

KEEDYSVILLE
STANDARD
WATER
SPECIFICATIONS

TOWN OF KEEDYSVILLE, MARYLAND

Revision B, May 21, 2008

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STANDARD
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FOREWORD

This volume contains specifications and standards adopted by the Town of Keedysville, Maryland for the construction of water systems under the Town's jurisdiction.

One purpose of this volume is to set forth the considerations and decisions and preferences of the Town of Keedysville.

A second purpose is to articulate the Town's standards so as to save every contract from having to repeat the same provisions that are contained in this volume.

A third purpose is to facilitate the Town's dealings with developers, engineers, and contractors.

When referred to on any contract plans or in specifications, this volume shall be considered as a component of the contract documents. In the event the plans or specifications for a particular contract contain provisions that conflict with these standards, the provisions in the plans or specifications shall prevail. The provisions in this volume are considered as "default" and are intended to govern when a particular contract does not include provisions found in this volume.

These standards were taken off from the standards of the Washington County Department of Water Quality. Many provisions were either omitted or modified and other provisions were added. In preparing these standards, Mr. Bobby Mose, superintendent of the Town of Boonsboro was consulted to assure coordination of Keedysville's standards with those aspects of concern to Boonsboro. Also, Boonsboro's "specifications for water system construction, dated January, 2005 were consulted and certain provisions were included in this volume.

The Town of Keedysville is thankful to the Washington County Department of Water Quality and the Town of Boonsboro for their cooperation in preparation of this volume.

(Revision C 1008)

KEEDYSVILLE STANDARD WATER SPECIFICATIONS

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DIVISION I PREPARATION OF PLANS AND SPECIFICATIONS**Section 100 General**

The requirements outlined below are intended to supplement the requirements of the State of Maryland Department of the Environment (MDE) for submission of plans and specifications for the construction of public water facilities under the jurisdiction of the Town of Keedysville. Plans and specifications shall be prepared and submitted in accordance with the following requirements:

The plans must reflect the most recent versions of all applicable codes and regulations, including but not limited to those associated with USEPA, MDE, Soil Conservation Service, National Electric Code, OSHA, MOSHA, Handicap and ADA.

In absence of any specific design direction from any Federal, State, or Town requirements, the design standards found in the "ten states recommended standards for water works" published by health education services and the standards published by the American Water Works Association, i.e., AWWA standards shall be consulted for design development.

Section 101 Basic Design Parameters

Water Pressure Gradient. The overflow weir in the future water storage tank, located near Appomattox court, establishes the water pressure zone or gradient. The height or elevation of the weir is to be at 592 feet. Nominal maximum water pressure at any point in the Town can be computed by taking the elevation and subtracting it from 592 and then multiplying the result by 0.43. Answer will be in pounds per square inch (PSI.) For example 592 feet minus 440 feet times 0.43 equals 65 PSI.

Keedysville Water Pressure Zone. Water pressure in Keedysville is based on a pressure zone established between the 480 foot and 360 foot contour lines. Water pressure at 480 feet is 48 PSI when tank is full. Water pressure at 360 feet is 100 PSI when tank is full.

The sewer system in Keedysville is owned by the Washington County Department of Water Quality (WACO DWQ) The sewer system is constructed with plastic "PVC" piping and operates with the sewage fluid at positive pressure. If the PVC pipe is punctured, the sewage will spurt out with a vigorous stream and there are no shut-off valves to stop the stream.

Prior to starting the design of the water system, the design engineer shall call Mark Bradshaw, at the WACO DWQ, at 240-313-2600 and obtain a set of as built sewer drawings for the area of interest. The plans for the water system shall show the existing sewer system in both plan and profile views.

Water main installation near sanitary or storm sewers shall conform to MDE's guidelines for sewerage facilities.

Surveying Standard. All property plats, boundary surveys, construction designs, etc., should use the Washington County standards for survey datum's. All horizontal controls are to be based upon Maryland state coordinates, NAD 83/91. All vertical controls are to be based upon U.S.G.S. NAVD 88. Associated monuments are located in or near the Town Municipal Building in Taylor Park.

Section 102 **Plans and Specifications**

A. Purpose of plans and specifications: the purpose of plans and specifications, i.e., contract documents, is to describe and display the work in detail sufficient such that the preparer of the plans, i.e., engineer, the owner of the finished work, i.e., Town, and the constructor, i.e., contractor, clearly understand what work or product is to be accomplished and the basis for payment for such work. Another purpose of the plans and specifications is to portray the conditions known or anticipated under which the work is to be executed. A secondary purpose of the contract documents is to provide vital information needed during the Town's operations and maintenance phase of the project.

B. Relationship of plans and specifications are supplementary to each other and all of the work portrayed in either is considered to be part of the contract for construction.

C. Construction drawings, together with applicable supplemental specifications shall be submitted to the Town for review and approval prior to being submitted for state MDE permit. When necessary, the Town will return red-marked prints to the engineer for revision. The red-marked prints must be returned to the Town with the submittal of revised plans.

E. After approval of the plans by the Town, and prior to any construction, one complete set of mylar reproducible or the original tracings and cad files on a CD shall be provided for
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Permanent use by the Town. If construction does not commence for a period of one year from the date of approval or if the construction has not progressed on a continuous basis, the plans and specifications must be resubmitted for reapproval.

