

CITY OF BALTIMORE
STANDARD SPECIFICATIONS

2006

USER'S GUIDE



FOR
MATERIALS, HIGHWAYS, BRIDGES,
UTILITIES AND INCIDENTAL
STRUCTURES

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INTRODUCTION

The CSI (Construction Specifications Institute) MasterFormat™ is a master list of titles and numbers for organizing information about construction requirements, products, and activities. In the U.S. and Canada, the most widely used format for non-residential building specifications is the CSI MasterFormat.

The standardized CSI format helps to fosters clear communication among designers and builders and all the other construction project participants. That makes it easier to meet the owner's requirements, timeline and budget. For the most part, the City project engineer should not find that letting a construction project under the City of Baltimore Standard Specifications 2006 is substantially different, or more burdensome, than the exercise of developing such projects under the 1979 version.

In a manner similar to use of the 1979 version, the City project engineer will find that in most instances, the City of Baltimore Standard Specifications 2006 will not contain all of the technical specifications required for an individual contract. The City design team and/or the consulting engineer will be required to provide project-specific technical specifications

Of the 49 Divisions now in use by CSI, only 19 are used by the City.

DIVISION 00	PROCUREMENT AND CONTRACTING REQUIREMENTS
DIVISION 01	GENERAL CONDITIONS
DIVISION 02	EXISTING CONDITIONS
DIVISION 03	CONCRETE
DIVISION 04	MASONRY
DIVISION 05	METALS
DIVISION 06	WOOD PLASTIC AND COMPOSITES
DIVISION 09	FINISHES
DIVISION 10	SPECIALTIES
DIVISION 13	SPECIAL CONSTRUCTION
DIVISION 23	HEATING, VENTILATING AND AIR CONDITIONING (HVAC)
DIVISION 25	INTEGRATED AUTOMATION
DIVISION 26	ELECTRICAL
DIVISION 28	ELECTRONIC SAFETIES AND SECURITY
DIVISION 31	EARTHWORK
DIVISION 32	EXTERIOR IMPROVEMENT
DIVISION 33	UTILITIES
DIVISION 34	TRANSPORTATION
DIVISION 35	WATERWAY AND MARINE CONSTRUCTION

The Standard Specifications 2006 contains general non-technical provisions found within DIVISIONS 00 and 01; many of such provisions are derived from earlier standard Department of Public Works documents, such as the 1979 Standard Specifications (Green Book).

The Standard Specifications 2006 also contain technical specifications, which, the committee believed, were appropriate for adoption as City standards. Some of these specifications are extensive and may be more than required for a specific project. The City's Engineer may find that some such technical specifications require adjustment, to be appropriate for the respective project. The project engineer should, therefore, be free to allow individual technical specifications to be amended or adjusted, as necessary.

While individual technical sections may be amended or adjusted; with respect to non-technical specifications, such as DIVISIONS 00 and 01, the project Engineer should be more circumspect in allowing changes to these divisions, for any particular projects, due to various legal and monetary ramifications. These divisions represent the deliberative choices of a committee, chaired by the Deputy Director of Public Works. As such, if a project engineer wishes to make an adjustment within a DIVISION 00 or 01 section, the engineer should first alert his or her supervisor.

ENGINEER'S ABILITY TO ALTER SPECIFICATIONS

Pursuant to section 01 26 10 ALTERATIONS OF PLANS AND/OR SPECIFICATIONS, the Engineer may wish to amend the Specifications if a project is of short duration and/or if the work is required to be completed quickly. For example, the Engineer may find the requirements for submittal of a schedule in 01 32 16, O, SCHEDULES AND REPORTS, allows too much time to laps. The Engineer may find it needful to streamline the requirements for the submittal of the schedule, for example, from the fifteen (15) days allowed, to two (2) days, and allow for a simpler format for the schedule submittal in keeping with the work requirements and time constraints. Examples of some alternate specifications are attached below. See Section 01 26 10 ALTERATIONS OF PLANS AND/OR SPECIFICATIONS for more information.

ALTER SPECIFICATIONS

A list of alternate specifications is provided below. Copies of these specifications can be found at the end of the User Guide as attachments and are provided for use as possible alternate specifications if so deemed by the Engineer.

ATTACHMENT 1: SUBMITTAL OF SCHEDULES can be an alternate specification for 01 32 16, SCHEDULES AND REPORTS. For use as a less stringent scheduling requirements to expedite small projects or those whose completion are required quickly.

ATTACHMENT 2: SHOP DRAWINGS can be an alternate specification for 01 33 21 CONTRACT DOCUMENTS, WORKING DRAWINGS, SHOP DRAWINGS AND PRODUCT DATA. Used for a less cumbersome requirement for small projects that do not require elaborate drawings and to assist in expediting completion of projects.

ATTACHMENT 3: TEMPORARY FACILITIES can be an alternate specification for 01 51 13 TEMPORARY ELECTRICAL SERVICES, 01 51 23 TEMPORARY HEAT, 01 51 36 TEMPORARY TELECOMMUNICATIONS, 01 51 36 TEMPORARY WATER and 01 51 37 TEMPORARY SANITARY FACILITIES, to be used in place of subsections to 01 51 13 TEMPORARY UTILITIES where the Engineer may reduce or eliminate the requirements for temporary utilities for small projects or those of short duration.

