

CITY OF BALTIMORE

Brandon M. Scott
Mayor

DEPARTMENT OF PUBLIC WORKS

Jason W. Mitchell
Director

OFFICE OF ASSET MANAGEMENT

Brian Ball, PE
Chief



SANITARY CONTRACT NO. 1002R

FOR

**CLEANING AND INSPECTION OF SANITARY SEWERS
IN BALTIMORE CITY - CITYWIDE**

NOTICE TO BIDDERS

SUPPLEMENTAL BIDDING INSTRUCTION

The following instruction supplements the bidding instructions found elsewhere in the Bid Book and those referenced therein.

EACH BIDDER IS HEREBY NOTIFIED THAT THEIR REPRESENTED COMPANY MUST COMPLETELY FILL IN THE ORIGINAL BID AND THE REQUIRED BID/PROPOSAL AFFIDAVIT AND DOCUMENTS LOCATED IN THE BID BOOK. THE ORIGINAL BID, (WHICH MUST REMAIN ATTACHED TO THE BID BOOK) PLUS THE FULLY COMPLETED DUPLICATE BID MUST BE SUBMITTED IN THE BID ENVELOPE, IF ONE IS PROVIDED FOR THAT PURPOSE. **ALL ISSUED ADDENDA IN THEIR ENTIRETY MUST BE ATTACHED TO THE ORIGINAL BID WHEN SUBMITTING YOUR BID TO THE COMPTROLLER'S OFFICE—DO NOT REMOVE ANY PAGES FROM ISSUED ADDENDA.** YOU MUST ALSO ACKNOWLEDGE RECEIPT OF ALL ADDENDUMS. FAILURE TO FOLLOW THESE DIRECTIONS WILL CAUSE YOUR BID TO BE DECLARED UNRESPONSIVE AND THE BID MAY BE REJECTED BY THE BOARD OF ESTIMATES.

MINORITY AND WOMEN'S BUSINESS PROGRAM

INCLUDED IN THIS CONTRACT IS A MINORITY AND WOMEN'S BUSINESS PROGRAM PACKAGE. MINORITY AND WOMEN'S BUSINESS PROGRAM PACKAGE FORMS MUST BE COMPLETED AND SUBMITTED WITH YOUR BID PROPOSAL. FAILURE TO SUBMIT THE INFORMATION APPROPRIATELY AND NOT MEETING OR EXCEEDING THE GOALS IDENTIFIED IN THE SPECIFICATIONS AT THE TIME OF SUBMISSION. FAILURE TO FOLLOW THESE INSTRUCTIONS WILL CAUSE YOUR BID TO BE DECLARED UNRESPONSIVE AND THE BID REJECTED.

BALTIMORE APPRENTICESHIP TRAINEE PROGRAM (BATP)

THE BALTIMORE APPRENTICESHIP TRAINEE PROGRAM (BATP) REQUIREMENTS ARE EXCLUDED FROM THIS CONTRACT.

BALTIMORE CITY LOCAL HIRING LAW

THIS CONTRACT INCLUDES THE CITY OF BALTIMORE'S LOCAL HIRING LAW WHICH BECAME EFFECTIVE DECEMBER 23, 2013. PLEASE REFER TO THE "INSTRUCTIONS TO BIDDERS" SECTION AND THE "LOCAL HIRING LAW" SECTION WITHIN THIS SPECIFICATION FOR REQUIREMENTS OF THIS LAW. **ALL FORMS IN THE BALTIMORE CITY LOCAL HIRING LAW PACKET MUST BE COMPLETED AND SUBMITTED WITH YOUR BID PROPOSAL.** FAILURE TO SUBMIT REQUIRED FORMS WITH YOUR SUBMISSION MAY BE CAUSE TO HAVE YOUR BID REJECTED. IT IS MANDATORY THAT ALL AWARDEES ARE TO MEET WITH MAYOR'S OFFICE OF EMPLOYMENT DEVELOPMENT. IF THE AWARDEE DOES NOT SCHEDULE AND MEET WITH MOED, THE FIRST ESTIMATE WILL NOT BE PROCESSED.

BALTIMORE CITY YOUTHWORKS FORMS

THE BALTIMORE CITY'S YOUTHWORKS PROGRAM FORM IS INCLUDED IN THIS CONTRACT. THE ACCOMPANYING MANILA BID ENVELOPE CONTAINS BALTIMORE CITY'S YOUTHWORKS PROGRAM FORM ORIGINAL DOCUMENTS WHICH MUST BE COMPLETED FOR ALL CONTRACTS. THE SINGLE PAGE OF THE BALTIMORE CITY'S YOUTHWORKS FORM MUST BE COMPLETED AND SUBMITTED **WITH YOUR BID PROPOSAL**

BID DOCUMENT CHECKLIST*

The following must occur as part of your bid submission or your bid may be deemed non-responsive:

DONE	REQUIRED ACTIONS
<input type="checkbox"/>	Each Addendum issued must be acknowledged on the Bid or Proposal page and the entire addenda must be attached to the contract specification with the bid submission. DO NOT REMOVE ANY PAGES from issued Addenda.
<input type="checkbox"/>	Bid Prices for each and every item and the total must be entered where indicated. Written word and Numerical representation of pricing for each BID ITEM must match exactly. Written word and Numerical representation of pricing for the TOTAL BID amount must match exactly.
<input type="checkbox"/>	Follow all of the instructions on the Minority Business forms contained in the bid/specification package: <ul style="list-style-type: none"> ○ Complete each line with the <u>exact</u> information that is requested; ○ If a total subcontract value is requested, do not enter a percentage instead; ○ Execute the form on behalf of the bidder; ○ Confirm that the proposed subcontractor has executed the form. ○ Changes to information on this form that are material to the agreement between the prime contractor and MBE or WBE must be initialed by both parties.
<input type="checkbox"/>	Provide one original Bid Bond (with original Power of Attorney) or other acceptable bid security in acceptable amount along with a copy of the bid bond or other bid security: <ul style="list-style-type: none"> ○ If locally funded, 2% of the total bid amount ○ If State funded, 5% of the total bid amount
<input type="checkbox"/>	Complete and answer all Bid/proposal Affidavits located after the Bid or Proposal. Ensure that a representative with the proper authority signs in the appropriate pages. Should a representative who is NOT an officer or director of the company execute the bid, attach legal evidence of his/her ability to do so.
<input type="checkbox"/>	Complete the Employ Baltimore (applicable to contracts under \$300,000.00) or the Local Hiring Certification Statement (applicable to contracts of \$300,000.00 or more).
<input type="checkbox"/>	Ensure the Duplicate Bid is an exact copy of the Original Bid and submit with the Original Bid. Failure to submit a duplicate (which is an exact copy) may cause your bid to be rejected.