F. Seven (7) approved sets of prints and specification copies shall be provided for the Town's use prior to construction.

G. Sheet size - all drawings for any project shall be 24" x 36".

Section 103 Format

A. Contents of construction plans shall include: a contract number assigned by the Town; a contract descriptive name, a location map on the cover sheet showing the location of all work in the contract and its relationship to the community and to adjoining contracts; preferable scale is 1-inch equal to 600 feet; name of the document preparer; an index to the drawing sheets; and a symbol legend where needed. On small projects, all of the above may be shown on a single sheet. Subsoil information such as boring locations and logs may be shown on the plans or put in a separate document.

B. Relation to other designs. The practice of combining roadway design and soil erosion design together with the water utility design is to be discouraged. If the drawings become too crowded with roadway and other designs, the Town reserves the right to require that separate water utility construction documents must be prepared.

C. Bench marks and plane datum shall be shown on the vicinity map or on the individual plan and profile sheets.

D. General notes. Cover sheet of plans, in upper left corner, shall present "general notes" as follows:

1. All water line construction methods and materials shall be in strict accordance with the latest edition of the "Town of Keedysville standard water specifications."

2. The contractor shall not operate valves on the existing water system without approval from Bobby Mose, superintendent of the Keedysville and Boonsboro water systems. Coordinate water valve operation with Bobby Mose at telephone 301-730-5425.

3. Excavation within a state right-of-way shall be performed in accordance with the provisions in the permit issued by the Maryland State Highway Administration (SHA)

4. The contractor shall notify Miss Utility (1-800-257-7777) at least 72 hours prior to start of construction.

5. Existing utilities are shown from the best available records. The contractor shall test pit in the area of known utilities to verify size, location, elevation, and type of utility prior to performing any work. Any utility, whether shown or not, that is damaged by the contractor shall be repaired immediately at no expense to the Town.

6. Contractor must avoid spillages of raw sewage. The sewer system in Keedysville is owned by the Washington County Department of Water Quality (WACO DWQ.) The sewer system is constructed with plastic "PVC" piping and operates with the sewage fluid at positive pressure. If the PVC pipe is punctured, the sewage will spurt out with a vigorous stream and there are no shut-off valves to stop the stream. Prior to excavation near a PVC sewer pipeline, the contractor

shall have an inventory of fittings for capping off a broken sewer pipe. The contractor shall employ a vacuum- operated sewage hauling truck to withdraw sewage from the sewer blow-off valves and to haul the sewage to a county wastewater treatment plant. Prior to excavating, the contractor shall call Mark Bradshaw, at the WACO DWQ, at 240-313-2600 to determine the cap-off fittings needed during construction. In the event a sewer line is punctured or damaged in any way the contractor is to notify Mark Bradshaw immediately.

7. In the event the contractor discovers discrepancies between the plans and the field conditions, the Town or design engineer is to be notified immediately. Should the contractor make any field corrections or adjustments without notifying the Town or the engineer, then the contractor assumes all responsibility for those changes.

8. Job site safety is the sole responsibility of the contractor.

9. The contractor shall be responsible for keeping silt and debris out of the storm drainage system for the duration of the contract.

10. Any necessary adjustments to existing manholes, valve boxes, etc., are to be done by the contractor. The contractor is responsible for removing and replacing any existing fences, driveways, signs, drainage pipes, mailboxes, shrubs, trees, etc., damaged or removed during construction. All disturbed areas shall be returned to their original condition or better.

11. Survey horizontal datum is to be in accordance with MD state grid coordinates, NAD 83/91. Survey vertical datum is to be in accordance with U.S.G.S., NAVD 88.

12. Install at least two (2) feet of pipe between all fittings. Tee fittings require at least four (4) feet of straight pipe to adjacent fittings on the main line part of the tee.

13. Prior to shutting off the water to existing homes, the contractor is to notify Ms. Amy Simmons, Town clerk, at 301-432-5795 at least 36 hours prior to shutdown. Ms. Simmons will notify the homes and water customers of the shutdown.

14. All water main pipe materials, 4-inch thru 12-inch diameter, shall be Ductile Iron Pipe, wall thickness class 52.

15. Unless otherwise specified on the drawings, water service connection piping material shall be copper, type k. Connection piping for single meters shall be 3/4-inch size for lots at or below 430 feet finished grade elevation. Connection piping for lots with finished grade elevation above 430 feet shall be 1-inch size. Connection piping for double meters shall be 1-inch in size.

16. Water meter covers shall be set to be flush with the finished grade as indicated by the stake out for each lot.

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17. Minimum depth of cover for all main and service connection piping is forty two (42) inches to top of pipe.

18. All materials for water construction must be described in submittal documents and submitted to Keedysville for approval prior to purchasing any materials.

19. All water valves of any kind must open to the left or counter-clockwise.

20. A minimum of twelve (12) inches of vertical clearance to other utilities shall be maintained.

21. Contactor shall provide traffic control that addresses both vehicular and pedestrian traffic and any re-routing during daylight hours.

22. All fittings, such as tees, bends, valves, caps, reducers, crosses, etc. shall be installed with wedge-action mechanical restraints. Concrete thrust blocks shall also be required, unless the pipe joints are restrained an appropriate minimum length from each fitting or valve, as required in section 310 of the standard water specifications.