ATTACHMENT 4: TUNNELING AND JACKING can be an alternate specification or addition for 31 23 33 TRENCHING AND BACKFILLING, for use when tunneling or jacking will expedite the work or reduce cost to complete the project.

ATTACHMENT 5: FINAL INSPECTION AND ACCEPTANCE can be an alternate specification for 01 77 16 FINAL INSPECTION and/or 01 77 17 FINAL ACCEPTANCE. Use to expedite the completion of the project when the work incidental or does not have any part that has a warranty or certification requirement.

ATTACHMENT 6: CLOSEOUT SUBMITTALS O AND M DATA AND MANUFACTURER'S CERTIFICATES is a possible alternate for 01 78 23 OPERATION AND MAINTENANCE DATA. Use to reduce closeout requirements where projects equipment, systems and deliverables are routine and known to the Engineer. Where the City is in position of existing O and M manuals and the equipment or deliverables are already known to meet the requirements for manufacturer's certification.

ATTACHMENT 7: MEASUREMENTS AND PAYMENTS can be an alternate specification for 01 29 74 MEASUREMENT AND QUANTITIES, 01 29 75 SCOPE OF PAYMENT and/or 01 29 76 PROGRESS PAYMENT PROCEDURES. Use as a simplified alternate section for a small project where the need for elaborate measurement and payment requirements are not necessary.

ATTACHMENT 8: SCHEDULES AND REPORTS FOR BACK RIVER is to be used when contracting for the Back River Water Treatment Plant. Replace designated paragraphs in 01 32 16, U, 6 and X, 5 as specified in the alternate specification.

ADDING NEW SPECIFICATIONS

The CSI format does offer flexibility whereas an Engineer can add sections pertinent to the City of Baltimore's activities upon proper City approval to the sections already listed.

Adding a number to the specific division that the new item is related to is a simple task. Find the division the new item fits into. Look for a subdivision that is closely related and where a gap in the numbering exists and insert a similar number. For example, DIVISION 26 is electrical. Suppose the City has a procedure that deals with Low Voltage Sub panels. The closest number in the CSI format is 26 24 16 PANEL BOARDS. Therefore, the Engineer could add either a sub number (e.g. 26 24 16.01 SUB-PANELS or add a new number 26 24 17 LOW VOLTAGE SUB PANELS. This could then be formally processed through the City departments for approval to avoid duplication of the numbering system. Duplication of numbers must be avoided at all cost to mitigate confusion. A complete listing of CSI Divisions can be seen at http://www.csinet.org/s_csi/docs/9400/9361.pdf.

DESCRIPTION OF THE CONTRACT DOCUMENTS

The contract administration group will be issuing a new "boilerplate" of forms, similar to the one in effect for use with the 1979 standard specifications. This new boilerplate, coupled with the bid or proposal pages generated for the contract, and the additional technical specifications, and any project specific additions (i.e., federal inserts, soil mechanics reports) will comprise the project manual or "spec book." The boilerplate will continue to "prompt" the project engineer to fill in appropriate blanks, insert minimum wage determinations, etc.

The contract documents will be-

The Construction Drawings;
The City of Baltimore Standard Specifications 2006;
The Project Manual;
The Book of Standards

DESCRIPTION OF THE FORMAT OF THE CITY OF BALTIMORE STANDARD SPECIFICATIONS 2006

The 1979 Standard Specifications (Green Book) have been updated, regrouped and reorganized to fit the CSI format and renumbered in accordance with the CSI MasterFormat. Some of the new sections contain the same information as did the old Green Book, while other sections have been changed and elaborated upon and updated. Each technical sub division of the City of Baltimore Standard Specifications 2006 is divided into four main sections designated Part 1 through Part 4.

Part 1 is titled GENERAL and gives a general description of the work the respective specification deals with.

Part 2 is titled PRODUCTS and gives a listing of the materials used in the work and describes specific requirements for those materials.

Part 3 is titled EXECUTION and gives specific specifications for the processes to be used in completing the work.

Part 4 is titled MEASUREMENT AND PAYMENT and explains how and what work is to be measured, what work is paid for and what work is incidental to the project.

NEW SECTIONS AND CHANGES INCORPORATED INTO THE STANDARD SPECIFICATIONS 2006

Much of the new Standard Specifications 2006 is comprised of new sections. These sections contain various old Green Book 1979 information as well as information from Department of Public Works Contracts, Baltimore City Department of Transportation, Maryland State Department of General Services and other municipal sources. The new sections are reorganized, updated and expanded to such an extent that they can no longer be identified with an old Green Book section number. It is advisable to look through the new publication and familiarize yourself with it. Below are listed some of the more prominent additions and changes. This section does not list every change or new section. To see all changes and new sections go to Appendix C.

- 00 51 00.07 CONTRACTOR TO EXECUTE REQUIRED DOCUMENTS AND START WORK PROMPTLY** added the following: As an alternative remedy, the City may elect to start the running of Contract time (without allowing the Contractor to start work) or to pursue any other remedy allowed to the City under the law or equity
- 00 51 00.08 SUBMISSIONS PRIOR TO AWARD;** the percent prime contractor must perform with own forces changed from 50% to 51%.
- 00 73 16 INSURANCE** All policies or certified copies thereof shall now carry a forty-five (45) day advance notice of cancellation and opportunity to cure to the City as opposed to the old requirement of fifteen (15) days.
- 00 73 82 CONTRACT TIME FOR COMPLETION OF THE WORK** This section has been totally reworked.
- 00 73 83 FAILURE TO COMPLETE WORK ON TIME AND LIQUIDATED DAMAGES** are now located in these two sections. The Liquidated Damages Table is deleted.
- 00 73 74.01 AMERICAN STEEL PRODUCTS REQUIREMENTS** The Buy American provision is found in 00 73 74.01.

