Conditions of Use/ Responsibility of Data

These "guideline" specifications are to be used by the A/E as a base document in the development of project/site-specific Division 2 – SITE WORK specifications for Montgomery County Public Schools Construction Projects. They may or may not be complete, correct and/or appropriate for use for any given project. It is the responsibility of the A/E to review these "guideline" specifications and to edit and/or supplement them as required to ensure that they represent the full, complete, correct and code-compliant specifications required for all construction of the project to which they apply. The use of these "guideline" specifications, and/or any information herein, in no way releases the A/E from their Contractual responsibility to prepare and provide the full, complete and correct code-compliant Contract documents, plans and/or specifications required for construction.

Review and editing of these "guideline" specifications shall be performed by appropriately licensed Maryland professional engineer. Specifications are to be prepared in Microsoft Word, edited using the "Track Changes" feature of that software and submitted to MCPS electronically on a compact Disk for review.

SECTION 02240 - GRAVITY FLOW SANITARY SEWER SYSTEM

PART 1 - GENERAL:

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions, and Division 1, Specification Sections apply to work in this section.

1.2 DESCRIPTION OF WORK:

A. Section specifies materials and work required to construct gravity flow sanitary sewer system.

1.3 RELATED SECTIONS:

A. Refer to Section 02100 "Earthwork and Grading", Section 02200 "Utility Standards"; Section 02230 "Storm Drainage System", and Division 15 "Mechanical".

1.4 STANDARDS:

A. Refer to Section 02200 "Utility Standards", and as noted.

B. Washington Suburban Sanitary Commission's (WSSC) current "General Conditions and Standard Specifications" and "Standard Details".

C. Washington Suburban Sanitary Commission's current "Regulations Governing Installation of Plumbing and Sewer Cleaning in Washington Suburban Sanitary District".

D. Washington Suburban Sanitary Commission's current "Plumbing and Gasfitting Regulations.

1.5 SUBMITTALS:

A. Refer to Section 02200 "Utility Standards" and as noted.

B. Products: Submit product manufacturer's specifications and installation instructions and certificates of compliance signed by manufacturer and Contractor stating that products comply with this specification to Architect. Certificates of compliance must be notarized, signed by an officer of Manufacturer, and shall include WSSC Contract Number or On-site number, job location, Contractor's name, types, classes and strengths of pipe and fittings, and Manufacturer's name.

C. Options: Submit typewritten list of selected products when options are specified within 10 calendar days after Contract execution. Submit detailed shop drawings of system modifications required by selection of options.

D. Submit shop drawings of precast structures indicating concrete reinforcement location, size and placement.

E. Submit As-built drawings to Architect.

F. Service Connection Permit: Contractor shall submit to Architect all items required by WSSC to obtain a Service Connection Permit including but not limited to: All required WSSC Bonds, Letter indicating Utility Contractor, and Certificate of Insurance. Architect will obtain Service Connection Permit once all these items are received.

1.6 PRODUCT, DELIVERY, STORAGE AND HANDLING:

A. Refer to Section 02200 "Utility Standards".

1.7 PROJECT CONDITIONS:

A. Refer to Section 02200 "Utility Standards" and as noted.

B. On-site construction and materials shall be in accordance with latest edition of WSSC General Conditions and Standard Specifications, Design Manual, Standard Details and Plumbing and Gasfitters Regulations.

C. Existing Sanitary Sewer System: Provide, install, operate and maintain pumps and related equipment required to divert sewage (bypass pumping) during system construction. Extend pump discharge lines to existing sanitary sewer structures. Surface flow is prohibited.

D. Traffic: Maintain vehicular and pedestrian traffic during system construction.

1.8 CONSTRUCTION SURVEYS:

A. Provide survey equipment and qualified personnel for construction surveys. Provide combined horizontal and vertical alignment stakes for system construction. Horizontal stake interval to be 25 feet maximum and at structures. Provide construction cut sheet preparation as required.

1.9 SPECIAL INSPECTIONS, TESTING OBSERVATION AND CERTIFICATIONS:

A. Special utility inspections, testing observation and certifications are those services specifically required by government agencies and/or utility purveyors, and that must be performed by Engineer of Record.

B. WSSC ON-SITE WATER SYSTEM: In accordance with requirements and regulations of

Washington Suburban Sanitary Commission, Owner has retained services of Engineer of Record to provide the following special inspection, testing observation and certification services in connection with construction of WSSC On-Site water lines and appurtenances.

1. Three (3) Three (3) hour inspection visits for on-site water line construction
2. One (1) Four (4) hour visit to observe mandatory 2- hour pressure test
3. Two (2) Three (3) hour inspection visits to observe construction of thrust blocking
4. One (1) time preparation of As-Built Drawings and Certifications, based-upon as-built information and test result documentation provided by Contractor, to be performed upon completion of construction and successful testing of WSSC On-Site Water and Sewer lines and appurtenances..

C. ADDITIONAL INSPECTIONS, OBSERVATIONS AND CERTIFICATIONS: It shall be responsibility of Contractor to hire Engineer-of-Record to perform additional special inspections, testing observations and certifications required beyond those specific services identified herein as being provided by Owner.

PART 2 - PRODUCTS:

2.1 MATERIALS:

A. All materials shall be WSSC Standards and shall meet WSSC requirements indicated.

B. Polyvinyl Chloride (PVC) Pipe: WSSC Standards indicated. ASTM D 3034, SDR 35 PVC gravity sewer pipe, size as indicated, standard manufacture laying length.

