.09 **BACKFILLING ABOVE PIPE EMBEDMENT**

2.09.01 General

All backfill material shall be free from cinders, pavement, ashes, refuse, sod, organic material, boulders, or rocks larger than six (6) inches in diameter, frozen material or other material which in the opinion of the Township is unsuitable. The soil excavated from the trenches shall be used for backfilling when it is classified as suitable by the Township Engineer and/or the Ottawa County Road Commission (in public street right-of-ways). If all or a portion of the excavated material is classified unsuitable for backfilling, the Contractor shall remove and dispose of the unsuitable material and shall furnish and place granular material meeting the requirements of Section 902.12 of the current MDOT Specifications for Granular Material Class II.

All backfilling and compaction shall be performed by the Contractor using methods and equipment approved by the Township.

2.09.02 Trenches Requiring Compacted Granular Backfill

Trenches and excavations in the following locations shall be backfilled with approved granular material meeting the requirements of the current MDOT Standard Specifications for Granular Material Class II:

- a. Improved areas, including drives, sidewalks, parking areas, around structures, manholes, etc.
- b. Within the limits of the roadway (within a 1 on 1 slope beginning two (2) feet from the edge of pavement or back of curb towards the right-of-way line).
- c. Within the limits of future improvements (shown on Plans).
- d. Within limits specified on Plans.
- e. All sanitary sewer lateral trenches.

All backfill within these areas shall be placed in layers not exceeding twelve (12) inches thick, and shall be compacted to 95% of maximum unit weight in accordance with MDOT procedures. Tests for compaction will be made by the Owner or other representative designated by the Owner at no cost to the Township.

When tests indicate a density which is less than that required, the methods or equipment being used shall be modified to obtain the density specified, and the section in question shall be recompacted until the required density is obtained. The cost of retesting shall be borne by the Contractor. Density testing shall be in accordance with Ottawa County Road Commission requirements.

2.09.03 Trenches Not Requiring Compacted Granular Backfill

Where not otherwise specified or directed, backfilling above the pipe embedment shall be made with material which is originally excavated, which is suitable. Backfill materials shall be consolidated by mechanical equipment working longitudinally in the trench, or by other approved methods, so as to be free of large voids with any excess material mounded over the trench or removed as directed by the Township. The trench shall be graded to a reasonable uniformity and left in a neat condition.

2.10 **DISPOSAL OF EXCESS EXCAVATION**

All excavated material in excess of that needed for backfill or that material classified as unsuitable by the Township, shall be disposed of by the Contractor and shall be incidental to the major items of work. However, the Township reserves the right to direct the Contractor to haul all or a portion of the material not required for backfilling to an area designated by the Township which is not more than 1,000 feet outside the project and which is reasonably accessible.

2.11 **LIMITATIONS ON OPERATIONS**

The Contractor shall at all times conduct his work so that there is a minimum of inconvenience to the residents and businesses in the vicinity of the project. To this end, he shall complete his backfill and remove all debris and unsuitable backfill to a point as close to the actual pipe installation as is practical and keep the area where the pipe construction and backfill has been completed in a neat condition. Open excavations shall be protected by signs, lights, barricades, and/or fences at all times when work is not

actually taking place at that excavation. The placement of excavated earth along the line of the trench shall be controlled by the use made of the street or right-of-way by the public and shall always be confined to approved limits.

Not more than 300 consecutive feet of street shall be closed at one time, and vehicular traffic through any street shall not be stopped for a period longer than two weeks without the written permission of the Township. Not more than one cross street shall be closed to vehicular traffic at the same time except by permission of the Township.

2.12 SOIL EROSION AND SEDIMENTATION CONTROL

The Contractor shall conduct his operations in such a manner that all soil is confined within the project limits and prevented from entering storm sewers, water courses, rivers, lakes, reservoirs, or wetlands.