00 73 86 REQUIRED PROVISIONS FOR FEDERALLY AIDED HIGHWAY PROJECTS

Requirements for compliance with Federal Highway aid in reference to

- 00 73 86.01 EFFECT OF REQUIRED PROVISIONS,
- 00 73 86.02 ADJUSTMENTS FOR CHANGES IN REGULATED COMMON CARRIER RATES,
- 00 73 86.03 MOTOR VEHICLE LAW,
- 00 73 86.04 SECURING OF LABOR FROM EMPLOYMENT SECURITY OFFICES,
- 00 73 86.05 ANTI-COLLUSION CERTIFICATE,
- 00 73 86.06 CERTIFICATION OF NON-SEGREGATED FACILITIES,
- 00 73 86.07 CONSTRUCTION SAFETY AND HEALTH STANDARDS and
- 00 73 86.09 CLEARANCE FOR AERIAL ELECTRICAL LINES have been removed. Article 4 provisions for equal employment opportunity requirements have also been removed. All of the above are addressed in section 00 21 13.06 FAMILIARITY WITH LAWS. If the Engineer deems necessary the above requirements can be included in the Contract.

01 25 13 EQUAL OR APPROVED EQUAL Much of this section has been reworded.

01 26 13 REQUEST FOR INFORMATION / INTERPRETATION is a new section that may have only been addressed in the Contract Documents. The procedure for submitting Requests for Information (RFIs) is contained in 01 26 13 REQUEST FOR INFORMATION / INTERPRETATION. RFI is also referred to in 01 11 15 INTERPRETATION OF PLANS.

01 32 16 SCHEDULES AND REPORTS is a new section and contains the Critical Path Schedule requirements. This section is where the requirements for schedules and reports is now found. This section is fairly elaborate and is appropriate for large more complex projects. The Engineer may find it needful to amend and adjust the specification to fit the specifics for a smaller, simpler project.

01 32 33 CONSTRUCTION PHOTOGRAPHS contains specifications for use of Digital photography and media has been addressed by adding specifications to 01 32 33 CONSTRUCTION PHOTOGRAPHS and 33 31 13.01 CURED IN PLACE PIPE FOR SANITARY SEWERS.

01 33 00 SUBMITTAL PROCEDURES

- 01 33 10 MANUFACTURER'S LIST Lists are to be submitted within thirty (30) days after receipt of a Notice to Proceed and
- 01 33 21 CONTRACT DOCUMENTS, WORKING DRAWINGS, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES Is a new section requiring shop drawing and product data lists to be submitted to the Engineer within forty five (45) calendar days from the Notice to Proceed in proper sequence as defined in the specification. This section is fairly elaborate and is appropriate for large, more complex projects. The Engineer may wish to substitute a more fundamental specification when dealing with smaller, simpler projects.

01 35 24 ACCIDENTS now requires the contractor to submit a project safety plan to the Engineer for approval. A Project Safety Officer is to be designated.

01 45 14 QUALITY OF MATERIALS is found in this section.

01 45 34 USE OF EXPLOSIVES specifications are to be considered minimal provisions. In the event that the Designer and/or Consultant believes that blasting will be required, or that the Contractor may elect to use explosives, the Designer should consider writing a project specific specification in order to supplement the above specifications. Other specifications that contain information on use of explosives are,

- 02 41 13.14 MINOR SELECTIVE SITE DEMOLITION)
- 31 23 16.10 ROADWAY EXCAVATION, CLASS 1, CLASS 1-A, CLASS 2 has been completely reconfigured, rewritten and updated.
- 31 23 16.16 STRUCTURE EXCAVATION CLASS 3, Class 4 and dry rubble masonry backfill has been eliminated.
- 31 23 33 TRENCHING AND BACKFILLING, POINT OF EXCAVATION AND BACKFILL is a new section primarily for Water Utilities This section contains the most information on the use of explosives.

01 51 00 TEMPORARY UTILITIES are new sections that may have only been addressed in the Contract Documents.

- 01 51 13 TEMPORARY ELECTRICAL SERVICES The City does not guarantee electrical service.
- 01 51 23 TEMPORARY HEAT
- 01 51 33 TEMPORARY TELECOMMUNICATIONS
- 01 51 36 TEMPORARY WATER The City does not guarantee water service. When available the Contractor can use City water. If City water is unavailable the Contractor is to furnish, transport store and dispose of water for the work at its own expense.
- 01 51 37 TEMPORARY SANITARY FACILITIES

01 66 10 STORAGE OF MATERIALS

01 77 00 CLOSEOUT PROCEDURES

- 01 77 16 Final Inspection
- 01 77 17 Final Acceptance
- 01 77 20 Last Payment to Terminate Liability of the City
- 01 77 21 Evidence of Payment for Labor and Materials

01 78 00 CLOSE OUT SUBMITTALS

- 01 78 23 Operation and Maintenance Data
- 01 78 24 Manufacturer's Certificates
- 01 78 36 Warranties
- 01 78 39 Project Records Documents

03 30 43 PRODUCTION PLANTS; this section is added to assist the City in remedying sub standard quality product emanating from production plants if such a problem should arise.