F. An approval block for the Town of Keedysville shall be located on the general map sheet as follows:

Approved:

By: _____ date: _____

Town of Keedysville

Section 104 Plans

A. A continuous strip map or plan view, drawn directly above the profile view shall include the plan locations of all work included in the contract as well as existing improvements, underground and overhead utilities along, across or near the proposed construction.

B. Plans for water line construction in easements across private property shall show survey and alignment data. Widths of temporary and permanent easements shall be dimensioned.

Standard width of permanent easements for water pipelines shall be 20 feet and for water service lines 10 feet. Temporary easements for construction shall typically be at least 10 feet in width. Standard width for permanent vehicle access easements is 15 feet. Design shall show water line at a seven (7) foot offset from the easement line.

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C. Where water lines, fittings, and other appurtenances are referenced to survey baselines, these baselines must be shown and stationing on the plan.

D. Construction drawings shall include a continuous profile view showing existing ground surface, proposed finished grade, all water lines to be constructed, and above and below-ground structures, and existing utilities.

E. Pipe sizes, type of pipe, e.g., 8" D.I.P., and locations of special structures and appurtenances, including valves, water service connections, and hydrants shall be shown on the profile.

F. Lot numbers shall be shown along with proposed or existing dwelling locations on water line plan and profiles at their proper station positions.

G. Stationing of water lines shall be shown on the plan and profile and shall proceed ahead on station starting with 0+00 at each water line intersection point. Length of water lines shall be shown from intersection to intersection points of fittings or to the limit of work.

H. Locations of service connections are to be considered approximate unless otherwise noted. Each service connection is to be extended to the property or easement line with a meter and vault at that point. Provide a tabular chart indicating the finished grade in the area of the water meter for each lot. The contractor will set the cover of the meter installation to be flush with the finished grade indicated.

I. All water lines shall have a minimum of forty two inches (42") of cover, unless otherwise specified or approved by the Town. Water lines designed with less than forty two inches (42") of cover shall require concrete encasement, which must be shown in both plan and profile.

J. All tees should have three (3) valves and all crosses have four (4) valves.

K. High points in the main pipe shall be equipped with air/vacuum relief valves and low points in the main equipped with a fire hydrant for blow-off. Dead ends in the main shall be equipped with a hydrant or blow-off installation.

L. Scales: (1) horizontal scale shall be 1" = 50' for water plans and profiles. (2) vertical scale for profiles shall be 1" = 5'.

M. Each drawing shall include a north arrow, and match lines shall be easily identifiable. Match lines are required to define the continuation and cross reference of the project from one sheet to another. Where more than one plan view or profile view is shown for a particular segment of the work, match lines must be employed to clearly shown which view is to govern the construction.

N. A check list is included within this section.

O. Quantities box. The cover sheet of all plans shall show a quantities box, with estimated quantities, as follows:

Quantities box

Item	Est'd	As built	Supplier/material
6" dip water	250 l.f.		
8" dip water	1445 l.f.		
10" dip water	40 l.f.		
12" dip water	500 l. F		
Air release valves	11 ea.		
Dead end blow-off	2 ea		
Air release valve	1 ea		
Fire hydrants	12 ea.		
6" valve	2 ea		
8" valve	3 ea.		
10" valve	5 ea		
12" valve	25 ea		
3/4" copper wsc	244 l.f.		
Wsc meter settings	14 ea		

Add note to drawing as follows: Information in quantities box is considered to be approximate. Contractor is not to use the information in the quantities box for bidding purposes.

Section 105 **Specifications**

The "CSI format" is preferred for any specification or project manual booklet that accompanies a set of plans. "CSI format" refers to a format established by the Construction Specification Institute. However, for relatively small projects, a simpler format can be sufficient.

Section 106 **Mechanical Pipe Restraints**

All water main fittings, such as valves, plugs, caps, tees, horizontal and vertical bends shall be installed with wedge-action mechanical restraints. Concrete thrust blocking shall also be required unless mechanical restraints are installed at the appropriate distances from the restrained fitting. See Section 310 of these standards.

The Town prefers the use of mechanical restraints, i.e., megalugs or uni-flanges, in lieu of concrete blocking at all joints at fittings. Also, many contractors prefer megalugs because they save the contractor from the trouble of constructing forms and mixing and placing concrete. Also, when using megalugs, the contractor avoids having to wait five days for the concrete blocks to cure before the main can be filled with water and pressurized for leakage testing. In short, using megalugs in lieu of concrete blocking makes the contractor's work progress much more rapidly.

However, fire hydrants will continue to require both mechanical restraints on the installation joints and the traditional concrete blocking. Field reports indicate that hydrants installed without the blocking may not break at the frangible line, if the hydrant incurs a vehicle impact at certain speeds and angles. Without the blocking, the impact causes the piping to rotate at the joints, causing the hydrant to need to be excavated to restore it to proper plumb alignment. However, fire hydrant installations can be pressurized immediately after backfilling because the restraints will prevent the piping from moving at the joints.

Mechanical restraints such as megalugs or unflanges are required to support the joints in main line piping where conditions such as unstable soil, stream crossings, areas of congested utilities, and uncontrolled fill are found. The number of joints to be restrained shall be delineated and noted on the plans.

If drawings do not call for mechanical restraints at particular fittings where blocking is required, the contractor has the option of installing mechanical restraints together with concrete thrust blocks or avoiding the blocks as provided by the directions given in Section 310.