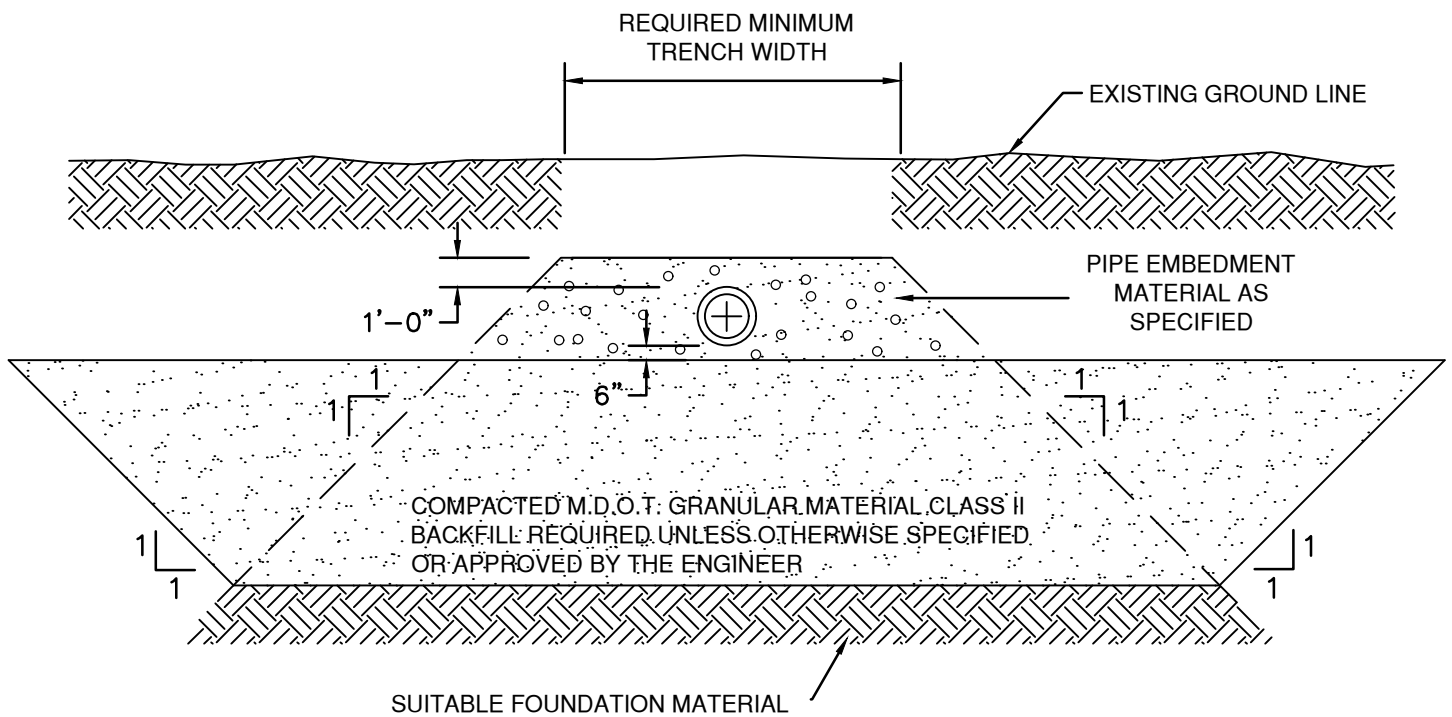
The Contractor shall place a filter or barrier composed of straw, stone or other approved material around all catch basins or other inlets to the storm sewer or drainage courses to prevent sedimentation in these structures. After the construction operations are completed, the Contractor shall remove these filters and clean all the sediment and debris from the catch basins, ditches, or other storm sewer structures.

Soil erosion and sedimentation control measures if indicated on the plans are considered as minimum requirements and are not to be considered as complete and all-inclusive. Additional control measures as may be required due to circumstances or conditions at the time of construction or as directed by the Ottawa County Water Resources Commissioner, or the designated Soil Erosion Control agency, shall be placed as required to insure conformance with the Part 91 of PA 451 of 1994. Deviations from or additions to the erosion control measures shown on the plan shall be subject to the approval of the Township or enforcing agency.