LIGHTING AND SIGN STRUCTURE AND RELATED SPECIFICATIONS: These specifications have been included in the City of Baltimore Standard Specifications 2006. The main sections are listed below. Parts of other sections may also be applicable. See Appendix A or B for all the new sections contained in the Standard Specifications 2006.

DIVISION 10 SPECIALTIES

10 14 15 SIGN SUPPORTS are all new sections.

- 10 14 15.01 BRIDGE MOUNTED SIGN SUPPORTS is a new section containing information on epoxy grout, structural steel, anchor bolts, high strength hardware and paint.
- 10 14 15.02 CONCRETE FOUNDATIONS FOR TRAFFIC SIGNALS contains information for galvanized parts, concrete placement, unusual soil conditions and backfill.
- 10 14 15.03 GALVANIZED STEEL BEAM SIGN POSTS
- 10 14 15.04 OVERHEAD SIGN STRUCTURES
- 10 14 15.05 WOOD SIGN SUPPORTS
- 10 14 15.08 BREAKAWAY BASE SUPPORT SYSTEMS
- 10 14 15.09 REMOVE AND RELOCATE EXISTING SIGNS AND SIGN STRUCTURES.

10 14 53 TRAFFIC SIGNS contains tables for minimum reflective intensity value for type III sheeting and for high performance prismatic lens sheeting.

- 10 14 53.01 TRAFFIC CONTROL- ELECTRICAL CABLE, WIRE AND CONNECTORS contains information for direct buried cable, cable in conduit, preassembled cable duct, cable in lighting fixtures, identification tags, loop detector wire and lead-ins, grounding, connector kits and micro-loop probe.
- 10 14 53.10 MODIFY EXISTING SIGN MESSAGES contains information for modifying signs with demountable copy and direct applied copy.
- 10 14 53.23 TEMPORARY TRAFFIC SIGNS (TTS)
- 10 14 53.33 MODIFICATION OF EXISTING SIGNS
- 10 14 63.11 PORTABLE VARIABLE MESSAGE SIGNS (PVMS) contains information for trailer, structural supports, sign panels, flip disk mechanism, LED illumination, PVMS unit, electrical connections and gauges, controller, power, solar power and character set software.
- 10 14 63.12 ARROW PANEL (AP)

DIVISION 26 ELECTRICAL

26 07 00 BASIC ELECTRICAL MATERIAL AND METHODS

- 26 07 01.01 ELECTRICAL CONDUIT AND FITTINGS
- 26 07 01.02 ELECTRICAL HAND HOLES, MANHOLES, PULL AND JUNCTION BOXES
- 26 07 01.03 GENERAL ELECTRICAL WORK AND TESTING
- 26 07 01.04 ELECTRICAL CONDUIT SYSTEMS

26 27 00 LOW VOLTAGE DISTRIBUTION EQUIPMENT

- 26 27 01 ELECTRICAL SERVICE EQUIPMENT

26 50 00 LIGHTING

- 26 50 01 LUMINAIRES AND LAMPS
- 26 50 02 LIGHTING CONDUITS, FITTINGS AND BOXES
- 26 56 12 TEMPORARY STREET LIGHTING
- 26 56 13 LIGHTING POLES AND STANDARDS (LIGHTING STRUCTURES)
- 26 56 13.01 REMOVE AND RELOCATE OR REMOVE AND DISPOSE OF ROADWAY LIGHTING STRUCTURES
- 26 56 13.02 CUTTING AND CAPPING MAST ARMS AND POLES
- 26 56 14 LIGHTING AND SIGNAL POLE BASES

- DIVISION 34 TRANSPORTATION** is all new
- 34 01 13.10 TRAFFIC CONTROL PLAN (TCP)
 - 34 01 13.15 SAW CUTS FOR TRAFFIC CONTROL DEVICES
 - 34 41 00 ROADWAY SIGNALING AND CONTROL EQUIPMENT MAINTENANCE OF TRAFFIC)
 - 34 41 13.10 SIGNAL STRUCTURES contains completely rewritten and updated information on installation and, hardware.
 - 34 41 13.20 STEEL SPAN WIRE
 - 34 41 13.30 SIGNAL HEADS contains information on visors, optical systems and electrical requirements.
 - 34 41 16.06 TRENCHING AND BACKFILLING FOR TRAFFIC CONTROL DEVICES contains information on backfill, conduit detection tape, excavation and cable treatment.
 - 34 41 16.08 TRAFFIC CONTROL DEVICE CABINETS AND EQUIPMENT contains information on base mounted and pole mounted traffic signal cabinets, base and pole mounted lighting cabinets.
 - 34 41 16.09 PUSH BUTTONS AND PUSH BUTTON SIGNS and
All Traffic control barriers and structures are new sections.

