

**TATE MONROE WATER ASSN., INC.
CONSTRUCTION & MATERIAL SPECIFICATIONS**

GENERAL – APPLICABILITY OF CONSTRUCTION SPECIFICATIONS

The Construction Specifications shall be directly applicable to the work to be done under all contract divisions.

WATER MAINS, VALVES, AND APPURTENANCES

SECTION 1 – General

1.1 Contractor shall sterilize and place into operation the water main and appurtenances necessary to provide a workable system as indicated by the plans and these specifications. All areas affected by construction shall be completely restored.

SECTION 2 – Excavation, Backfill, and Resurfacing

2.1 Excavation

Excavation shall be of sufficient width and depth to provide adequate room for the construction or installation of the work to the lines, grades, and dimensions called for by the drawings.

In the case of the bottom of the excavation is unsuitable as a foundation, it shall be further excavated and prepared by depositing in the bottom of the trench 2500 psi concrete, gravel or crushed stone or slag, sand or other suitable materials as the Engineer may direct.

No open trenches shall be left at the end of the working day. Barricades and flagmen shall be provided as required to maintain safety.

2.2 Rock Excavation

All excavation will be unclassified. **It is the prospective Contractor's responsibility to determine the location of all rock within the limits of this project.** Contractor shall include the extra cost of all rock excavation in unit price bid for installing Water Mains.

Contractor shall also include cost of 5" of sand bedding where rock is encountered in the unit price bid for Furnishing & Installing Embedment Material. Normal depth of bury is 48" to top of pipe. When rock is encountered, pipe may be raised to a minimum of 36" of cover over top of pipe if approved by Engineer. If rock is encountered at normal laying depths, 5" of sand bedding is required. Rock shall not be used in backfill material.

2.3 Backfilling Trenches

The space under and around the pipe shall be backfilled with excavated materials of Class 1 or sand, gravel, unless otherwise shown on the Plans. The backfilling material shall be thoroughly compacted as it is placed, taking care to prevent displacement of the pipe or injury to the joints. It should be carried to a depth of at least one (1) foot over the top of the pipe. The remainder of the trench may be backfilled with any of Class 3.

Such backfill materials shall be compacted by tamping, flooding or other means of reducing further settlement. In paved streets, alleys or driveways, the upper twelve (12) inches of backfill shall consist of thoroughly tamped gravel, crushed stone or slag. In unpaved streets, alleys, or driveways, the upper twelve (12) inches of backfill may be of the same materials as the original surface.

The Contractor shall backfill excavations/pits made for boring under roadways with Class 2 material. The backfill shall be mechanically compacted in 24" lifts.

The Contractor is responsible for protecting the safety of persons, animals, and equipment by limiting the amount of unfilled trench and installing warning flares and barricades where required. Trench width shall not exceed 30" to preserve road surfaces as much as possible. The Contractor shall keep the Owner free from liability and from damages resulting from excavation and other phases of the work. Private ditches, fences, driveways, culverts structures, etc., affected by construction shall be repaired to the satisfaction of their respective property owners at the Contractor's expense. The Contractor shall maintain all trenches and road cuts to prevent settling for a period of one year following substantial completion. Blacktop repair of public roads shall be backfilled with granular material, 12" compacted stone base and resurfaced with three inches of bituminous cold mix properly tamped and installed to the satisfaction of the agency having jurisdiction. Cost of repair to private drives will be included in the unit price.

2.4 Excavated materials used for backfill shall be classified as follows:

Class 1: Class 1 materials shall consist of soils equal to sand or fine gravel, of which no particle shall be over two inches in diameter.

Class 2: Class 2 materials shall consist of those free from pieces of rock, concrete or clay lumps larger than one cubic foot in volume, roots, stumps, tin cans, rubbish, frozen materials, etc., whose presence in the backfill would cause excessive settlement.

Class 3: Class 3 materials shall consist of any excavated materials falling between the requirements of Class 1 and Class 2.

Sand Gravel: Sand gravel shall consist of sand, gravel, or any approved mixture of sand, gravel, stone or slag screenings, in which there shall be 10% or more sand than there are voids in the course material. No particles of course materials shall exceed two (2) inches in diameter.

2.5 Areas affected by construction along edges of public roadways shall be totally backfilled with compacted granular material. The cost for this should be included in the unit bid price

for Installing Water Mains unless specific bid items have been established to address the item.