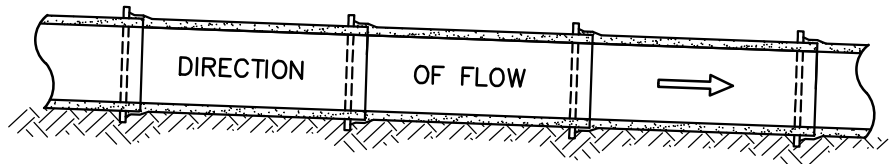
The cost of this work and other control measures which may be required or directed by the Township shall be incidental to the cost of the project unless specific items have been provided in the proposal.

2.13 STREAM CROSSINGS

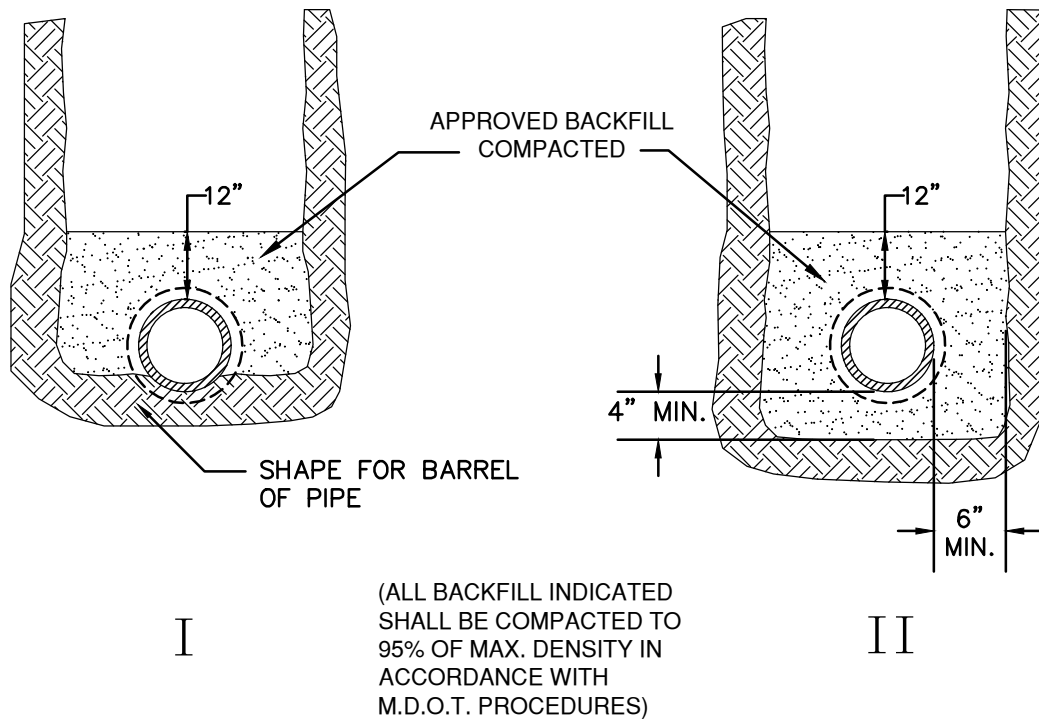
The rules and regulations concerning Inland Lakes and Streams Part 301 of Act 451, shall govern all stream and river crossings. Three (3) feet of cover to top of pipe (depth below firm bottom) shall be required.



UNSTABLE SOIL REMOVAL FOR UTILITY



EXCAVATION FOR BELLS



NOTE:

1. METHOD I SHALL BE USED IN AREAS OF UNCONSOLIDATED SOILS.
(SAND, GRAVEL, ETC.)
2. METHOD II SHALL BE USED IN AREAS OF CONSOLIDATED SOILS.
(CLAY, HARDPAN, ROCK, ETC.)

CLASS B PIPE EMBEDMENT

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SECTION 3

SPECIFICATIONS FOR SURFACE RESTORATION

3.01 GENERAL

All areas within existing rights-of-way, easements, and adjacent areas disturbed by construction operations shall be restored to the original condition thereof as determined by the Township using information from plans, surveys, and photographs or video tapes when available.

3.02 GRADING

All existing streets, walks, and other improved surfaces disturbed by construction operations shall be replaced to uniform lines and grades established by the Owners Engineer. The finish grade line will be established within three (3) inches of the existing ground profile shown on the plans unless a proposed grade is shown which indicates otherwise.