33 00 02 CORROSION CONTROL is a new section containing information on Corrosion Control. This section contains information on submittals, magnesium, zinc, zinc and magnesium ribbon anodes, reference electrodes, test stations, current measuring shunts, wire, thermite welding and equipment, insulating devices, compression connectors, coatings, linked rubber seal, separator mesh, insulated casing spacers and end seals, application of external coating, protection, field repairs joints and special fittings for prestressed concrete pipe, transportation and handling, bonded joints, clearance to other structures, foreign line crossings, concrete buttresses, support, anchor and thrust blocking, insulating flanges, couplings and corporate stops and post installation testing.

32 01 30.10 PATCH EXISTING PAVEMENT AND RESTORE UTILITY SERVICE
The road cut policy is contained in section 32 01 30.10 and has been amended to include the designation of "Overall Condition Index (OCI) 3, 4 and 5" in place of "existing paving more than two years old" and "Overall Condition Index (OCI) 1 and 2" to replace "existing paving surface less than two (2) years old" replacing the designation for roads two years older.

UTILITIES: The old Green Book section 34.02A STORM WATER DRAINS, SANITARY SEWERS AND WATER MAINS have been segregated into utility specific sections for sewer, public water and storm water. These expanded and updated sections are found in DIVISION 31 and 33.

DIVISION 31 EARTHWORK

31 23 33 Trenching and Backfilling, Point Excavation and Backfill, this section was written specifically for the utility sections in mind.

DIVISION 33 UTILITIES

33 05 16 UTILITY STRUCTURES

33 05 16.13 PRECAST CONCRETE UTILITY STRUCTURES contains information on Contractor options, joint seals, sanitary manhole materials, design criteria, inlets, grade rings, fabrication, handling and installation.

33 11 00 WATER UTILITY DISTRIBUTION PIPING

33 11 13 PUBLIC WATER UTILITY DISTRIBUTION PIPING contains information on ductile iron, polyvinyl chloride, high density polyethylene pressure and steel piping, tests and examinations, preparation, installation, Joining pipe, fittings, maintenance of water service and abandonment.

33 12 00 WATER UTILITY DISTRIBUTION EQUIPMENT

33 12 00 WATER SERVICES, WATER METER SETTINGS, AND VAULTS contains information on water service, water meters settings and vaults, detailed material requirements, connections to mains and water service relocation.

33 12 16 WATER VALVES AND APPURTENANCES contain information of buried gate and butterfly valves, valve boxes and covers and sleeves.

33 12 19 WATER UTILITY DISTRIBUTION FIRE HYDRANTS contains information of fire hydrant installation and the materials required to complete installation.

33 13 00 CLEANING AND LINING WATER MAINS contains information on property owner notification, temporary bypass water service and fire hydrant service, access and excavated openings, cleaning, lining and curing, protection of lining, chlorination of main, returning lined main to service, testing, pipe openings, couplings, inline valves and fire hydrant valves, fitting and valve abandonment, guard rail W-beam, existing fire hydrants and below ground main feeds.

33 30 00 SANITARY SEWERAGE UTILITIES

33 31 00 SANITARY UTILITY SEWERAGE PIPING contains information on preparation, maintaining sewer service, installation of reinforced concrete, ductile iron and polyvinyl chloride pipe, sanitary house connections, field testing and air test tables.

33 31 13.01 CURED IN PLACE PIPE (CIPP) FOR SANITARY SEWERS contains information on TV inspection methods, materials and documentation, manufacturer information, by-pass pumping and material, water use, preconstruction, prior to installing liner and post construction submittals, sewer pipe cleaning, equipment, removal and disposal of cleaned materials, acceptance of work, CIPP lining installation and inspection, preparations, lining procedures, sealing at manholes, defective work, reestablishing connections, sealing sewer house connections, CIPP testing and final acceptance, final clean up.

33 31 13.02 REESTABLISHING SEWER HOUSE CONNECTIONS AFTER REHABILITATING MAIN LINE SEWER WITH CURED IN PLACE PIPE (CIPP) contains information on reestablishing and sealing sewer house connections.

33 39 00 SANITARY UTILITY SEWERAGE STRUCTURES

33 39 13 SANITARY UTILITY SEWERAGE MANHOLES, MISCELLANEOUS STRUCTURES, FRAMES AND COVERS contains information on construction sequence, castings, pipe connections, precast sewer, masonry sewer, sewer and sanitary sewer structures, connections to existing sewer, pipe encasement, manhole invert/channel and final testing.

33 41 00 STORM UTILITY DRAINAGE PIPING contains information on quality controls, pipe, delivery, handling and storage, installation and repairs, concrete and metal pipe, excavation, bedding, joints and connections, structural plate pipe and arch culvert.

33 44 00 STORM UTILITY WATER DRAINS

33 44 13.23 PREFABRICATED EDGE DRAINS contains information on trenches for prefabricated edge drains, splices, connections to outlets and backfill of trenches.

33 44 19.12 BIORETENTION FACILITIES contains information on excavation and excavated materials, geotextiles, perforated pipe systems, cleanouts, observation wells, vents and mulching.

33 44 19 UTILITY STORM WATER TREATMENT

33 44 19.14 DRY SWALE FACILITIES contains information on excavation and excavated materials, geotextiles, perforated pipe systems, cleanouts, observation wells, vents placement and compaction of the bioretention soil mixture and placement of sod.

33 44 19.15 DRAINAGE, SURFACE SAND FILTERS contains information on surface sand filter excavation, forebay excavation, geotextiles, perforated pipe systems, cleanouts, observation wells, placement and compaction of sand and compaction of bioretention soil mixture and placement of sod.