***PLEASE NOTE-** This list is not intended to be exhaustive nor all inclusive, but is provided for bidder's guidance and informational purposes only.



EXECUTIVE ORDER

WHEREAS, the Mayor and City Council of Baltimore (“City”) is committed to promoting the well-being and positive development of the City’s youth and providing educational and enrichment opportunities which will lead to academic improvement, safer environments and a reduction in high risk behavior; and

WHEREAS, Baltimore City has an estimated 76,000 citizens between the ages of 14-21, and

WHEREAS, the federal government ceased funding summer job programs for youth in 2000 after 25 years, causing local and state governments to join with businesses, philanthropic, faith-based, community, and educational organizations to obtain grants, tax-deductible donations and job opportunities to help these deserving youth; and

WHEREAS, the City and the Mayor’s Office of Employment Development (“MOED”) have established the **Baltimore City’s YouthWorks** program to prepare dependable Baltimore City high school and college students for productive employment that meets the workforce needs of local businesses; and

WHEREAS, the City wishes to encourage all local businesses and contractors, service providers, consultants and vendors, etc. doing business with the City to employ skilled and qualified Baltimore City youth between the ages of 14-21, who meet the job-ready status, as defined by **Baltimore City’s YouthWorks** program, during the summer of 2008; and

WHEREAS, the need to help Baltimore City’s youth has never been greater

NOW, THEREFORE, I Sheila Dixon, Mayor of the City of Baltimore, by virtue of the authority vested in me by the **Baltimore City Charter**, do hereby promulgate the following **EXECUTIVE ORDER**:

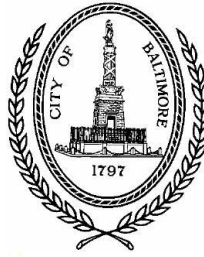
1. Henceforth, each and every Solicitation from every City Department, Agency and Office, where the Bid is expected to be \$25,000 or more, shall contain the attached form. Each and every Bidder shall provide the City with the (a) name, (b) complete address, (c) telephone number and (d) a contact person to assist MOED with the YouthWorks program.
2. MOED shall contact each and every business identified in §1 above and request that the business, contractor, service provider, consultant and vendor, etc. join with the City in reaching its goal of employing **Baltimore City’s YouthWorks** referrals, or otherwise assist the **Baltimore City’s YouthWorks** program.
3. MOED shall establish and maintain an ongoing relationship with City businesses, contractors, service providers, consultants and vendors, etc. in an effort to address their current and future employment and/or training needs.
4. This Executive Order shall take effect immediately.

IN WITNESS WHEREOF, I HAVE
PLACED MY HAND AND THE
GREAT SEAL OF THE CITY OF
BALTIMORE THIS 14TH DAY OF
JANUARY 2008

(SIGNED) SHEILA DIXON, MAYOR

approved As To Form And
Legal Sufficiency By The Law
Department Of Baltimore City

(Signed) Leslie S. Winner
Acting Chief Solicitor



EXECUTIVE ORDER

WHEREAS, the Mayor and City Council of Baltimore ("City") wishes to encourage all contractors awarded City contracts to agree to employ skilled and qualified Baltimore City residents to meet the contractor's employment needs created as a result of the award of a City contract; and

WHEREAS, the Mayor's Office of Employment Development ("MOED") has established the **EMPLOY BALTIMORE** program designed to create opportunities for businesses that receive City contracts to meet their workforce needs; to access qualified City job seekers; and to ensure that City dollars contribute to the local economy; and

WHEREAS, MOED has a roster of Baltimore City residents, who are skilled and qualified for immediate employment by City contractors; and

WHEREAS, MOED wishes to establish and maintain an ongoing relationship with City contractors in an effort to address current and future employment and/or training needs; and

WHEREAS, increasing employment participation of City residents is good business and a means to improve Baltimore City's employment rate.

NOW, THEREFORE, I, Stephanie Rawlings-Blake, Mayor of the City of Baltimore, by virtue of the authority vested in me by the Charter of Baltimore City, do hereby promulgate the following **EXECUTIVE ORDER**:

1. This Executive Order shall apply to contracts awarded by the City that are in the amounts of \$50,000.01 to \$300,000.00, except for professional service contracts and emergency contracts.
2. Bidders on all contracts awarded by the City in the amounts of \$50,000.01 to \$300,000.00, except for professional service contracts and emergency contracts, shall complete the **Employ Baltimore Certification Statement** contained in the Bid Document and submit it with their bids.
3. Within two (2) weeks of receiving the award of a City contract, the contractor shall schedule a meeting with MOED to: (a) assess its employment needs, and (b) discuss other services provided by MOED. If applicable, MOED will then tailor specific hiring and/or training programs to benefit the contractor. The contractor will not receive its first progress payment under the contract, unless and until the said meeting has been scheduled.
4. Should the contractor's workforce plan indicate a need to fill new jobs, the contractor must agree to post these positions through MOED and its One Stop Career Center Network for a period of seven (7) days prior to publicly advertising the openings. This will enable MOED to identify and refer qualified City residents to the contractor as candidates for these job opportunities.

5. Each contractor shall submit an **Employ Baltimore** Employment Report to MOED on June 30th and December 31st during each and every year of its contract, and at the end of the contract, indicating the number of City residents on its payroll. The submission of the Employments Reports as required shall be a condition precedent to the City's release of a final payment or any and all retainage held by the City, pursuant to the contract.