SECTION 3 - Distribution Piping and Installation

3.1 Ductile Iron Pipe

Cast Iron Pipe shall meet Spec ANSI A21.50 and A21.51. The wall thickness of the pipe shall not be less than Class 350 or as required by the plans and proposal sheets. Pipe shall be cement lined inside and bituminous coated inside and out in accordance with the Federal Spec., minimum thickness 1/16 inch, maximum thickness 3/16 inch. Pipe shall be slip joint as manufactured by U.S. Pipe, Clow or American Pipe. Pipe shall meet AWWA specification C151.

3.2 Pipe Fittings

All fittings (unless noted otherwise on the drawings) for cast iron (grey or ductile), cement asbestos, or PVC main line piping shall be ductile iron in accordance with Specifications ANSI/AWWA C153/A21.53 and ANSI/AWWA C111/A21.11. Fittings are cement lined and seal coated per ANSI/AWWA C104/A21.4. Payment for fittings shall be included with the unit price per lineal foot of pipe.

All bends shall be properly anchored by pipe restraints and concrete thrust blocks of sufficient size and not to exceed a soil pressure of 2 tons per square foot. This blocking shall be installed prior to backfilling and testing. (See Standard Detail Sheet) In addition, all tees shall be similarly anchored.

3.3 Installation of Ductile Iron Pipe

In unloading pipe from cars and in all subsequent handling of the pipe, care shall be exercised so that at no time shall the pipe be subject to possible damage to pipe coating either on the inside or outside of the pipe. Care shall meet recommendations of the pipe manufacturer.

Proper implements, tools and facilities satisfactory to the Engineer shall be provided for the safe and convenient prosecution of the work. All pipe, fitting, valves and hydrants shall be carefully lowered into the trench piece by piece by means of derrick, ropes, or other suitable tools, or equipment, in such manner as to prevent damage to pipe or pipe coating. Under no circumstances shall pipe or accessories be dropped or dumped into the trench.

Before lowering and while suspended, cast iron pipe shall be inspected for defects and rung with a light hammer to detect cracks. Any defective, damaged, or unsound pipe shall be rejected.

All foreign matter of dirt shall be removed from the inside of the pipe before it is lowered into its position in the trench, and it shall be kept clean by approved means during and after laying.

Cutting of pipe for inserting valves, fittings, or closure piece shall be done in a neat Workmanlike manner without damage to the pipe or coating.

Wherever necessary to deflect pipe from straight line, either in the vertical or horizontal plane, to avoid obstructions, to plumb stems or for other reasons, the degree of deflection shall not exceed the recommended maximum deflection of the pipe manufacturer or as directed by the Engineer. Under no circumstances will a deflection be permitted out of a valve.

3.4 Plastic Pipe Materials and Installation

Plastic pipe shall be type PVC (Polyvinyl Chloride) C900 or 905, CL200 or greater with gasket joints for the specified working pressure at 73F. Pipe shall be labeled as to material, pressure, size, service, manufactures date of manufacture, and the NSF approval seal.

Pipe shall be similar to that manufactured by NAPCO Manufacturing, Certaineed Products, JM Industries, or approved equal. Manufacturing tolerance for pipe and exteriors and fitting interiors shall be not less than ASTM D 2241, the u.s. Department of Commerce Standards PS 22-70 and CS 256-63 for PVC 1220.

In certain areas higher strength pipe may be required as indicated on the drawings. Higher strength pipe shall meet all applicable parts of these specifications, and also meet thickness diameter ratios and pressure ratings of the SDR numbers called for on the proposal sheets. Minimum wall thickness for any PVC pipe shall be .097 inches.

Plastic pipe shall be installed in accordance ith the manufactures published instructions. Pipe shall not be installed directly on rock but in such areas shall be cushioned with five inches of sand bed. No stone, clods, frozen soil or debris shall be used in the backfill.

Tees for service lines or laterals must be assembled so that no strains is placed on the pipe during or after the backfill operation. Pipe restraints and concrete anchors or thrust blocks shall be provided at all hydrants, valves, bends, tees, plugs and reducers or fittings. Thrust blocks shall be sized not exceeded 2 tons per square foot soil pressure. Blocking shall be installed prior to backfilling, filling the line, and testing (see Standard Detail Sheet.)

The plastic pipe must be handled with reasonable care so that it is not crimped or damaged when placed in the trench.