33 44 19.16 INFILTRATION TRENCHES contains information on excavation and installation.

33 46 00 SUBDRAINAGE

33 46 16.19 PIPE UNDERDRAINS AND OUTLETS contains information on geotextile table, excavation, pipe placement, outlets, backfill, video inspection and acceptance, cleaning existing outlets and permanent subgrade drains.

REFERENCES

Appendix A: “Cross Reference of 1979 Green Book to Standard Specifications 2006” If the old Green Book section number is known, Appendix A can be utilized to cross-reference that number to find the corresponding section in the new Standard Specifications 2006 that contains the sought after information. Appendix A is an interim to becoming familiar with the CSI format. One can easily see the 1979 Green Book section reference in the third and fourth columns. Column six and seven give the exact CSI location in the new 2006 where the information can be found. An example of the listing follows:

Source	Source Section	Green Book X-Ref	Title	Division	New Section	Sub-number	New Title
GB	10.04-48	10.04-48	Obstructions	01	01 76 07		Obstructions

Appendix B: “Cross Reference of the Standard Specifications 2006 to 1979 Green Book” Appendix B gives the same basic information as Appendix A, but the sort is by the new Standard Specifications 2006 section numbers. This document will also assist anyone who has a new CSI numbered document that wishes to see the 1979 Green Book number in order to facilitate ease with becoming familiar with the new format. An example of the listing follows:

Source	Source Section	Green Book Reference	Title	Division	New Section	Sub-number	New Title
	GS	1.10	10.02-6	Signatures on Proposal	00	00 21 13	.10

Appendix C: “An Annunciation of Changes from the 1979 Green Book to the New Green Book 2006”. This document is sorted by the 1979 Green Book section numbers and lists the changes made to the old Green Book 1979 when incorporating the information into the new Standard Specifications 2006. An example of the listing follows:

OLD GB #	Title	New Section	Sub-paragraph	New Title	Changes
10.01-1	Definition of City Terms	00 23 00	.01	Definition of City Terms	107 new Definition of Terms have been added.

Appendix D: “Bid Items” This is a list of bid items referencing the specification number and all of the items that may be included as paid items on the Contract Documents depending on the project circumstances. An example of the listing follows:

New CSI No. Description (BID Item)

02 20 01	CONSTRUCTION STAKEOUT (Furnish, establish (layout), place, maintain and reestablish as directed, stakes and stakeouts, string lines, flagging of clearing limits and wetlands, equipment, preservation of centerlines and benchmarks, material, labor, equipment and tools).
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ATTACHMENT 1

SUBMITTAL OF SCHEDULE, Possible alternate used to amend 01 32 16 (Submittals and Reports). For use as less stringent scheduling requirements to expedite small projects or those whose completion are required quickly.

- A. If the duration of the work is short or the quantity of the work is small or the timetable required to complete the work necessitates the work to be expedited, the schedule requirements specified in 01 32 16, can be simplified to expedite the completion and submission of the required project schedule, when approved by the Engineer.
- B. Within fifteen (15) days, or fewer number of days, if allowed by the Engineer, after the Award of the Contract, the Contractor shall submit to the Engineer, for approval, a complete Project Schedule for the work to be completed.
 - 1. The project schedule shall show at a minimum:
 - a. The number of locations where work is proposed to be done at the same time,
 - b. The various kind of work so scheduled,
 - c. The dates and/or time the different kinds of work are scheduled to begin,
 - d. The dates and/or time the different kinds of work are to be completed.
 - e. Allowance in the schedule shall be made for normal interruptions to operations due to repairs and maintenance of equipment and delays which are likely to be encountered due to weather conditions and otherwise unforeseen factors.
 - f. The schedule shall demonstrate that the Contractor will complete the work within the specified time and the Contractor shall give evidence of its ability to carry out the work in accordance with the schedule.
- C. If, in the opinion of the Engineer, construction progress has been or will be materially effected by changes in the plans or in the quantities of work, or if the Contractor's performance has failed materially to conform to the approved schedule, the Contractor shall, upon request from the Engineer, submit a revised schedule of operations for approval. Approval of the Contractor's project schedule by the Engineer shall in no way justify the schedules, but simply indicate concurrence in their reasonableness and feasibility on the assumption that the Contractor will make every effort required to meet them.
- D. Existence of a current and approved project schedule shall be a condition precedent to the processing of any partial pay estimate.

ATTACHMENT 2

SHOP DRAWINGS, Possible alternate to amend 01 33 21 (Contract Documents, Working Drawings, Shop Drawings Product Data). For use as a less cumbersome requirement for small projects that do not require elaborate drawings and to assist in expediting completion of projects.