Section 107 **Special Details**

Special structures and any other work not covered by standard details or by the specifications shall be detailed fully to insure that the finished work is structurally sound and hydraulically correct. Special structures shall be designed for compatibility with existing Town structures.

Section 108 **Approval and Permits**

A. When required by MDE, the developer shall submit to the Town for approval, the application to the state of Maryland Department of the Environment (MDE) for a water construction permit, including the water plans and specifications.

B. Details relative to construction within state and county road rights-of-way and within any other governmental or private rights-of-way shall be obtained by either the developer or Town's engineer, from the agency having jurisdiction. One (1) copy of each construction or special permit issued by any such agency shall be filed with the Town prior to start of construction.

Section 109 **Inspection by the Town**

The Town shall, at the option of the Town, inspect all facilities during construction to insure conformance to the design and specifications. On developer projects, all costs incurred for the inspection, e.g., (labor, overhead, transportation, testing, record drawings, etc.) Shall be paid by the developer prior to construction. The Town shall estimate the inspection costs and invoice the developer for payment. At the completion of the project the actual costs will be determined and the Town will return any overpayment or the developer shall pay any additional costs above the estimate.

Section 110 **Record Drawings**

During the construction period, the Town shall record all data required to complete the record or "as built" drawings. The Town shall be responsible for revising the mylar reproducible.

Section 111 **Check List for Water Line Plan Review**

Project Name: _____

1. General Notes
2. Plane Datum and Bench Marks
3. Datum Equality for Tie-In to Exist
4. Fittings & Locations from Baselines or Structures
5. Lot No's In New Developments
6. Water Line Stationing
7. Water Line Sizes
8. Adequate Easements
9. Access to Mains and Services for Maintenance
10. Large Meter Vaults--Relation to Finish Grade
11. Water Service Sizes and Termination Points
12. Instructions for Connecting To Existing Facilities
13. Instructions for Abandoning Existing Facilities
14. Water Main Minimum Depth
15. Scale and North Arrow Location
16. Contract No. And Descriptive Name of Project
17. Location Map at Scale of 1-Inch to 600 Feet.
18. Statement on Disposition of Water Service or Reference to Previous Contract and/or Permit Applicable to Existing Water Line at Connection Point.
19. Water Line Appurtenance Modification Details
20. Surface Drainage at Meter Vaults
21. Town Approval Block Every Sheet
22. All Required Information to Install Water Lines Shown On Construction Plans
23. P.E. Seal signature on Every Sheet

24. Town Contract No. on Every Sheet
25. Access Easements for Maintenance by Town
26. Easements for Future Water Service To Adjoining Properties
27. All Property Parcels Labeled with Owner's Name
28. Flood Plain Elevation Designated In Plan and Profile Views
29. Contractors Work Area Limits Clearly Identified
30. Quantities Box Shown With Information Filled In
31. Finish Grade Indicated At Each Water Meter Location
32. Required Locations for Megalug Restraints Shown
33. Three Valves at Every Tee Fitting.

Section 112 Fire Hydrant Flows

Water Mains shall be designed to provide minimum flow rates for fire hydrants as follows: residential (one and two family) 1,000 GPM; residential (multi-family) 1,250 GPM; commercial, industrial, educational 1,500 GPM. Flow rates are to be accommodated with a minimum residual pressure of 20 PSI in the main.

DIVISION II GENERAL CONDITIONS FOR CONSTRUCTION

Section 200 Definitions and Abbreviations

Definitions

For the purpose of these specifications the following words and terms shall have the meaning hereinafter ascribed to them:

1. "Town of Keedysville" means the governmental entity furnishing public water in the town limits of Keedysville, in Washington County, Maryland.
2. "Mayor and Council" means the governing body of the Town.
3. "Owner" means the Town of Keedysville and/or its duly authorized representative, i.e., inspector or engineer, acting on Town's behalf.
4. "Water service area" is that geographical area wherein the town is providing, or intends to provide, public water, the "water service area" having been created and delineated by mayor and council.
5. "Water main" - a pipe, owned by the town, which conveys potable water for residential, commercial, industrial, and fire protection purposes. A water main pipe is always situated in a public right-of-way or easement.
6. "Service connection", that portion of the water pipe line between the water main and the customers property line that is owned by the town. The meter vault and the outlet fitting of the town's water meter is considered the termination of the service connection. The home or building "water service pipe" is connected to the meter outlet and is terminated five (5) feet from the customer's building. The meter vault may be located on the customer's side of the property line.
7. "Developer" shall mean the person, firm, corporation or agency who is initiating a property development project and who enters into a contract with the contractor for the construction of water system work associated with the development of the property.
8. "Contractor" shall mean the corporation, company, partnership, association, or individual, named and designated in the contract agreement as "party of the second part" who has entered into a Contract for the performance of the work covered thereby, and its, his, or their duly authorized agents or legal representatives. Sub-contractors as such will not be recognized. For private developer funded projects, the developer will select and engage the contractor. For town funded (capital) projects, the town will select and engage the contractor.
9. "Sub-contractor" shall mean a person, firm, or corporation supplying labor and materials or only labor for work in conjunction with the project and under separate contract or agreement with the contractor.

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10. "Supplier" shall mean any person or corporation who supplies materials or equipment or fabricated work, but who does not perform the work on the site

11. "Engineer" shall mean the person, firm or corporation responsible for the design of the work and for the preparation of the contract drawings, other pertinent contract documents. Engineer can also mean the entity engaged by the Town to assist in management of the water construction.