The Contractor shall perform all grading, compacting, shaping, and related work required to prepare the subgrade to the satisfaction of the Township. The cost for preparing the subgrade as specified herein shall be incidental to the cost of the project, and no specific payment will be made therefore.

3.03 ROADWAY EARTHWORK AND SUBBASE

A. Roadway Earthwork

Unless otherwise specified or shown on the Plans, roadway earthwork shall conform to Section 205 - Roadway Earthwork of the current MDOT Standard Specifications unless otherwise specified. Roadway earthwork shall be suitable granular material salvaged from the project or contractor furnished borrow. The material shall be granular material Class II or III as specified in the current MDOT Standard Specifications.

B. Subbase/Base

Unless otherwise specified or shown on the Plans, subbase shall conform to Section 301 of the current MDOT Standard Specifications. A minimum of 12" sand Class II subbase and 8" gravel MDOT 22A base is required on local residential roads. A minimum of 18" sand Class II subbase and 8" gravel MDOT 22A base is required on industrial, commercial, primary, and major arterial roads.

ROADWAY REPLACEMENT SPECIFICATIONS**A. Replacement for Crossing Existing Streets**

The replacement roadway cross-sections shall be determined by the Ottawa County Road Commission. At a minimum and for private streets, the replacement cross-section shall be repaved with 330# per square yard of hot mix asphalt placed in two lifts (165#/s.y. MDOT 13A, 165#/s.y. MDOT 13A, with bond coat between asphalt lifts) with 6" MDOT 22A gravel base and 12" sand Class II subbase. The sand and gravel shall be placed upon completion of the utility installation.

MDOT standard Marshall or Superpave Mixtures may also be considered and must be approved by the Township Engineer and/or Ottawa County Road Commission.

B. Requirements for Open Cut Streets

- 1) Absolutely no open cut of pavement will be allowed without proper notification and required permits written.
- 2) Pavement shall be cut back so that patch is six (6) inches wider than trench opening.
- 3) Edges of existing pavement will be saw cut perpendicular to centerline.
- 4) Local and subdivision streets; public or private, will have an asphalt base completed within 24 hours.
 - a) 22A gravel base six (6) inches wider than the asphalt pavement or as directed by the Ottawa County Road Commission in the case of a public street or by the Township Engineer in the case of a private street.
 - b) Construction signs must remain until the top course of asphalt is placed.
- 5) Primary and arterial streets will have all disturbed pavement areas repaired with base course of asphalt the same day of construction.
 - a) 22A gravel base six (6) inches wider than asphalt pavement or as directed by the Ottawa County Road Commission.
 - b) Construction signs will be erected and will remain until cleanup is completed.

All work within existing public street rights-of-way requires that the Contractor obtain a permit from the Ottawa County Road Commission.

Deviations from this policy will only be considered when it can be demonstrated there would be no adverse effect on the traveling public. In this case the Contractor will provide maintenance at adequate intervals guaranteeing a smooth crossing. Should this become deficient in any way the asphalt patch will be placed immediately.

CONSTRUCTION OF ASPHALT STREETS

Asphalt streets shall be constructed in accordance with the typical section shown on the plans. All work shall be in accordance with the Ottawa County Road Commission Standards.

3.05.01 Materials

Aggregate base for asphalt streets shall meet the requirements of 22A in Section 902 of the current MDOT Standard Specifications. Asphalt mixtures for base, leveling, and surface courses shall be as specified, and shall conform to the requirements of Section 501 of the current MDOT Standard Specifications or with the requirements of the Ottawa County Road Commission. Materials for prime coat and bond coat shall be as specified in Section 502 of the current MDOT Standard Specifications.

3.05.02 Construction Methods

Aggregate base for asphalt streets shall be placed in accordance with Section 302 of the current MDOT Standard Specifications.

Asphalt mixtures shall be placed in accordance with the applicable portions of Section 501 of the current MDOT Standard Specifications. For placement of valley gutters, pavers shall be equipped with an extension to the vibrating screed adjustable to fit the typical section shown on the plans.