6. A copy of this **Executive Order** shall be included in all bids, requests for proposals and/or contracts.

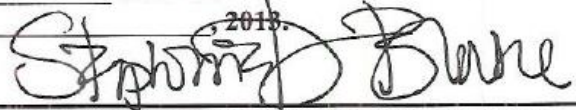
7. This **Executive Order** applies to all applicable City contracts entered into on or after December 23, 2013.

8. This **Executive Order** supersedes the Resolution of the Board of Estimates for the Employ Baltimore Executive Order signed by the Mayor on June 9, 2011, and shall take effect immediately.

IN WITNESS HEREOF, I HAVE HEREUNTO
PLACED MY HAND AND THE GREAT SEAL
OF THE CITY OF BALTIMORE THIS


DAY OF

2013.



STEPHANIE RAWLINGS-BLAKE, MAYOR

Approved As To Form and Legal
Sufficiency By The Law Department
Of Baltimore City:


Michael Schrock
Chief Solicitor

ATTEST:


Janelle A. Rogers
Custodian of City Seal
Alternate

APPROVED BY THE BOARD OF ESTIMATES:
DEC 18 2013


Date

NOTICE: Resolution effective February 05, 2014.

**RESOLUTION
OF
THE BOARD OF ESTIMATES OF BALTIMORE CITY
THE REGULATION OF BOARD OF ESTIMATES MEETINGS AND PROTESTS**

WHEREAS, the Mayor and City Council of Baltimore, acting by and through the Board of Estimates ("Board"), pursuant to Article VI, § 1 et seq. of the Charter of Baltimore City, 1996 Edition, as amended (HEREIN after referred to as "Charter"), is responsible for formulating and executing the fiscal policy of the City, approvals of settlements, acquisitions and dispositions of real property, awarding contracts and supervising purchasing by the City; and other duties as prescribed in the Charter; and

WHEREAS, the Board, pursuant to Article VI, § 1 of the Charter is composed of the Mayor, President of the City Council, Comptroller, City Solicitor, and Director of Public Works, and the President of the City Council shall be President of the Board, and one of the members shall act as Secretary; and

WHEREAS, the members of the Board meet in public forum each Wednesday at 9:00 a.m. (unless in periodic recess) in the Hyman Pressman Hearing Room to conduct the business of government; and

WHEREAS, the Board, pursuant to Article VI, § 2 et seq. of the Charter, may promulgate rules and regulations and summon before it heads of departments, bureaus or divisions, municipal officers, and members of commissions and boards; and

WHEREAS, in the interest of promoting better government, order and efficiency the Board wishes to establish certain rules, applicable to all private individuals, business entities, fraternal organizations, special interest groups, associations and other entities, etc. (HEREIN after collectively referred to as "entity") who wish to speak at the meetings of the Board.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF ESTIMATES OF BALTIMORE CITY, that the following rules for the conduct of Board meetings be formally adopted by the Board to apply to all issues to be acted upon, considered, noted, or received at any given meeting:

1. Anyone wishing to speak before the Board, whether individually or as the spokesperson of an entity must notify the Clerk of the Board in writing no later than by noon on the Tuesday preceding any Board meeting, or by an alternative date and time specified in the agenda for the next scheduled meeting. The written protest must state (1) whom you represent and the entity that authorized the representation (2) what the issues are and the facts supporting your position and (3) how the protestant will be harmed by the proposed Board action.
2. Requests to speak on matters submitted to the Board for its information, notation or status report from a previous Board action may be heard at the discretion of the President of the Board. This rule does not preclude the submitting agency from orally presenting the report or matter at the meeting of the Board.
3. Matters may be protested by any entity directly and specifically affected by a pending matter or decision of the Board. The person or entity must submit a written protest of that matter or pending decision. In order for a protest to be considered, the protestant must be present at the Board of Estimates meeting.
4. An entity affected by the disposition of the matter in a way different than an average taxpayer or citizen and who so specifies to the satisfaction of the Board may have their protest heard and considered by the Board. However, the President of the Board reserves the right to call a person or organization to give testimony that he/she determines furthers the effective and fair decision making process of the Board. Protests filed by persons not affected by the disposition of the matter in a way different than an average taxpayer or citizen will be handled and responded to as may be determined by the Clerk of the Board.

**RESOLUTION OF THE BOARD OF ESTIMATES
OF THE CITY OF BALTIMORE**

WHEREAS, the Mayor and City Council of Baltimore, acting by and through the Board of Estimates pursuant to Article VI, Section 4 of the Charter of Baltimore City, 1964 Revision, as amended, is responsible for awarding contracts and supervising all purchasing by the City; and

WHEREAS, the Board of Estimates wishes to ensure that all City contractors, subcontractors and their agents and employees conduct themselves in accordance with established federal, state, and local laws.

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF ESTIMATES OF BALTIMORE CITY, that the following policy, which has always been applicable to City contracts, be formally adopted by this Board to apply to all City contractors, subcontractors and their agents and employees:

1. Contractors, subcontractors, and their agents and employees may not engage in unfair labor practices as defined under The National Labor Relations Act and applicable federal regulations and state laws.
2. Contractors, subcontractors, and their agents may not threaten, harass, intimidate or in any way impede persons employed by them who on their own time exercise their rights to associate, speak, organize, or petition governmental officials with their grievances.
3. If the Board of Estimates determines that a contractor, subcontractor, or their agents have violated the policy set forth in this Resolution said contractor, or subcontractor will be disqualified from bidding on City contracts, and if they are currently completing contracts, they will be found in default of their contracts.
4. A copy of this Resolution must be included in all City contracts.
5. This Resolution applies to all City contracts entered into after the date of its adoption and to each and every City contract, or subcontract in effect on the date of its adoption, and each department and agency of the City is charged with the responsibility of so notifying all present contractors, and subcontractors.
6. This Resolution takes effect immediately.