- A. The Contractor shall determine field dimensions and prepare whatever detailed working drawings, shop drawings and pipe layout schedules necessary to carryout and complete its work.
- B. Such drawings and schedules shall be interpreted to include; pipe railing, protective screens, right-of-way fencing, concrete pressure pipe, structural and reinforced steel shop drawings, bending details, sheeting, form work, centering and bracing and any other item included by direction of the Engineer.
- C. Before any work is to commence the Contractor is to submit to the Engineer for approval four (4) copies of the required drawings and schedules.
 - 1. Except as otherwise permitted by the Engineer, all shop drawings and working drawings shall be completely legible on twenty four inch by thirty six inch paper (24" x 36") outside dimensions, with border lines set back three quarters of an inch (3/4") at the top, bottom and right hand sides. The left hand side shall be set back one and one quarter inch (1 1/4").
 - 2. Upon completion of all the work, the drawings shall be corrected to show all parts of the structure as finally built. The tracings shall then be turned over to the Engineer and become the property of the City. Tracings of reinforced steel details shall be on the same size and specifications as enumerated above, but shall not be turned over to the City.
- D. The approval of the Engineer of the drawings and schedules shall not serve in any way to release the Contractor from full responsibility for errors in any drawings, or for the complete and accurate execution of the work.
- E. No change to drawings or schedules shall be permitted after final approval unless allowed explicitly in writing by the Engineer. Following final approval the Contractor shall deliver to the Engineer as many copies of the approved drawings and/or schedules as the Engineer may request.
 - 1. The term "approval" as used in this alternate specification means that all submitted items and details in the drawings and schedules are fully approved with the exception of those items and details that are specifically marked for further action.
 - 2. The withholding of an unqualified approval by the Engineer with respect to any working drawing in its entirety, shall under no circumstances, be a basis for delay in proceeding with the manufacturing, fabricating, delivering and installation, in accord with the Contract of those items or details on such drawings which have been approved.
- F. Any material ordered or work completed by the Contractor prior to the final approval of drawings and schedules shall be entirely at the Contractors own risk.

ATTACHMENT 3

TEMPORARY FACILITIES, Possible alternate for 01 51 13 (Temporary Electrical Services), 01 51 23 (Temporary Heat), 01 51 36 (Temporary Telecommunications), 01 51 36 (Temporary Water) and 01 51 37 (Temporary Sanitary Facilities) to be used where the Engineer may wish to reduce or eliminate the requirements for temporary utilities for small projects or those of short duration.

- A. The Contractor shall provide, at its own cost and expense, all temporary electrical, heat, sanitary accommodations, drinking water and any other water, telecommunications and maintenance of traffic as requires by the Contract Documents and as amended by the Engineer.
1. Temporary drinking water shall be provided in sufficient quantities from a source approved by the Engineer, to adequately hydrate the Contractor, its crew and City personnel.
 2. Temporary heat, including all apparatuses and fuel, shall be provided in quantities and locations and for the duration of time specified in the Contract Documents or as amended by the Engineer.,
 3. The Contractor shall arrange temporary telecommunications for its self, its crew and the Engineer when required in the Contract Documents or as amended by the Engineer.
 4. Contractor and its personnel are forbidden to utilize any existing sanitary facilities. The Contractor shall provide its crew and City personnel with Sanitary accommodations as may be necessary to comply with the requirements and regulations of the Department of Health or of other bodies or tribunals having jurisdiction thereof and the Standard Specifications, or as amended by the Engineer. Contractor is to maintain such accommodations a neat and sanitary condition.
- B. Water for use in the work shall be provided from City fire hydrants when available. If unavailable the Contractor shall provide all water, transport and storage of water and disposal of any waste water at its own cost and expense.

ATTACHMENT 4

TUNNELING AND JACKING, Possible alternate or addition for 31 23 33 TRENCHING AND BACKFILLING for use when tunneling or jacking are omitted from the contract documents, but their use will expedite the work or reduce cost to complete the project.

- A. Unless otherwise indicated, excavation shall be by open cut, in accordance with section 31 23 33, (Trenching and Backfilling, Point Excavation and Backfill). If tunneling or jacking are called for in the Contract Documents, the Contractor or Consultant shall submit a project specific specification to the Engineer for its approval for all required tunneling and/or jacking
- B. This work will not be measured but the cost will be incidental to the applicable Utility item. This work includes all applicable excavation, sheeting, shoring, dewatering, hauling, invert paving, storing, rehandling of material, removal and disposal of excess and unsuitable material (above the planned sub-grade), tamped fill, forming bed or foundation, stone, gravel cradle, backfill, compaction and all material, labor, equipment, tools, and incidentals necessary to complete the work.
- B. In addition to the above submittal, the following shall apply:
 - 1. Tunnels for installing pipelines or other utilities shall be of sufficient size to allow, at all points, the proper joining of pipes and the proper compacting of the refill around them. Tunnels shall be timbered or lined where and to such extent as may be necessary to support the tunnel in accordance with accepted methods. All methods of tunneling used shall be subject to the approval of the Engineer, however, the safety of the tunnel construction and the protection, repair, or replacement of the tunneled obstruction shall be the sole responsibility of the Contractor.
- C. No extra payment beyond that made for trench excavation and backfill will be made for tunnels or jacking pipe under trees, sidewalks, curbs, pipelines, or similar obstructions, unless approved by the Engineer prior to the start of the Work.

ATTACHMENT 5

FINAL INSPECTION AND ACCEPTANCE, Possible alternate for 01 77 16 FINAL INSPECTION and/or 01 77 17 FINAL ACCEPTANCE. Can be use to expedite the completion of the project when the work incidental or does not have any part that has a warranty or certification requirement.