12. "Inspector(s)" shall mean the engineering or technical persons(s) duly authorized by the town, to inspect the construction materials and construction work on behalf of the Town.

13. "Project" shall mean the undertaking to be performed as provided in the contract documents

14. "Contract documents" shall mean a set of documents, issued by the Town for the project, which includes the invitation to bid, information for bidders, bid form, bid addenda, proposal form, drawings, specifications, town water standards, and change orders.

15. "Work" shall mean the labor, tools, materials, equipment, appurtenances and services to be performed under this contract, unless some other meaning is indicated by the context.

16. "Special provisions" and/or "supplemental specifications" shall mean that supplemental contract provisions prepared by the engineer to cover all items pertinent and necessary to the particular project under consideration which are not covered in this volume or which are necessary to modify any item(s) contained herein.

17. "Specifications" shall mean this volume (Keedysville standard water specifications) and all items contained herein which are pertinent to the particular contract under consideration, together with any specifications prepared for a particular contract, supplemental specifications, referred-to specifications, and special provisions approved by the Town.

18. "Keedysville standard water specifications" or "Standard specifications" shall mean standards prepared by the Town of Keedysville that are referenced in the contract documents. Unless otherwise specified or directed in any other documents for a particular contract, the provisions in the water standards prevail.

19. "Drawings" shall mean that part of the contract documents, prepared by or for the Town, which employ graphic views and diagrams to delineate the characteristics and scope of work to be performed. The term "drawings" is used interchangeably with the word "plans."

20. "Form of bid" (or proposal) shall mean that contract document setting forth the various pay items for the contract, estimated quantities, and the bidders' unit prices for each item, together with any other information to be furnished by the bidder as part of his proposal. On projects where the contract is not broken down into various pay items, an abbreviated form of bid may be used where the bidder is required only to submit a lump bid together with other pertinent information.

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21. "Date of contract" or words equivalent thereto shall mean the date stipulated in the first paragraph of the executed contract agreement.
22. "Day" or "days" unless otherwise expressly defined shall mean a calendar day or days of twenty-four hours each.
23. "Contract time" shall mean the specific date or number of calendar days stated in the bid proposal for the completion of the work, starting from the date of notice to proceed to date of conditional acceptance of the contract.
24. "Contract price" shall mean the total monies payable to the contractor under the terms and conditions of the contract documents.
25. "May" is permissive, "shall" is mandatory.
26. "Shop drawings" all drawings, diagrams, instructions, brochures, schedules, cut-sheets, and other such data which are furnished by the contractor and which illustrate or specify which materials or how specific work shall be fabricated or installed.
27. "Standard materials" shall mean those materials designated by the Town that are to be purchased and installed with no substitution permitted. Standard materials must be used in the work unless otherwise specified in the contract documents. See division IV.
28. "Or equal" shall mean that where a product or system is specified in the contract documents by one or more trade names, manufacturer, or vendor followed by the phrase "or equal" the equal will be as determined by the engineer. The subject product or system shall be understood as establishing the type, function, or dimension, appearance and quality desired and is to be the basis upon which bids are to be prepared. Other manufacturer's products or systems not named will be considered as "substitutions."
29. "Substitution" shall mean whenever a product or system or configuration of products is not specifically specified in the contract documents and the contractor desires to supply a different product, system, or configuration, such substitutions are considered at the option of and discretion of the engineer. When ever more than one style of standard material is indicated in the standard materials sections, the contract documents shall specify which option(s) are to be used in the work.
30. "Bid" shall mean the offer or proposal from the contractor submitted in the prescribed manner on the prescribed form setting forth the work to be performed and the prices for same.
31. "Addenda" shall mean written or graphic instruments issued prior to award of the contract which modify, clarify, or interpret the contract documents.

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32. "Award" shall mean the decision of the Town or developer to accept the proposal of the selected contractor, subject to the execution and approval of satisfactory contract and bonding to secure the performance of the work.

33. "Preconstruction meeting" shall mean a meeting, usually held prior to the date of notice to proceed, between the contractor and representatives of the Town. The purpose of the meeting is to have the various individuals involved with the construction process to become acquainted and to discuss the roles of each individual and to discuss how the work is to proceed.

34. "Notice to proceed" shall mean that written notification from the Town to the contractor specifying the commencement date for the work under contract, said commencement date to be the date from which the contract time of completion is measured. Any work performed by the contractor prior to the notice to proceed date is considered as unauthorized work and may not be accepted by the Town.

35. "Progress meeting" shall mean a meeting involving representatives of the town and contractor held to discuss progress of the work and any concerns of either party.

36. "Field order" shall mean a written communication prepared by the engineer in response to an inquiry from the contractor or at the initiation of the Town. The field order will provide interpretations, clarifications, and special instructions for the work.

37. "Change order" shall mean a written order to the contractor, approved by the Town and the contractor, authorizing an addition, deletion, or revision in the work, or a change in the contract price or contract time.

38. "Punch list inspection" shall mean a list made near the completion of the work, indicating items to be furnished or corrected by the contractor in order for the contractor to attain a letter of conditional acceptance.