APPROVED BY THE BOARD OF ESTIMATES

(Signed)

Shirley A. Williams June 29, 1994

Clerk

Date

Approved As To Form And
Legal Sufficiency This
28th Day of June, 1994

(Signed)Leslie S. Winner

Leslie S. Winner

Principal Counsel

RESOLUTION OF THE BOARD OF ESTIMATES**APPRENTICESHIP TRAINING PROGRAMS**

WHEREAS, the Mayor and City Council of Baltimore, acting by and through the Board of Estimates, pursuant to Article VI, Section 4 of the Charter of Baltimore City, 1964 Revision, as amended, is responsible for awarding contracts and supervising all purchasing by the City; and,

WHEREAS, the Board of Estimates wishes to ensure that all prime contractors performing under any City construction contract conduct apprenticeship training programs as a condition of their contracts;

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF ESTIMATES OF BALTIMORE CITY, that the following policy applies to all prime contractors performing under any construction contract of the City that has a total cost of \$1,000,000.00 or more:

1. Prime Contractors shall conduct apprenticeship training programs as a condition of their contracts.
2. Prime Contractors shall submit to the contract administrator for the City agency supervising the contract, within ten days of their receipt of notice of award of each contract, evidence of its participation in a certified apprenticeship program that has been previously approved by the contract administrator, or an apprenticeship training action plan for approval by the contract administrator. Prime Contractors will further submit, from time to time as requested by the contract administrator, evidence of and statistics concerning the apprenticeship training actually performed by the Prime Contractors in connection with each City contract.
3. If the Board of Estimates determines that a Prime Contractor has violated the policy set forth in this Resolution, then the Prime Contractor may be disqualified from bidding on future City contracts, or may be found in default of its existing contract.
4. A copy of this Resolution must be included in all City contracts.
5. This Resolution applies to all City Contracts entered into after the date of its approval by the Board of Estimates.
6. This Resolution takes effect immediately.

**RESOLUTION OF THE BOARD OF ESTIMATES OF BALTIMORE CITY
FOR A HUBZONE NEIGHBORHOOD PREFERENCE IN SOLICITATIONS**

WHEREAS, pursuant to Art. VI, §2 of the Charter, the Board of Estimates ("Board") shall formulate and execute the fiscal policy of the City and may promulgate rules and regulations to exercise its powers and to perform its duties; and

WHEREAS, pursuant to Art. VI, § 11.(a) of the Charter, the Board shall be responsible for awarding contracts and supervising all purchasing by the City as provided in this section and elsewhere in the Charter; and

WHEREAS, pursuant to Art. VI, § 11.(h)(1)(vi) of the Charter, the Board may adopt rules and regulations that establish uniform procedures for providing, on a neighborhood service, neighborhood public work, or neighborhood public improvement contract, limited bid preferences to responsive and responsible bidders who are residents of, or have their principal places of business in, that neighborhood; and

WHEREAS, the Board desires the City Purchasing Agent and City agencies to use good faith efforts to consider limited bid preferences to responsive and responsible bidders who are residents of, or have their principal place of business in neighborhoods that are within historically underutilized business zones ("HUBZones") designated by the U.S. Small Business Administration ("SBA"); and

WHEREAS, the Board desires to define "neighborhood" below for the purposes of Art. VI, § 11.(h)(1)(vi) of the Charter in a manner that assists City neighborhoods collectively which have similar challenges of low median household incomes and/or high unemployment; and

WHEREAS, the purpose of the below "HUBZone Neighborhood Preference" is to help small businesses in this "neighborhood" to gain access to City procurement opportunities which should increase employment opportunities, stimulate capital investment, and empower City neighborhoods through economic leveraging; and

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF ESTIMATES OF BALTIMORE CITY, that the following resolution applies to all solicitations more than \$50,000 issued by the City Purchasing Agent or City agencies under Art. VI, § 11.(h) of the Charter that meet the following requirements:

1. "Neighborhood" for the purposes of Art. VI, § 11.(h)(1)(vi) of the Charter is defined as all of the federally-designated HUBZones in Baltimore City.
2. To be eligible for the HUBZone Neighborhood Preference, a bidder must (a) be a small business by SBA standards, (b) be owned and controlled at least 51% by U.S. citizens, (c) be a resident of or have its principal place of business in the neighborhood, (d) have at least 35% of its employees residing in the neighborhood, and (e) bid on a solicitation for a service, public work, or public improvement contract in the neighborhood.
3. For an invitation for bids, the bid of a bidder with a HUBZone Neighborhood Preference shall not be more than 10% higher than the lowest responsive and responsible bidder without a HUBZone Neighborhood Preference. For a request for proposals, the total score of a bidder with a

HUBZone Neighborhood Preference shall not be lower than 90% of the total score of the highest scoring responsive and responsible bidder without a HUBZone Neighborhood Preference. The City Purchasing Agent or City agency may set the percentage (%) for the HUBZone Neighborhood Preference in an invitation for bid or request for proposals.

4. The Board may award a contract giving consideration to the HUBZone Neighborhood Preference.
5. Within 90 calendar days after the end of each fiscal year, the City Purchasing Agent and each City agency shall submit a report to the Board on the operation and effectiveness of the HUBZone Neighborhood Preference in relation to the purpose of this Resolution (i.e. small businesses gain access to City procurement opportunities, increase employment opportunities, stimulate capital investment, and empower City neighborhoods through economic leveraging in the neighborhood).
6. The HUBZone Neighborhood Preference should not be used to the extent it actually conflicts with statutes, regulations, written policies, or rules specific to the use of the funds to be expended under the contract.
7. The Department of Finance shall adopt rules and regulations to carry out this Resolution or to clarify any terms or phrases in this Resolution.
8. A copy of this Resolution shall be filed in the Department of Legislative Reference.
9. This Resolution applies to all solicitations issued 60 calendar days after the date of its adoption by the Board of Estimates.

UPON MOTION duly made and seconded, the Board of Estimates approved and adopted the aforementioned resolution.