1. Pipe Joints: ASTM D 3212 bell and spigot type, with flexible elastomeric gasket seals. Gaskets shall meet requirements of ASTM F 477.
2. Fittings shall be as indicated and required.

C. Cleanouts: WSSC standards indicated.

1. Cleanouts For Use in Paved Walk Areas: Refer to Section 02230 "Storm Drainage System", and as noted.

a. Expansion Joint: ASTM D 994, bituminous preformed joint filler, 1/2 inch thick.

2. Furnish Owner with one cleanout wrench.

D. Structures: WSSC standards specified and indicated.

E. Foundation and Bedding Materials: Refer to Section 02200 "Utility Standards".

F. Concrete: Refer to Section 02200 "Utility Standards".

G. Miscellaneous Products:

1. Underground identification type manufactured by Allen Systems, Houston, Texas. "Detectatape" type, three inches wide, marked "Caution Sewer Line Buried Below", "Safety Green" color.

PART 3 - EXECUTION:

3.1 DEWATERING, EXCAVATION, OVER-EXCAVATION AND UNSUITABLE EARTH:

A. Refer to Section 02200 "Utility Standards".

3.2 EXISTING SYSTEM CONNECTION:

A. Notify WSSC no less than 48 hours prior to start of system construction.

B. Excavate and expose existing pipe at connection location indicated. Adjust connection location, as required, in event of conflicts with existing pipe joints. Neatly cut existing pipe and prepare cut end as required for connection with new pipe. Make connections with existing pipe using fittings designed for purpose, in accordance with manufacturer's installation instructions.

3.3 PIPE:

A. General: Install in accordance with manufacturer's installation instructions and as noted. Inspect each pipe laying length and pipe joint materials for defects. Remove defective products from project site. Install pipe to horizontal and vertical alignment indicated. Begin with installation at lowest system elevation and proceed up-grade. Field cut pipe only where required to complete structure-to-structure closures, install fittings or as specified. Cut pipe to smooth square end with equipment designed for cutting pipe.

B. Polyvinyl Chloride (PVC) Pipe: Install pipe in accordance with ASTM D 2321, manufacturer's installation instructions, and as noted.

1. Install with pipe spigot end pointing in flow direction. Begin installation of pipe, with vertical gradient exceeding 10 percent, at lowest elevation and proceed up-grade. Clean bell and spigot interior and exterior surfaces, removing oil, grit and foreign matter. Lubricate pipe ends and gasket in accordance with manufacturer's instructions. Position each laying length of previously installed pipe and manually push joint tightly together.
2. Field Pipe Cutting: Shape spigot end of cut pipe to resemble manufactured spigot end, with a pipe-beveling tool designed for PVC pipe. Copy the full insertion mark provided on manufactured spigot end onto prepared field cut end.

3.4 EXISTING PIPE/STRUCTURE CONSTRUCTION:

A. Excavate and expose existing pipe at structure location indicated. Adjust structure location as directed by Architect or Owner's Representative in event existing pipe joint interferes with structure walls, or as required to obtain required invert, at no increase to Contract Sum. Manually excavate below existing pipe prior to structure base placement. Place concrete structure base and construct structure as specified. Neatly cut and remove upper half of existing pipe and construct invert flow channel.

3.5 STRUCTURES:

A. Refer to Section 02200 "Utility Standards" and as noted.

B. Pipe Connections: Install pipe opening sleeves in accordance with manufacturer's installation instructions. Neatly cut pipes flush with interior structure walls except as otherwise indicated or specified.

C. Structure Joints: Apply liberal coat of joint coating material to each structure section joint in accordance with manufacturer's application instructions.

D. Invert Flow Channels: Construct invert flow channels smooth and semicircular in shape. Shape channels with horizontal circular curve radii as large as structure will permit. Neatly

form channels in structure base with bricks and cement mortar.

3.6 CLEANOUTS:

A. Refer to Section 02230 "Storm Drainage System", and as noted.

B. Install cleanouts in accordance with manufacturer's installation instructions and as indicated.

1. Construct concrete pads of Class "A" concrete as indicated.
2. Cleanouts in paved walk shall be installed without a concrete pad. Top shall be cast into and set flush with finished walk surface.

3.7 BACKFILL:

A. Refer to Section 02200 "Utility Standards", and as noted.

B. Sanitary Sewer mains must be inspected by Engineer of Record prior to completion of backfill operations. Contractor shall provide a minimum of 48 hours notice to Engineer of Record before completion of backfill operations.

C. Underground Identification Tape: Install tape during backfill operations. Tape shall be centered over pipe, located 12 inches above top of pipe.

3.8 SYSTEM TESTING:

A. Provide equipment, materials and labor required to test system. Conduct low pressure air tests in accordance with WSSC standards. Provide a minimum of 48 hours notification of planned testing. Test observation by the Engineer of Record and WSSC personnel.

B. Repair or replace defective products and system construction, which fails tests as directed by local jurisdiction approving agency. Provide additional corrective work and retesting until system is approved and accepted. Provide corrective work and retesting at no increase to Contract Sum.

3.9 SYSTEM INSPECTION:

A. Retain services of Maryland-registered engineer for inspection of system construction and certification that system complies with standards specified. In accordance with requirements on approved WSSC drawings, inspecting engineer must be engineer of record for approved WSSC drawings.

B. Provide additional corrective work, determined necessary by television inspection, as specified for system testing.

END OF SECTION