The Contractor shall not place the aggregate base course until the subgrade has been approved by the Ottawa County Road Commission in the case of a public street or the Township Engineer in the case of a private street. The Contractor shall not place the first asphalt course and each successive asphalt course until the underlying aggregate or asphalt course has been approved by the Ottawa County Road Commission or the Township Engineer in the case of a private street.

3. 06 REPLACEMENT OF CONCRETE AND ASPHALT IMPROVEMENTS (other than roadways)

The Contractor shall replace all concrete sidewalks, drives, curb and gutter, and all other pavements removed during the installation of the utility or damaged by the Contractor.

3.06.01 Materials

Concrete sidewalks and driveways shall conform to current MDOT Specifications Section 803. Concrete is to be six sack limestone mix and shall be air entrained.

3.06.02 Construction Methods

The thickness of the concrete shall be the same as the concrete adjacent to the trench but shall not be less than four (4) inches. The alignment and grade and the contour and finish of the surface shall be the same as the concrete adjacent to the trench unless otherwise directed by the Township.

Pavements, walks, and drives shall be sawed at the edges of the trench or removed to existing joints. The depth of the saw cut shall not be less than the full depth of the concrete.

The forms and joints and the methods of placing, curing, and protection shall be consistent with standard practice and shall meet all the requirements of the current MDOT Standard Specifications for the various items.

3.06.03 Asphalt Driveway and Sidewalk Replacement

Asphalt driveway and sidewalk replacement shall be replaced at a thickness equal to the existing adjacent to the trench but not less than one and one-half (1 ½) inches of MDOT 13A asphalt base and one (1) inch of MDOT 36A asphalt top over six (6) inches of MDOT 22A gravel compacted in place.

3.06.04 Gravel Driveway Replacement

Gravel driveways disturbed during construction shall be replaced with six (6) inches of MDOT 22A compacted in place.

3.07 TURF RESTORATION

All areas of established turf shall be replaced as nearly as possible to their original condition as determined by the Township. Turf restoration shall begin as soon as possible after final grading of the areas designated for turf establishment.

The Contractor shall be responsible to produce a healthy, uniform, close stand of grass, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 square feet and bare spots not exceeding 5 by 5 inches unless prior turf conditions were less than this standard. In that case, the Contractor shall be responsible to restore the turf to the pre-construction condition.

3.07.01 Topsoil

Topsoil shall be placed four (4) inches in depth over all turf areas disturbed by the Contractor's operations. The subgrade shall be graded to conform to the adjacent contours prior to placement of the topsoil and shall be approved by the Township prior to placing topsoil. The topsoil shall then be placed in accordance with Section 816 of the current MDOT Standard Specifications.

Existing topsoil, where available and suitable, shall be stripped, salvaged, and used for replacement. Any new or salvaged topsoil shall match existing conditions as nearly as possible or at a minimum conform to current MDOT Specifications Section 917.

3.07.02 Fertilizer

After the topsoil has been placed, it shall be fertilized with a good grade of chemical fertilizer at the rate of two (2) pounds of available nitrogen per 1,000 square feet.

Fertilizer shall be applied just before the placing of the seed to retain its full benefit before unfavorable weather can cause deterioration.

3.07.03 Seeding

All lawn areas to be seeded shall be seeded with MDOT Class A seed. Other areas disturbed by the Contractor's operations shall be seeded with MDOT THM Roadside seed. Seed mixtures, application rates, and methods shall be in accordance with Section 816 of the current MDOT Specifications.

Seasonal limitations on seeding in Section 816 of the current MDOT Standard Specifications are waived.

3.07.04 Mulching

All seeded areas shall be mulched immediately following the seeding. Mulching material shall be applied to all newly seeded areas at a rate of two (2) tons per acre and in accordance with the requirements of Section 816 of the current MDOT Standard Specifications.

Where stated on the plans or approved by the Engineer, mulch blanket shall be installed. Overlap blanket edges by 2 inches and shingle lap blanket ends with a 6-inch overlap. Place 6" wood pegs along joint edges and blanket centerlines no greater than 24 inches apart. Contractor shall be responsible to repair or replace blanket damaged by foot or equipment traffic, wind, erosion, or other causes.