39. "Conditional acceptance" shall mean whenever the Town determines that a portion of the work is in an apparent acceptable condition and that placing that portion of work into operation will result in a benefit to the Town -- The subject portion of work shall be tested and inspected for issuance of a letter of conditional acceptance. The effective date of conditional acceptance shall be the effective date for any guarantee applicable to the subject portion of work.

40. "Final acceptance" shall mean the act of the Town accepting those portions of the work after the one year guarantee period has ended.

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Section 201 Standards

The following standards and their designations used herein are:

- A. Aluminum Association - AA
- B. American Association of State Highway and Transportation Officials - AASHTO
- C. American Concrete Institute - ACI
- D. American Institute of Steel Construction - AISC
- E. American National Standards Institute - ANSI
- F. American Society for Testing and Materials - ASTM
- G. American Society of Mechanical Engineers - ASME
- H. American Water Works Association - AWWA
- I. American Welding Society - AWS
- J. Commercial Standards - CS
- K. Federal Specifications - FED. SPEC.
- L. International Plumbing Code -- IPC
- M. Maryland Department of the Environment -- MDE
- N. Maryland State Highway Administration (SHA) -- Standard Specifications for Construction and Materials
- O. Maryland Standards and Specifications for Soil Erosion and Sediment Control - SCS
- P. National Electric Code - NEC
- Q. National Electrical Manufacturer's Association - NEMA
- R. National Safety Council -NSC
- S. Occupational Safety and Health Administration, Department Of Labor - OSHA and Maryland Occupational Safety and Health Administration - MOSHA

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T. Standards of the Hydraulic Institute - HI

U. Steel Structures Painting Council - SSPC

V. Underwriters Laboratories - UL

W. Washington County Department of Water Quality -- WCDWQ

Section 202 Reference Documents

All references to codes, specifications, and standards referred to in the contract documents shall mean and are intended to be, the latest edition, amendment and/or revision of such reference standard in effect as of the date of bid opening for the contract.

The contractor shall maintain at the site copies of all appropriate contract documents including, plans, specifications, approved shop drawings, codes, permits, and reference standards referred to in the contract documents.

Section 203 Abbreviations

For the purpose of these specifications the following abbreviations shall represent the words and phrases hereinafter ascribed to them:

A. United States Geological Survey Elevation Datum – USGS

B. Elevation - Elev. Or EL.

C. Feet - 0'

D. Inches - 0"

E. Degrees Fahrenheit - F

F. Degrees Centigrade - C

G. Pounds Per Square Inch – PSI.

H. Gallons Per Minute - GPM

I. Revolutions Per Minute - RPM

J. Percent - %

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K. Brinell Hardness Number (ASTM E 10) - BHN

L. Horsepower - HP

M. Angular Degrees - 0

N. Year – YR.

O. Direct Current - DC

P. Alternating Current - AC

Q. Kilovolt Ampere - KVA

R. Kilowatt - KW

S. Feet Per Minute - FPM

T. Pound Feet - Lb. Ft. (Torque)

U. Maximum – MAX.

V. Minimum – MIN.

W. Cubic Feet Per Second - CFS

X. Gallons Per Linear Foot Per Day - Gal/L.F./Day

Y. Rockwell Hardness Number (ASTM E 18) – RHN.

Z. Gage or Gauge – GA.

AA. Million Gallons Per Day - MGD

BB. Linear Foot - L.F.

CC. Cubic Yard - C.Y.

DD. Vertical Foot - V.F.

EE. Cubic Foot (Feet) - C.F. Or Cu. Ft.

FF. Square Foot (Feet) - S.F. Or Sq. Ft.

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GG. Thousand Feet Board Measure - MFBM

HH. Poly-Vinyl-Chloride - PVC

II. Ductile Iron - D.I.

JJ. Pounds-Per-Square-Inch Gauge - PSIG

KK. Polyethylene -- PE

Section 204 **Approval of Materials**

Prior to construction on a contract, a complete list of materials must be submitted to the Town for approval. Only those approved materials shall be utilized on the contract. See Division IV, standard materials, Section 400 for submittal procedures.

Section 205 **Construction Starting Date**

In order to properly coordinate the inspection services provided by the Town with the schedule of construction activities, the town requires notification 72 hours prior to start of construction.

Should the contractor delay operations for a period of time, the Town shall require notification 72 hours prior to continuing operations.

Section 206 **Legal Holidays and the Work Week**

The Town observes the following legal holidays: New Year's Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. The contractor shall be permitted to work on these holidays only in emergency situations. Should inspection by the town be required on any of these holidays, inspection services shall be invoiced at 2-1/2 times the hourly rate.

The 40 hour work week shall be Monday through Friday. The contractor must submit to the Town in writing, and with 48 hours advance notice, any request for additional work hours above and beyond the normal 40 hour work week. Should inspection by the Town be approved in excess of the normal work hours, inspection services shall be invoiced at 1-1/2 times the hourly rate.

Section 207 **Contract Completion Time**

The Town encourages completion and acceptance of the total project in a timely manner; therefore to emphasize this point, it should be noted that no permits for water utility use shall be issued until the water construction is accepted for service by the Town.

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Section 208 **Scope of Work**

The intent of the drawings and specifications is that the contractor shall furnish all labor, power, materials, tools, equipment, and transportation necessary for the proper execution of the work in accordance with the standard specifications and all incidental work necessary to complete the project in an acceptable manner, ready for use, occupancy, or operation, by the Town.