Adopted by the Board of Estimates:

Bernice W. Taylor
Clerk

Date OCT 28 2015

Approved as to form and legal sufficiency:

Michael Schwach
Chief Solicitor

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**CITY OF BALTIMORE
DEPARTMENT OF PUBLIC WORKS
OFFICE OF ASSET MANAGEMENT**

NOTICE OF LETTING

Sealed Bids or Proposals, in duplicate addressed to the Board of Estimates of the Mayor and City Council of Baltimore and marked for **Sanitary Contract No. 1002R: Cleaning and Inspection of Sanitary Sewers in Baltimore City - Citywide** will be received at the Office of the Comptroller, Room 204 City Hall, Baltimore, Maryland until 11:00 A.M. on **April 20, 2022**. Positively no bids will be received after 11:00 A.M. Bids will be publicly opened by the Board of Estimates in Room 215, City Hall at Noon. The Contract Documents may be examined, without charge, at Room 6 located on the first floor of the Abel Wolman Municipal Building 200 N. Holliday Street, Baltimore, Maryland 21202 as of **March 18, 2022**, and copies may be purchased for a non-refundable cost of **\$100. Conditions and requirements of the Bid are found in the bid package.** All contractors bidding on this Contract must first be prequalified by the City of Baltimore, Department of Public Works, Office of Boards and Commissions (OBC). Interested parties should call (410) 396-6883 or contact OBC at 4 South Frederick Street, Baltimore, Maryland 21202 on the 4th floor. **If a bid is submitted by a joint venture ("JV"), then in that event, the document that established the JV shall be submitted with the bid for verification purposes.** The Prequalification Category required for bidding on this project is **G90106 – Digital Closed Circuit Television (CCTV) Inspection of Utility Pipes.** Cost Qualification Range for this work shall be **\$3,000,000.01 to \$4,000,000.00.**

To purchase a bid book, please schedule an appointment by emailing: charry@baltimorecity.gov and dpwbidopportunities@baltimorecity.gov

A “Pre-Bidding Information” session will be conducted via virtual platform. Vendor can call 1-667-228-6519 Passcode: 28630157# by phone on **March 25, 2022** at 10:00am,

Principal items of work for this Contract include, but are not limited to:

Cleaning and inspection of sanitary sewers, manholes, and appurtenances, that include acoustic inspections, televising, cleaning with grease treatment where necessary, manhole locating and television inspection QA/QC review. The Contractor must be able to mobilize multiple work crews with the necessary equipment to perform the work as designated by the Engineer.

The MBE goal is 13%

The WBE goal is 7%

APPROVED:

APPROVED:

Clerk
Board of Estimates
City Hall

Brian Ball, PE
Chief
Office of Asset Management

W. Michael Mullen
Chief Solicitor
City Hall

Jason W. Mitchell
Director
Department of Public Works

Christopher Lundy
Chief
Minority and Women’s Business Opportunity Office

ADDITIONAL BIDDING INFORMATION/ REQUIREMENTS AND CONDITIONS

1. Representatives from the Board of Estimates will be stationed at the Security Unit Counter just inside the Holliday Street entrance of City Hall from 10:45 a.m. to 11:00 a.m. every Wednesday to receive Bids.
2. **Bid Guarantee**: A certified check of the bidder or a bank cashier's check or a bank treasurer's check drawn on a solvent clearing house bank, made payable to the Director of Finance or a bid bond executed on the form as provided in the Bid or Proposal for an amount which is not less than that determined by multiplying the Total Bid submitted by two per cent (2%) will be required with each bid over \$100,000.00. If the bid is less than or equal to \$100,000.00 no Bid Bond is required.
3. Bidders interested in utilizing the **City's Self-Insurance Program** for payment and performance security for contracts not exceeding \$100,000.00 may contact the Department of Finance, the Program Administrator, for eligibility requirements and premium costs.
4. **The Board of Estimates reserves the right to reject any and all Bids and/or waive technical defects, if in its judgment, the interest of the Mayor and City Council of Baltimore may so require.**
5. This contract is subject to a **Performance Evaluation** by the Department of Public Works.
6. **Attention of Bidders is called to all of the requirements outlined in the Baltimore City Code, Article 5 §29.**

II. SPECIAL PROVISIONS

SP-1 CONTRACT DOCUMENTS

The Contract Documents for this project shall consist of but not be limited to the following:

ITEM 1 - Contract Book which contains:

- I. Notice of Letting
 - II. Special Provisions
 - A. Instruction to Bidders
 - B. Special Conditions
 - C. Construction Details and Materials
 - D. Maintenance of Traffic Notes and Details
 - E. Extra Work Certification
 - F. Subcontractor's Acknowledgement of Progress Payment
 - III. Bid or Proposal
 - A. Bid/Proposal Affidavit
 - B. Minority and Women's Business Opportunity Requirements
 - C. The Baltimore Apprenticeship Training Program and Forms
 - D. Baltimore City's Youthworks Program Form
 - E. Local Hiring Law Ordinance
 - F. Bid Bond
 - IV. Agreement
 - V. Bonds
 - A. Performance Bond
 - B. Payment Bond
 - VI. Appendix A
 - A. Supplemental Technical Specifications
- May contain: Addendum

ITEM 2 - Contract Plans

There are no contract plans for this contract. Task orders from the Engineer may include annotated record drawings/plans or sketches delineating the work to be performed. The Engineer will furnish, from time to time as the work progresses, such supplemental drawings and/or sketches to further illustrate the details of the work, or access to the work site. The Contractor shall abide by any modifications, supplemental plans, and specifications that may be furnished by the Engineer.

ITEM 3 - Standard Specifications

- A. The City of Baltimore, Department of Public Works, Specifications for Material, Highways, Bridges, Utilities and Incidental Structures, Issue of 2006, and any and all Amendments thereto, are hereby made part of these Contract Documents and hereinafter referred to as "Standard Specifications". Any references in the Contract Documents made to an Article, Section, Paragraph or Table shall refer to the Standard Specifications, unless otherwise noted.
- B. Federal Highway Administration's Manual of Uniform Traffic Control Devices (MUTCD) and the Maryland State Highway Administration (SHA)'s Standard Specifications for Construction and Materials, latest revisions, as specified herein, shall be considered part of these Contract Documents.