The gasket joint is a single rubber gasket joint designed to be assembled by the positioning of a continuous, molded, rubber ring gasket in an annular recess in the pipe or fitting socket and the forcing of the plain end of the entering pipe into the socket, thereby compressing the gasket radially to the pipe to form a positive seal. The gasket and the annular recess shall be so designed and shaped that the gasket is locked in place against displacement as the joint is assembled. Details of the joint design and assembly shall be in accordance with the joint manufacture's standard practice. The joints shall be designed so as to provide for thermal expansion or contraction experienced with total temperature change of at least 75 F in each joint per pipe length.

Lubricant furnished for lubrication joints shall be nontoxic, shall not support the growth of bacteria, shall have no deteriorating effects on the gasket or pipe material and shall not impart color, taste or odor to water. The lubricant containers shall be labeled with the manufacturer's name.

Gaskets shall meet applicable requirements of ASTM D – 3139 and F-477.

Gasket dimension shall be accordance with the manufacture's standard design dimension and tolerance. The gasket shall be of such size and shape as to provide an adequate compressive forces against the spigot and socket after assembly to effect a positive seal under all combinations of joint gasket tolerances. The trade name or trademark, size, mold number, gasket manufacture's mark, and year of manufacture shall be molded in the rubber on the back of the gaskets.

Gaskets shall be vulcanized natural or vulcanized synthetic rubber. No reclaimed rubber shall be used. When two hardness of rubbers are included in a gasket, the soft and hard portions shall be integrally molded and joined in a strong vulcanized bond. They shall be free of porous areas, foreign material, and visible defects.

3.5 Marking of all PVC Pipe

Markings on the outside of the pipe shall be in accordance with ASTM D – 2241.

3.6 PVC Pipe Tractability

The contractors shall furnish and install #12 THHN Tracer Wire continuous along all PVC piping systems. Tracer wire will be brought up through all gate valves and watch valves. If this exceeds 500 feet then the contractor shall also furnish and install curb boxes every 500 feet over the water main. At each box, the wire shall be brought up within one foot of the surface and main. The cost work of wiring and box installation shall be included in the unit pipe price.

3.8 Installation Requirements for all Pipe

No pipe shall be laid in water, or when the trench conditions or weather is unsuitable for such work, except by permission of the engineer. At times when pipe laying is not in progress, the open ends of the pipe shall be closed by approved means, and no trench water shall be permitted to enter the pipe. It shall be borne in mind that precautions must be taken to prevent empty pipe from floating, should the trench become flooded before backfilling has been completed.

SECTION 4 – Hydrants and Valves

4.1 Hydrants and gate valves shall be provided with standard mechanical joint connections. M.J. anchor tees and 24 inch hydrant adapters shall be used. They shall conform to the latest standards of the AWWA and the Standard Detail Drawing.

Breakable type hydrants shall be installed where hydrants are shown upon plans. They shall be the product of Kennedy Valve, Hydrants, M&H Valve Company, U.S. Pipe, AM Darling, or approved equal. Hydrants shall have a direct operating drain valve.

After being installed, the hydrants shall be painted with two (2) coats, using Tate Monroe. blue paint.

Setting heights shall be standard for each size and be in accordance with manufacturer's published recommendation.

Main or branch line flushing hydrants shall be as indicated on the Standard Drawings. Hydrants shall be installed with gate valve, box cover, and concrete thrust blocks. Gate valves shall be furnished of the one sizes shown and installed at the locations indicated upon the plans. All valves shall be installed complete with valve box and cover. Gate Valve settings shall conform to the detail drawings. Contractors are urged to study gate valve installation on plastic lines carefully and must conform with the detail drawing. They shall not be set in the middle of yards or cultivated fields.

All gate valves, two inches and larger, shall conform with the latest specifications for valve of the American Water Works Association, (and shall be Kennedy 4571X, M.J. resilient seat type, or approved equal)

4.2 Setting Hydrants

All hydrants shall stand plumb, and shall have their nozzles parallel with or at right angles to the curb, with the pumper nozzles at any angle 45 degrees shall be set normal to the curb. They shall conform to the established grade with nozzles at least twelve inches above the ground. Hydrants shall be set near fence lines, poles or property corners. They shall not be set in the middle of yards or fields.

Each fire hydrant shall be connected to the main six-inch branch. Hydrants shall be set in a drainage pit two feet in diameter and two feet deep which shall be excavated below each hydrant and filled compactly with coarse gravel or broken stone mixed coarse sand, under and around the bowl of the hydrant and to a level six inches above the opening.