All work that may be called for in the specifications and not shown on the drawings or shown on the drawing and not called for in the specifications shall be executed and furnished by the contractor, as if described in both these ways; and should any work or material be required, which is not defined in the specifications or drawings either directly or indirectly, but which is nevertheless necessary for the proper execution of the intent thereof, the contractor is to understand these things to be implied and required, and shall perform all such work and furnish any such material as fully as if they were particularly delineated or described.

Any discrepancies found between the drawings and the specifications and site conditions or any inconsistencies or ambiguities in the drawings or specifications shall be immediately reported to the Town, in writing. Work performed by the contractor after his discovery of such discrepancies, inconsistencies or ambiguities shall be performed at the contractor's risk.

Section 209 **Relationship of Plans and Specifications**

Relationship of plans (or drawings) and specifications are supplementary to each other and all of the work portrayed in either is considered to be part of the contract for construction.

Section 210 **Access to Work and Unauthorized Work**

The Town, its representatives and the representatives of any governmental body or agency having jurisdiction will at all times shall have access for observation to the work. Contractor shall provide proper and safe facilities for such access and observation of the work and also for any inspection or testing thereof by others. No work will be performed without the Town having notice thereof and all work shall be subject to inspection by the Town. Work performed without notice will be considered unauthorized work and may not be accepted by the Town.

Section 211 **Uncovering Unapproved Work**

If any work is covered without the Town's having timely written notice that such work is to be performed, the work must, if requested by the Town, be uncovered for Towns inspection and replaced at contractor's expense.

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If any work has been covered without the Town inspecting it prior to its being covered, or if the Town's representative considers it necessary or advisable that covered work be inspected or tested by others, the contractor, at the Town's request, shall uncover, expose or otherwise make available for observation, inspection, or testing as the Town may require, that portion of the work in question, furnishing all necessary labor, material and equipment.

Section 212 **Uncovering Approved Work**

If any covered work has previously been approved by the Town's inspector or engineer and subsequently the Town's representative considers it necessary or advisable to re inspect such work, the contractor at the Town's request shall uncover, expose, or otherwise make that portion of the work available for observation, inspection, testing as the Town may require. Contractor must furnish all necessary labor, materials, tools, and equipment.

If the reinspection results in a finding of defective work, the contractor must bear all the expenses of uncovering, exposing, inspection, testing, and reconstruction. If the reinspection results in a finding that such work is not defective, the contractor will be allowed an increase in contract price or an extension of time or both for costs directly attributable to such uncovering, exposure, observation, inspection, testing, and reconstruction and an appropriate change order will be issued.

Section 213 **Town Representative Status during Construction**

Engineers or inspectors working on the Town's behalf are authorized to inspect all work done and all materials furnished. Such inspection may extend to all or any part of the work and to the fabrication of materials performed off site. The inspector is authorized to call to the attention of the contractor the failure of the work or materials to conform to the contract. The inspector is not authorized to revoke, alter, or waive any requirements of the contract documents. The inspector in no case shall act as foreman or perform other duties for the contractor, nor interfere with the contractor's management of the work.

A. Clarifications and Interpretations

The Town will issue, with reasonable promptness, such written clarifications or interpretations of the plans and specifications as it may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the contract.

B. Rejecting Defective Work

The Town's representative will have authority to disapprove or reject work which is "defective" (which term is hereinafter used to describe work that is unsatisfactory, faulty or defective, or does not conform to the requirements of the standard specifications or has been damaged prior to approval of final payment). That representative will also have authority to require special

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inspection or testing of the work whether or not the work is fabricated, installed or completed.

C. Limitations of Town's Responsibilities

1. Neither the Town's authority to act under this article or elsewhere in the contract documents nor any decision made by the Town in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of the town to the contractor, any subcontractor, any material supplier, fabricator, or any of their agents or employees or any other person performing any of the work.

2. The Town will not be responsible for the contractor's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto.

3. The Town will not be responsible for the acts or omissions of contractor, or any subcontractors, or any of his or their agents or employees, or any other persons at the site or otherwise performing any of the work.

Section 214 Work within Public Right-Of-Ways and Easements

All work to be performed within a Town of Keedysville right of way shall be in strict accordance with the conditions of the special water utility installation permit issued by the Town of Keedysville.

Where right-of-ways or easements have been obtained for construction of water lines on private property, the contractor shall confine working operations to and conduct all work within the limits of the right-of-ways and easements as shown on the drawings or as specified. The contractor shall not enter upon or occupy with personnel, tools, equipment, or materials any private property outside the limits of the right-of-way or easements obtained, without the written consent of the owner of such property and the approval of the town's inspector.

Section 215 Existing Utilities

All work requiring changes to or affecting existing utilities, or affecting their operation, shall be performed in such a manner and time approved by the Town. Requests to do such work shall be submitted to the Town at least three (3) calendar days prior to the time that such work is to be performed.

Section 216 **Location and Protection of Existing Utilities**

The contractor will be responsible for locating all existing utilities including, but not limited to, water, steam, oil, gas mains, sanitary and storm sewers, telephone, electric, cable TV and other Conduits which may be encountered in the performance of the work. The contractor shall also be responsible for locating all underground structures. The contractor shall, at his own expense, arrange with the owners of such utilities for locating them. The contractor shall be responsible for providing adequate protection against damage to utilities encountered during the course of construction. The Town may require the contractor to excavate test pits to verify the location of underground utilities prior to the installation of water mains and/or water services at no cost to the Town.