ITEM 4 – Book of Standards

The City of Baltimore, Department of Public Works, Book of Standards, and any and all Amendments thereto, are hereby made a part of these Contract Documents and hereinafter referred to as “Book of Standards”.

Any reference(s) in the Contract Documents made to a Standard Number, shall refer to the Book of Standards, unless otherwise noted.

SP-2 WATER CONSERVATION/ RESTRICTION IMPLEMENTATIONS

The City reserves the right to suspend and/or terminate this project for the safeguard of the public good, at its sole discretion. The City reserves the right to impose water conservation requirements on the Contractor, at his expense, when drought restrictions are implemented, in lieu of suspension of work.

In the event that a suspension and/or termination of the work is necessary, the Contractor will be required to complete any and all tasks deemed necessary to close the project down in a manner that ensures the public safety.

SP-3 TIME OF COMPLETION OF TASK ORDERS

The Engineer will provide written Task Orders to the Contractor that describes the work to be done, location(s) and special instructions. The Contractor shall acquire materials, schedule subcontractors, and proceed with the work as noted in Special Condition SC-11 “Mobilization/Demobilization”.

Once construction permits and rights-of-entry agreements are obtained, the Engineer will issue a Notice-to-Proceed to the Contractor.

The Contractor shall complete all Task Orders in an expedient manner within the schedule submitted by the Contractor and approved by the Engineer. As a minimum, the schedule shall be in two-week increments, include specific addresses for work locations, and the City’s transmittal number. The Contractor shall assign additional resources, materials, crews, overtime, etc. as necessary to maintain the approved schedule at no additional cost to the City. If the Contractor fails to complete the work within the agreed upon scheduled time, or fails to receive a time extension from the Engineer, the City reserves the right to assess liquidated damages for each specific task assignment up to the amount shown in **III. BID OR PROPOSAL** of this specification.”

Within two (2) weeks after the completion of each Task Order and prior to the approval of the Contractor’s invoice, the Contractor shall submit all CCTV files (Pre and Post Cleaning and Inspection CCTV tapes/CD’s and hard drives) to the Engineer.

SP-4 DIVISION AND BUREAU NAME CHANGESOffice of Engineering and Construction

The former Bureau of Water and Wastewater, Water and Wastewater Engineering Division, and the Construction Management Division have been consolidated into the Office of Engineering and Construction. Any references in these specifications, the Standard Specifications, Book of Standards, and other contract documents naming these former Bureaus and Divisions shall now refer to the Office of Engineering and Construction.

Office of Compliance and Laboratories

All references to the Surface Water Management Division or the Environmental Compliance and Laboratory Services Division shall now refer to the Office of Compliance and Laboratories.

A. INSTRUCTIONS TO BIDDERS**IB-1 PURCHASE OF THE STANDARD SPECIFICATIONS AND BOOK OF STANDARDS**

1. The Standard Specifications, at a charge of \$35.00 per copy, **and the Book of Standards, at a charge of \$50.00 per copy**, may be obtained at:

The Harry S Cummings Building
 1st Floor
 400 E. Fayette Street
 Baltimore, Maryland 21202

between the hours of 9:00 A.M. to 4:00 P.M., except Saturday, Sunday and holidays. Check shall be made payable to the Director of Finance.

IB-2 PURCHASE OF THE BID DOCUMENTS

To comply with Federal and City directives requiring six (6) foot social distancing, the Service Center located at the Harry S. Cummings building- 401 E. Fayette St is closed to the public. The Office of Contract Administration (OCA) will not allow the public in the office but the vendor can make an appointment to purchase documents in front of OCA located at 4 South Frederick St Baltimore, MD 21202. All vendors wanting to purchase the bid documents must complete the Bid Documents Request "form" which is available on <https://publicworks.baltimorecity.gov/dpw-construction-projects-notice-letting> . Upon completion of filling out the form, the request form will be automatically sent to the email: dpwbidopportunities@baltimorecity.gov for review.

For mailing requests: Documents will be mailed at the expense of the vendor and will have to provide their current and active Federal Express, or other overnight delivery service, account numbers and information on the form. Account numbers will be confirmed with the vendor by a representative of OCA after receipt of request. A cashier's check must be sent to: Office of Contract Administration, 4 South Frederick St- 3rd Floor, Baltimore, MD 21202. Include the Project number on the check. Cost of bid documents must be received before the documents can be sent.

For scheduled pick ups: Vendors must not attempt to pick up documents by coming to the office location without an appointment. A representative will confirm the proposed day and time per the completed form. Payment must be made on the day of the scheduled pick up in order for the documents to be released to the vendor. No cash will be accepted.

The information provided on the form will be used for the bidder's list and contact information for the Pre-Bid meeting so information must be current and accurate. A Prime still must be prequalified, at the time of bid due date, in order for bids to be officially accepted.

IB-3 SCOPE OF WORK

The work to be done under this Contract shall consist of the following principal items:

- Approximately 274,000 linear feet (LF) of sewer cleaning and closed circuit television (CCTV) inspection for pipe ranging in size from 6-inch through 34-inch diameter.
- Solid debris cutting, removal of intruding sewer taps and removal of excessive grease and roots.

- Approximately 87,000 LF of sewer ranging in size from 6-inch through 18-inch diameter to be cleaned (with optional grease abatement chemical application) at various locations on a 3, 6, or 12 month cleaning cycle.
- Approximately 441,000 LF of acoustic inspection of sewer ranging in size from 6-inch through 12-inch diameter
- Approximately 33,000 LF of inspection and cleaning of sewer laterals ranging in size from 4" through 12-inch diameter.
- Approximately 1,700 manhole inspections with cleaning.
- Provide traffic control as needed to complete scope of work.

Work assignments will be issued via Task Order/s as deemed necessary by the Engineer.

The complete scope of work shall be covered by items listed in the schedule of prices, as well as by "SUPPLEMENTAL TECHNICAL SPECIFICATIONS".