- A. Whenever in the opinion of the Engineer, the Contractor shall have completed all the work in an acceptable manner and in accordance with the Contract, the Engineer shall make a final inspection of the all work, appurtenances, or other structures built under the Contract.
 - 1. The Contractor shall furnish all appliances, tools, material and labor which may be required for such inspections.
 - 2. The Engineer may require repairs or renewals of work. Upon completion of all such repairs or renewals, which may appear at that time to be necessary, in the judgment of the Engineer, the Engineer shall certify to the City in writing the completeness of the work.

- B. The City, upon receipt and approval of said certification, shall pay, or cause to be paid, to the said Contractor, the whole amount of money due it under the Contract, except for such sum or sums that may have already been expended by the City under the provisions of the Contract Documents and less any other deductions the City is otherwise entitled to make.
 - 1. No compensation will be made to the Contractor for any time, labor, materials, tools, or appliances which may be expended or used in such inspections, repairs or renewals.

ATTACHMENT 6

CLOSEOUT SUBMITTALS, Possible alternate for 01 78 23 (Operation and Maintenance Data) and 01 78 24 (Manufacturers Certificates). Use to reduce closeout requirements where projects equipment, systems and deliverables are routine and known to the Engineer. Where the City is in position of existing O and M manuals and the equipment or deliverables are already known to meet the requirements for manufacturer's certification.

- A. the Contractor shall furnish for the Engineer's review and/or approval the specified type and number of copies of O&M manuals according to the designated dates and/or percentages of work complete milestones found in 01 78 23 (Operation and Maintenance Data), or as amended by the Engineer.
- B. The Contractor shall furnish three (3) copies of all final Operation and Maintenance Manuals as well as a readable, scanned copy on CD ROM in Microsoft Word for Microsoft Office or PDF files, for all products and equipment identified in the manual. The submission shall contain all the information required in section 01 78 23, E, or as amended by the Engineer
- D. The Contractor shall complete Form A, "Equipment Registration", Form B, "Parts Sheet" and Form C, "Maintenance Procedure Sheet" for each type of equipment furnished under the Contract per the schedule found in 01 78 23. These forms shall be included in the Operations and Maintenance Manual at the proper place.
- E. Delivery of all manufacturers' service (O&M) manuals and installation instructions satisfactory to the Engineer is an essential part of the equipment delivery to meet EPA requirements. These requirements are published in the federal regulations for the preparation of an O&M Manual and prerequisite to approval of final payment on the delivery of that equipment. Incomplete and inadequate manuals will be returned to the Contractor for correction and/or resubmission.
- F. The Contractor shall provide, at its own cost and expense, the manufacturers certifications in accordance with section 01 78 24 (Manufacturer's Certificates), or as amended by the Engineer.
- G The Contractor Warrants and guarantees to the City the work to be complete and per the Contract Documents and Section 01 78 36 of the City of Baltimore Standard Specifications.

ATTACHMENT 7

MEASUREMENT AND PAYMENT, Possible alternate for 01 29 74 MEASUREMENT AND QUANTITIES, 01 29 75 SCOPE OF PAYMENT, and/or 01 29 76 (Progress Payment Procedures). Use as a simplified alternate section for small projects where the need for elaborate measurement and payment requirements are not necessary.

- A. There is a Measurement and Payment segment at the end of each Standard Specification section that explains the means of measurement and payment for the materials and work in that specific section. All measurements are to be performed in accordance with each Measurement and Payment segment of the respective Standard Specifications section and with 01 29 74 (Measurements and Quantities).
 - 1. The means of measurement For all items or work, other than those paid for by lump sum, after the work is complete and before final payment is made therefore, the Engineer shall make measurements, according to the standards of weight and measures recognized by the National Bureau of Standards, to determine the quantities of various items of work performed as the basis for final settlement.
 - 2. For unit price items the Contractor shall be paid for the actual amount of work done and materials in place, in accordance with the Contract Documents and Standard Specifications.
- B. All payments shall conform to the requirements in 01 29 75 (Scope of Payment, 01 29 76 (Progress Payment Procedures), 01 29 77 (Payments May be Withheld), and 01 29 78 (Application of Monies Retained).

ATTACHMENT 8

SCHEDULES AND REPORTS FOR BACK RIVER, alternate for 01 32 16 SCHEDULES AND REPORTS

- A. When contracting for the Back River Treatment Plant the scope of work for the Engineer and Contractor, in relation to scheduling requirements, is different than that contained in the City of Baltimore Standard Specification 2006, section 01 32 16 SCHEDULES AND REPORTS. When contracting for Back River Treatment Plant it may be necessary to amend the specifications as stated below.
1. The existing Standard Specification 2006 paragraph 01 32 16, U, 6 is to be deleted and replaced with:
 - a. The Engineer will provide, after approval of the schedule of values, a computer listing of all the cost loaded activities for Contractor's view. The existing Standard Specification 2006 paragraph 01 32 16, X, 4 is to be deleted and replaced with:
 - b. The Engineer will provide initial computer reports and monthly reports thereafter, in accordance with the following:
 2. The existing Standard Specification 2006 paragraph 01 32 16, X, 5 is to be deleted and replaced with:
 - a. As part of the updating process, the Engineer will calculate, based upon progress data provided by the Contractor and agreed to by Engineering, the value of Work done for each activity less the amount previously paid for past percentages complete. Summation of all values of each activity, less the appropriate percentage of retainage, shall be the amount payable to the Contractor, provided the Contractor has complied with all requirements of the Contract Documents.