Section 217 **Use and Storage of Explosives**

The contractor shall give notice to the Town and state fire marshal prior to using any explosives. Such explosives shall be stored, handled and used as prescribed by the federal, state and/or local authorities having jurisdiction over such storage and use. The contractor shall comply with all special rules and regulations that may be in effect at the time the work is actually performed. The contractor shall obtain the permission of the state fire marshal before storing and using any explosives.

The contractor shall employ a specialized blaster in accordance with MODHA CFR-1926, 901, "blaster qualifications."

Section 218 **Protection of Materials & Work**

The contractor shall at all time take necessary steps to protect and preserve all materials, supplies, equipment and all work which has been performed. Should work be suspended temporarily because of inclement weather or other causes, the contractor shall take such steps as are necessary to protect materials, supplies, equipment and work performed against damage or injury. Any damaged materials, supplies, equipment, or work performed shall be removed and replaced at the expense of the contractor.

Section 219 **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 protection to prevent damage, injury, or loss to: all employees on the work and other persons who may be affected thereby; all the work and all materials or equipment to be incorporated therein, whether in storage on or off the site; and other property at the site or adjacent thereto, including utilities not designated for removal, relocation, or replacement in the course of construction.

The contractor shall comply with all applicable laws, ordinances, rules, regulations, and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss.

Section 220 **Record Drawings**

The Contractor shall record, during the construction process, all data required to complete the record drawings. The Contractor shall be responsible for revising the Mylar reproducible.

Section 221 **General Guarantee**

The contractor shall guarantee all materials and equipment furnished and work performed for a period of one year from the date of conditional acceptance. The contractor warrants and guarantees that the completed water system is free from all defects due to faulty materials of workmanship.

Neither the certificate of conditional acceptance nor partial or entire occupancy of the premises by the owner shall constitute an acceptance of work not constructed in accordance with the contract documents nor relieve the contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The contractor shall remedy any defects in the work and/or pay for any damage to other work resulting there from, which shall appear within a period of one (1) year from the date of conditional acceptance of the work by the town unless a longer period is specified. The Town will give notice of observed defects with reasonable promptness.

Section 222 **Responsibility for Supervision of Work**

Whenever in the contract documents the words "as directed", "as required", "as permitted", or words or phrases of like import are used, it shall be understood, unless otherwise particularly stipulated, that the direction, requirement, or permission of the owner or engineer is intended only to the extent of judging compliance with the terms of the contract documents. None of these terms shall imply responsibility for supervision of the contractor's personnel, forces or operations; such supervision including sole responsibility therefore shall be strictly reserved to the contractor.

Section 223 **Town Decides Approvals**

Whenever in the contract documents the words "approved", "reasonable", "satisfactory", or words of like effect and import are used, unless otherwise particularly stipulated, shall mean approved, reasonable, suitable, acceptable, proper or satisfactory in the judgment of the Town.

Section 224 **Parties to Contract**

Whenever any statement in the contract documents contain the expression "it is understood and agreed", or an expression of like import, such expression shall mean the mutual understanding and agreement of the parties executing the contract agreement.

Section 225 **Work by Others**

Whenever in the contract documents the words "by others" or words or phrases of "like import" are used, it shall be understood, unless otherwise particularly stipulated, to mean a corporation, company, partnership, association, or individual who has entered into contract with the Town or has been directed by the Town to perform work in the project area.

Section 226 **Or Equal and Substitutions**

Whenever in the contract documents the phrase "or equal", or words or phrase of "like import" is used, it shall be understood to mean the reference to manufacturers' or vendors' names, trade names, catalog numbers, etc. And is intended merely to establish a standard; and any materials, article, or equipment of other manufacturers and vendors which will perform adequately the duties imposed by the general design will be considered equally acceptable provided the material, article, or equipment so proposed is, in the opinion of the Town, of equal substance and function. The contractor shall not substitute an alternate manufacturers' or vendors' material, article or equipment without prior written approval of the Town.

Section 227 **Schedule of Values**

Before the first application for payment for lump sum bid items, the contractor shall submit to the town a schedule of values or breakdowns of each lump sum item. The sum of the prices for each breakdown shall add to a sum equal to the total amount bid for each item. Each breakdown shall include its proper share of overhead, profit, and applied general conditions. The schedule shall provide quantities if required by the Town, and shall subdivide the work into component parts in sufficient detail to serve as the basis for progress payments during construction.

Section 228 **Precedence of Documents**

In resolving conflicts, errors, and discrepancies within the contract documents, the documents shall be given precedence in the following order:

1. Change Orders
2. Bid Addenda
3. Specifications
4. Drawings
5. Shop Drawings
6. Water Standard Specifications

Section 229 **Insurance**

The contractor shall purchase and maintain insurance that will meet the requirements as specified in the contract documents or as required by the Town's attorney. Provisions of the insurance shall include protection for the Town and the contractor from consequential liability which may arise from the contractor's execution of the work. Types of insurance typically needed include general public liability and property damage, worker's compensation, and automobile liability.

Section 230 **Security**

Unless otherwise specified in the contract documents, the contractor shall within ten days after receipt of the notice of award furnish the Town with a performance bond, labor and materials bond, and payment bond with penal sums equal to the contract price. All bonding is subject to the approval of the Town's attorney.