IB-4 LOCATION OF WORK

Work locations for this contract will be as directed by the Engineer throughout Baltimore City. There shall be no deviation from the assigned work locations either by additions, subtractions or alterations by the Contractor or his representative without written permission of the Engineer

IB- 5 CONTRACT TIME FOR COMPLETION

This Contract will commence upon receipt of the approved Contractor's Notice to Proceed from Department of Public Works Office of Asset Management, and remain in effect for a period of 730 consecutive calendar days (including any seasonal work shutdowns), or until the upset limit is reached, whichever occurs first. The City at its sole discretion reserves the right to extend this contract for two (2) additional terms of one (1) year each, or until the upset limit is reached, upon the same terms and conditions as set forth herein. Work under this Contract that is started within the Contract term, or the term of any extension that may have resulted from the City's exercise of its option right, may continue until completion, but in no circumstance shall such work continue for more than six (6) months beyond the expiration of the Contract term, inclusive of any extensions resulting from the City's exercise of its option to extend.

IB-6 CONTRACT BOOK

The successful Bidder(s), upon execution of the Agreement and Bonds, will receive up to five (5) copies of the Contract Book - no charge.

IB-7 BALTIMORE APPRENTICESHIP TRAINEE PROGRAM (BATP) FORMS

Per the Engineer, the Baltimore Apprenticeship Trainee Program (BATP) requirements are excluded from this contract.

IB-8 BALTIMORE CITY'S YOUTHWORKS PROGRAM

Also included in this contract is a Baltimore City's Youthworks Form. The accompanying manila bid envelop contains a Baltimore City's Youthworks Form duplicate document which must be completed for all contracts. The single page Baltimore City's Youthworks Form must be completed and submitted **with your bid proposal**. Failure to submit the information at the time requested may be cause to have your bid rejected.

IB-9 LOCAL HIRING LAW

Article 5, Subtitle 27 of the Baltimore City Code, as amended (the “Local Hiring Law”) and its rules and regulations apply to contracts and agreements executed by the City on or after the Local Hiring Law’s effective date of December 23, 2013. The requirements for the Local Hiring Law are summarized below:

- A. The Local Hiring Law applies to the original term of the contract award greater than \$300,000.00, in addition to any contract modification (amendment, renewal, extra work or change order). Whether a City subsidized project is subject to the Law shall be finally determined when an agreement authorizing assistance valued at \$500,00.00 is executed by the City. Please visit www.oedworks.com for details on the requirements of the Law.
- B. Within two (2) weeks of the Board of Estimate’s award of the contract or approval of the agreement, the contractor shall have a meeting, either in person or via telephone, with MOED to complete an employment analysis and review the workforce plan required for such contract or agreement. The contractor will not receive any payments under the contract or agreement, unless and until the employment analysis is performed. Contact information for MOED can be found on its website: www.oedworks.com.
- C. Should the contractor’s workforce plan indicate a need to fill new jobs, the contractor shall post the new job openings with MOED’s One Stop Career Center Network for a period of seven (7) days prior to its publicly advertising these openings. Further, the contractor shall interview qualified Baltimore City residents referred from MOED; and unless granted an exception, fill at least fifty-one percent (51%) of the new jobs required to complete the contract or project with Baltimore City residents.
- D. For all contracts subject to the Local Hiring Law, the contractor shall submit an Employment Report to MOED by the fifth (5th) day of each month throughout the duration of the contract or agreement, regardless of whether MOED has granted a waiver of any of the Local Hiring Law’s requirements.
- E. All reports that are sent to MOED must be sent to the City Resident Engineer/Project Manager at the same time via email. Confirmation of sent report are made at monthly construction meetings.

IB-10 AUTHORIZED VENDORS TO PERFORM WORK ON PROJECTS

Prime Contractors (Prime) must be prequalified for the identified prequalification category shown on the Notice of Letting page in this contract book. A current pre-qualified status must be on file with the Office of Boards and Commissions. If a Prime is not prequalified for the services identified on or before the time of the project’s bid due date (Wednesday at 11:00 A.M.), then the vendor cannot be considered as the proposed awardee. To confirm a Prime’s prequalified status, please visit the website: <https://publicworks.baltimorecity.gov/Contractor-Consultant-Prequalification>.

Subcontractors (Sub) must be certified as a City certified MBE or WBE at the time of the project’s bid due date (Wednesday at 11:00 am). A current certified status must be on file with the Minority Women’s Business Opportunity Office (MWBOO). If a Sub is not certified for the services identified in the Prime’s bid submission on or before the time of the project’s bid due date (Wednesday at 11:00 A.M.), then the Prime’s bids may be considered non-compliant.. To confirm a Sub’s certification status, please visit the website: <https://cityservices.baltimorecity.gov/mwboo/>

IB-11 UNRESPONSIVE AND UNBALANCED BIDS

Supplement the paragraph with the City Standard Specification Section 00 51 00.05 with the following:

Supplement with the following:

1. All bid item prices should be reflective of the materials, labor, equipment, overhead and profit costs required to complete the bid item.
2. Bidders are advised that when the bid prices are not proportionate with the bid item work involved the bid will be considered mathematically unbalanced and may be subject to further review.
3. Bids may be rejected if the City determines that any of the bid prices are mathematically and materially unbalanced and there is reasonable doubt that the bid will result in the lowest ultimate cost to the City.

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SC-1 MINIMUM WAGE RATES - CITY OF BALTIMORE.**Notice to Contractors****Prevailing Wage Requirement**

The Baltimore City Code Art. 5, Subtitle 25 "Prevailing Wages for Work Under Construction Contracts" establishes what is more commonly referred to as the City's "Prevailing Wage" requirement. Contractors awarded City construction contracts are required to pay their employees a "Prevailing Wage" to be determined each year by the Board of Estimates. Contractors must become thoroughly familiar with the "Prevailing Wage" requirement. A copy of the City Code, Art. 5, Subtitle 25 can be found on the City of Baltimore's website (<http://civilrights.baltimorecity.gov/wage-commission>).