4.3 Gate Valve Boxes

(6" DIA, CL 160 may be used with C.I. cover)

Boxes shall be tough, close grained, gray cast iron free from defects, and shall be coated as specified for cast iron pipe. They shall have suitable bases to fit around valve bodies without bearing on them. Barrels shall be made telescopic for adjustment and shall have minimum inside diameter of five inches. They shall be designed for the depth of trench indicated. Top section shall have a flange for holding it in position. Covers shall be recessed flush with top and shall be marked "water" in raised letters. Barrel shall be installed and maintained concentric with valve operating nut. Concrete ring shall be installed around barrel as required to maintain barrel in place. Box, cover, and concrete shall be included in valve unit price bid.

SECTION 5 – Service Meter Enclosures and Lids

5.1 Master, Main Line, or Service Meters

Main line or service meter installations larger than 1” shall be provided as indicated on the drawings. Each station shall be bid separately as a complete package under a unit price item.

5.2 Service Meter Enclosure and lids for 5/8” through 1” meters

Tile shall be Midstate, 18” in diameter inside by 30” long with two (2) four inch high by three inch wide minimum slots at the bottom. (or approved equal).

Lids for round tile should be 4” deep with 11 ½” lid opening, cast iron similar to Ford Meter Box Company, Type C, No. C32. Lifter lock bolts shall be standard water works pentagon. Six lifter keys shall be furnished to the owner at no additional cost.

5.3 Service Meter Settings

A unit price bid is required for providing of the previous specified meter enclosure, meter setter and meter as a unit. Base for meter enclosure shall be clean, washed gravel a minimum of two feet deep and extended beyond outside of enclosure six inches on all sides. Cost of providing gravel shall be included in the unit price for the meter setting. The setters and enclosures shall be set and maintained in a vertical position. Backfill around enclosures shall be tamped in 6” layers to prevent settlement and present a finished installation to maintain good public relations with the water consumers. Meter lid shall be flush grade.

The Contractor shall contact the water consumer as the exact location of the meter along his property. However, no meter is to be installed more than five feet beyond a user’s property line parallel to the main without written authorization of the water utility. The Contractor shall verify all meter installation locations with utility whether they are shown or may be required at the time of construction.

Services shall be completed from the main to outlet of the setter before pressure testing, sterilization, and flushing. However, meters shall be removed during flushing operations.

The Contractor shall install on the customer’s side of the meter setting 1” PE, CL, 200, terminating four feet (field conditions permitting) beyond the centerline of the enclosure at 32 inches below grade. Tile cost of this installation shall be paid as service main per bid schedule. Pipe end shall be corked or otherwise protected to keep out mud and sediment.

5.4 Service Taps

Service line taps to the main shall be made to the pipe manufacture’s standard tapped coupling, or by bronze service saddles similar to Ford 90 series for C900 pipe, Ford 70 series for all other PVC pipe, or Ford 202 series for Cement Asbestos pipe. The unit price bid, items for service taps, shall include all materials from the main to the PE service line as indicated on Standard Detail Drawing. Corporation stop shall meet AWWA C800 specs. It shall be 1” F-1000 or approved equal.

Service main shall be 1" C.T. size or high density polyethylene water service pipe suitable for use with standard flared brass fittings or compression fittings similar to "Haystite" with Angle Grip Seal, (includes stainless steel stiffener).

Pipe shall conform to all the requirements of the specifications for polyethylene (PE) plastic tubing, as they apply to PE 3408 in ASTM Designation D-2737. The hydrostatic design stress shall be 630 psi for water 73.4 F. with Dine dimension ratio of SDR 9 for 200 psi working pressure.

It shall be labeled with the NSF seal of Approval. Contractor shall follow the recommendation of the manufacturer for flaring and installation.

5.5 Marking on tubing at five foot intervals shall show: size, type of materials, pressure rating, ASTM designation, manufacture's name.

5.6 Tubing shall be rejected for failure to meet tests specified in ASTM D 2737.

5.7 Meter Setters

Meter setters shall be Ford 170 Series or equal, VBCH-72-15W-44-44, for 5/8" x 3/4" meter, or VBCH-74-15W-44-44 for 1" meter, with ball valve, dual check valve, and padlock wings. Meter setter shall have brace eye.

5.8 Water Meter Specifications

Water Company will provide all required water meters, at no cost to Contractor. Contractor will provide all required labor and material to set meters as specified.