3.07.05 Hydro Application

All fertilizing, seeding, and mulching shall be applied by an approved hydroseeding process. The Township may allow a broadcast application method in areas requiring reseeding or in areas not accessible to a hydroseeder. Separate loose straw mulch is prohibited on residential lawn areas.

3.07.06 Reseeding

Seeded areas that do not show uniform germination as determined by the Township within 3 weeks of installation shall be reseeded. Parts of the seeded area that fail to show uniform development shall be reseeded until the Contractor produces a uniform close stand of grass, free of weeds. The Township may allow a broadcast application method in areas requiring reseeding.

The Contractor shall roll, regrade, and replant bare or eroded areas and re-mulch to produce a uniformly smooth turf.

3.07.07 Sod

Sod shall be placed only where required by the Township or as noted on the plans or specifications.

All sod shall be nursery grown, conforming to MDOT requirements for Class A. Sod shall be approved by the Township prior to placing and shall be placed in accordance with the requirements of Section 816 of the current MDOT Specifications. The base on which the sod is to be laid shall consist of a minimum of four (4) inches of topsoil placed and fertilized in the same manner required for seeding.

3.07.08 Acceptance

The Contractor shall maintain the turf until the Township is satisfied the above requirements have been met and a good stand of weed-free grass has been established and mowed three times.

The Contractor shall make all efforts to protect the restoration areas from damage by a third party, vandalism, or any natural cause. Any damage caused by the property owner or failure on the part of the property owner to properly care for the restored lawn area prior to the Contractor achieving an acceptable lawn of weed-free grass shall not be the responsibility of the Contractor.

3.08 TREE/BUSH REPLACEMENT

Replacement trees and bushes shall be the size and type specified in the Proposal. Transplanting replacement trees/bushes shall be in accordance with Michigan Department of Transportation Specifications 815 "Landscaping". The Contractor shall replace transplanted trees/bushes that are not in a vigorous growing condition one year after transplanting. Unless otherwise noted, tree/bush replacement is a pay item unless unnecessarily removed by the Contractor through carelessness.

3.09 UNDERGROUND SPRINKLING EQUIPMENT

The Contractor shall take all necessary precautions to locate and preserve underground sprinkling lines, valves, and heads along with curb stops and valve boxes prior to and during construction. Any underground sprinkling equipment disturbed, damaged, or destroyed by the Contractor shall be replaced at the Contractor's expense.

All underground sprinkling equipment shall be replaced in a timely fashion so as to minimize damage to lawn areas. The Contractor will be responsible for any lawn damage caused by delayed repair or replacement of disturbed, damaged, or destroyed underground sprinkling equipment.

3.10 FENCES

Fences which are removed for construction or disturbed, damaged, or destroyed by the Contractor shall be replaced with equal or better materials and shall match the size and style of the existing fence unless otherwise noted on the construction plan.

3.11 CULVERTS

Culverts that are removed may be reused if they are determined to be in sound condition by the Township Engineer. If it is determined in the sole opinion of the Township Engineer that the culvert is damaged it shall be replaced with a culvert the same diameter and meeting a minimum of ASTM C76 Class III concrete pipe. If it is determined by the Township Engineer that a culvert requires additional strength the Township Engineer shall designate the pipe material to be used.

3.12 SEWER LATERALS/WATER SERVICE TRENCH RESTORATION

Sewer lateral and water service trench restoration shall be repaired and replaced as often as necessary until settlement has stopped.

3.13 SCHEDULING OF RESTORATION WORK

Initial restoration (rough grading, temporary aggregate if necessary, removal of excess excavated material and debris) shall be done each day to the extent necessary to allow the movement of local traffic and permit access to all properties for emergency vehicles. Maintenance of streets, drives, sidewalks, etc. shall be the responsibility of the Contractor (including dust control, grading, stabilization, etc.) until the restoration is complete and has been accepted by the Township.

Restoration of each street or section of utility line shall follow the construction in a timely fashion so as to minimize inconvenience to the adjacent property owners and the general public. The manner in which this restoration is done by the Contractor will be a determining factor in the approval by the Owners Engineer of staking requests and partial payment requests.