SECTION 6 – System Pressure Testing

6.1 Contractor shall provide system testing in accordance with AWWA C-600 as follows:

1. Fill Pipe with water until all air is exhausted. (Air shall be vented through hydrants, meter settings or manual air release valves installed for this purpose.)
2. Raise pressure to rated working strength of pipe plus 50 psi by means of pumping from container. We use 1.5 times the working pressure.
3. Refill container and maintain pressure for 4 hours.
4. Measure water required to refill container to pretest level.

Leakage rate shall not exceed the AWWA Standard Table 22.

Leak repair and retesting shall continue until the leakage standard is met.

There will be no additional payment for this work as it is to be included in the unit price for water mains.

SECTION 7 – Disinfection of Pipe Lines

- 7.1 Disinfection of pipe lines shall be in accordance with AWWA Standard C-651 and generally be with 50 PPM of chlorine solution and retention for 24 hours. The required residual at the end of the period shall be not less than 10 PPM.
- 7.2 Samples shall not be taken from the flushing hydrants or any unsterilized equipment. Samples may be taken through sampling yokes at individual meter installation or riser pipes from corporation cocks installed in the water main. All sampling locations must be approved either by the Engineer or by the Public Health Agency having jurisdiction.
- 7.3 After disinfection and flushing, the Owner must secure and obtain two or more successive sets of samples taken at 24 hour intervals which produce satisfactory bacteriological water before the facilities are released for use. A satisfactory report must be submitted to the Owner and the Engineer before authorizing domestic consumption of the water. Disinfection procedures shall be continued until approved samples have been obtained. The laboratory and test method shall be approved by the Public Health Agency having jurisdiction.

SECTION 8 – Public Road Right of Way

- 8.1 Work in state and county right-of-way shall be performed in accordance with the respective agency's requirements. Contractor shall submit evidence to the Engineer that he has contacted the respective agencies and is fully aware of their requirements for work of this type prior to any construction. The Owner will obtain the necessary permits for such work. Stake-out by the Contractor shall be approved by the Owner and State Highway Representative prior to construction. The Contractor shall secure acceptance by State and County/Township Highway Departments before final payment is made.

No extra charge will be allowed for work performed in state or county rights of way except as provided for in the proposal forms.

The Contractor is responsible for all costs and fees associated with overtime for inspection services of the State of Ohio.

- 8.2 Contractor shall contact existing utilities with installations in the work area. Work will be so executed as to protect and keep free from damage all existing power lines, water lines, gas lines, and telephone cables. Any required repair will be made at no expense to Owner.

SECTION 9 – Repair of Private Drives and Private Property

- 9.1 Attention is directed to the proposed location in yards, fields, and all other private property in the construction area. The Contractor shall exercise due care to protect trees, shrubbery, garden plots, fences, grassed areas, field topsoil, and all structures within the construction area. The Contractor will be responsible for the repair or replacement of all the above items that are removed for construction or damaged during construction. Lawns shall be graded, seeded, strawed, and fertilized (April 1 / November 1). Fields shall be graded and restored to

their original state of usefulness. Refer to section 14 for seeding and mulching, and fertilizing specification.

- 9.2** The Contractor shall repair all parking lots, drives, and fences to their original state of usefulness. Gate valves shall not be placed in cultivated fields.
- 9.3** The cost of repairs and replacements of damaged private property shall be included in the cost of the water main installation. (Including private drives).
- 9.4** streets and side ditches and fences shall be left in neat and operable condition.
- 9.5** The Contractor will be held responsible for the repair of yards, streets, alleys, and parking lots that have settled after the resurfacing of the excavated area for one (1) year after substantial completion of the water system.
- 9.6** Where directed by the Contract Plans or by the Tate Monroe Inspector, all trees cleared for the alignment of the water main, including trimmings, shall be removed from the construction site and disposed of at the Contractor's expense.

SECTION 10 – On Site Work

- 10.1** In general, site work is defined as clearing, providing access to (readily available, accessible, or allow easy entrance to), rough and finish grading to provide proper drainage of areas for the installation of water system facilities other than main and service line piping.
- 10.2** Site work, if approved, such as for Master Meter and Flow Control Station Booster Station, etc., shall be performed as defined above and included in the cost for the respective item to be installed.

SECTION 11 – Railroad Crossings

- 11.1** Work in railroad right-of-way shall be performed in accordance with railroad requirements. Pipe shall be cased in standard weight steel casing and valved. Owner shall obtain the required permits. Contractor shall provide railroad liability insurance in the amount satisfactory to the railroad company. The Contractor shall secure approval of the crossing from the railroad company before final payment is made.

SECTION 11 - Stream Crossing

- 12.1** Stream crossing are classified in three categories according to the method of installation and type of material to be used.

Class A – Major rivers or streams on which ductile iron pipe with flexible joints are used.

Class B & C – All weather streams on which the type of pipe used for the main will be continued, but will be surrounded by concrete (B) or granular (C) back fill. A casing pipe is

required around the main in the area directly under the creek crossing. Refer to Contract drawings and Standard drawings.

- 12.2** Class B and C stream crossings shall be installed as per Standard Detail. The contractor's cost for all work including pipe casing and concrete encasement shall be included in the unit price bid for Furnishing and Installing Water Mains.

Class B and C crossing shall be made where shown on the plans. Contractor shall provide PVC carrier pipe with concrete or granular material backfill around carrier. Carrier shall be two feet below streambed. Crossings shall be made with minimum number of fittings.

- 12.3** For Class A crossings the pipe shall be either cast iron or ductile iron, as required on the proposal forms. The following specifications shall apply:

Ductile Iron Pipe shall be centrifugally cast, boltless, flexible joint pipe, and meet the requirements of ANSI Specification A21.51 for ductile iron pipe. The joint components, not centrifugally cast shall conform to the requirements of ASTM A339, Grade 80-60-03 or ANSI A21.10 Grade 70-50-05.

Cast Iron or Ductile Iron Pipe shall be "River Crossing Pipe" as manufactured by Clow, or an Engineer approved alternate.

SECTION 13 – Pressure Reducing Stations

13.1 Individual Pressure Reducing Stations in Service Lines (IPRV)

Individual pressure reducing stations shall be provided in conformance with Standard Detail Drawing.

Pressure reducing release valves shall be similar to Wilkins 600 series with strainer, or approved equal. Reducing valve, inlet pressure may range from 90 psi to 125 psi, outlet pressure shall normally be 60 psi and discharge a minimum of 15GPM. Complete installation to be done in a neat workmanlike manner.

Enclosures shall either be per detail drawing or same as meter enclosure (larger than standard) with a tandem setter for regulator and relief valves.

13.2 Main Line Pressure Reducing Stations (MPRV)

These stations shall be provided per Contact Plans and the Standard Drawings.

Pressure reducing and relief valves shall be similar to Ames, Clay, or approved equal. Piping shall be as specified on the drawings. Valves shall be supported independently from the piping.

Pressure gauges shall be 3" face, suitable pressure range with valved connection and 'snubber' connection.

SECTION 14 – FERTILIZATION AND SEEDING

Description. The Contractor shall furnish all labor, equipment, and materials required to accomplish the fine grading, fertilizing, and seeding for areas affected by construction.

General. Upon completion of the rough grading, the areas to be seeded shall be fine graded, fertilized, and seeded in accordance with Ohio State Highways Specifications Item 559. The commercial fertilizer shall conform to the specifications contained in section 659 and shall be applied in accordance with 659.08 with one exception; the fertilizer shall be applied at the rate of 40 pounds per 1,000 square feet. The seed shall conform to the specifications contained in section 659.09 and shall be of the following mixture:

- 20% Kentucky Blue Grass (*Poa prattensis*)
- 45% Kentucky 31 Fescue (*Festuca Elatior*, Var. KY 31)
or Alta Fescue (*Festuca Elatior*, var. *Arundinacea*)
- 10% Red Top (*Agrostes's Alba*)
- 5% Alsike Clover (*Trifolium hybridum*)
- 20% Creeping Red Fescue (*Festuca rubra*)

The seeding and mulching operation shall be accordance with Section 659.09

All borrow areas, temporary roadways used during construction, and other disturbed areas shall be fertilized, seeded, and mulched under the same specification references used above.

Section 659 of the Ohio State Department of Highway Specifications (Latest Edition) referred to above shall have the same effect, application and force as if produced in their entirety herein except that the method of measurement and basis for payment shall be as specified in the contract. For the purposes of this and all Tate Monroe Contracts, the cost for all seeding and fertilization should be included in the price for Furnishing and Installing the Water Main.

At no extra cost to the Owner the Contractor will be required to refertilize, reseed, and recondition any areas which have been previously so treated and which subsequently have been eroded by action of the elements when, in the judgement of the Engineer, reworking of the area is required.

Seeding Time. All fertilizing and seeding shall be done in the months April, May, or September. The Contractor shall maintain areas until seeding is complete.

Areas to be Seeded. All the embankments and disturbed areas within the project site, and all roadway embankments, fills, and ditches not sodded, shall be seeded.