Included is a copy of the Prevailing Wage Rates that apply to this contract and Art. 5 subtitle 25-9 (Required Records- In General) and subtitle 25-10 (Required Records-Project Payroll Reports), which sets forth certain reporting requirements. An example of a payroll report is also included to be used in complying with Subtitle 25-10. If you find it more convenient you may use your own payroll form so long as it provides the information required and is in close conformity with the form enclosed. Copies of completed payroll reports shall be submitted as follows:

One Copy: Wage Commission

7 E. Redwood Street, 9th floor

Baltimore, MD 21202

Phone: (410) 396-4835

Fax: (410) 752-3190

One Copy: Contracting Agency

If you need additional clarification regarding Article 5, Subtitle 25, please contact the Wage Commission at 410-396-4835.

FISCAL YEAR 2021 PREVAILING WAGE RATES

CLASSIFICATION NO. 1

The following minimum hourly wage rates shall apply to all contracts in excess of One Hundred Thousand Dollars (\$100,000) in connection with new building construction, major remodeling and rehabilitation of buildings and for construction, reconstruction, erection, conversion installation, alteration, renovation, razing, demolition, moving or removing on any airport, pier wharf, sewer, drain, main, conduit, machinery or mechanical, electrical or other equipment or any other operation, or work to be done or performed in, on, upon or in connection with any building, bridge over water, tunnel, tower, stack, filtration plant, waste water or sewage treatment works, pumping stations, and other such structures.

JOURNEYMEN	HOURLY RATE	FRINGE BENEFITS	TOTAL
Asbestos Workers (Insulation Mechanics)	\$36.53	\$16.00	\$52.53
Boilermakers	\$17.62	\$6.96	\$24.58
Bricklayers	\$33.00	\$12.34	\$45.34
Carpenters/Resilient & Soft Floor Layers	\$26.66	\$15.55	\$42.21
- Millwright	\$33.06	\$17.65	\$50.71
- Piledriver	\$31.13	\$15.65	\$46.78
Cement Mason/Plasterers	\$28.45	\$11.47	\$39.32
Electricians	\$39.25	\$19.03	\$58.25
Elevator Construction Mechanic	\$48.42	\$40.18	\$88.60
Firestop Mechanic	\$23.33	\$7.95	\$31.28
Glaziers	\$30.77	\$22.96	\$53.73
Ironworkers			
- Ornamental	\$30.77	\$22.96	\$53.73
- Structural	\$30.77	\$22.96	\$53.73
- Reinforcing Rodmen	\$30.77	\$22.96	\$53.73
- Fence Erectors	\$28.70	\$20.66	\$49.36

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Clerk to the Board of Estimates

JAN 13 2021

FISCAL YEAR 2021 PREVAILING WAGE RATES

JOURNEYMEN	HOURLY RATE	FRINGE BENEFITS	TOTAL
Laborers			
- General Laborers: Flaggers, Tool and Material Handlers (Except Tenders), Clean-Up, Janitors, Truck Checkers, Dumpmen, Spotter, Landscape Laborer, Mulcher, Watchmen (Including Fire Watchmen)	\$18.25	\$6.29	\$24.54
- Construction Laborers: All Laborers not otherwise classified	\$19.10	\$6.29	\$25.39
- Semi-Skilled Laborers: Potmen, Power or Air Tool Operators, Pipelayers, Drillers Concrete Laborers, Signalmen, Small Machine Operators, Laser Beam Operators, Scaffold Builders, Caisson Laborer, Jack Hammer Operator (80 lbs. and over)	\$19.41	\$6.29	\$25.70
Painters			
- Brush and Trim	\$25.06	\$9.86	\$34.92
- Spackling, Taping, Wall Covering	\$25.06	\$9.86	\$34.92
- Spray, Structural Steel, Steam Cleaning, Sandblasting			
Plumbers/Steamfitters/Pipefitter	\$40.97	\$21.24	\$62.21
Roofers			
- Slate and Tile	\$26.44	\$12.24	\$38.68
- Wood Block	\$26.44	\$12.24	\$38.68
- Composition - Waterproof	\$26.44	\$12.24	\$38.68

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JAN 13 2021

FISCAL YEAR 2021 PREVAILING WAGE RATES

JOURNEYMEN	HOURLY RATE	FRINGE BENEFITS	TOTAL
Sheet Metal Worker (Inc. Air Balance, Metal Roofing)	\$40.77	\$21.38	\$62.15
Sprinkler Fitter	\$34.40	\$19.14	\$53.54
Stonemason	\$38.81	\$18.66	\$57.10
Tile, Terrazzo, Marble Workers	\$29.10	\$12.27	\$41.37
Tile, Terrazzo, Marble Finisher	\$24.10	\$11.24	\$35.34
<u>POWER EQUIPMENT OPERATORS</u>			
<u>GROUP I:</u> Certified Crane Operators (CCO)	\$35.70	\$15.90	\$51.60
<u>GROUP II:</u> Backfiller, backhoe, batching plants, boat captain, cableway, loader hoe, (with a front end bucket over 1 ¼ yds.), concrete mixing plant, concrete paver, derrick boat, double concrete pump, dragline, Eimco type overhead loader, elevating grader, scraper or pan type excavator (25 yds. and over), front end loader (1 ¾ yds. and over), gradall, grader, hoist (2 active drums or more), multiple conveyor, pile driving machine, power shovel, repair mechanic, shield, standard gauge locomotive, trenching machine, tunnel mucking machine, twin engine scraper, welder, whirley rig.	\$31.03	\$13.05	\$44.08

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JAN 13 2021

FISCAL YEAR 2021 PREVAILING WAGE RATES

JOURNEYMEN	HOURLY RATE	FRINGE BENEFITS	TOTAL
<u>POWER EQUIPMENT OPERATORS</u>			
<u>GROUP III:</u> Asphalt spreader bulldozer, bull float, loader, hoe, (with a front end bucket 1 ¼ yds. and under), concrete mixer (with skip), concrete pump, concrete spreader, scraper or pan type excavator (under 25 yds.) finishing machine, front end tractor loader (under 1 ¾ yds.), hi-lift fork lift, longitudinal float, narrow gauge locomotive, one drum hoist, power roller, screeding machine, snooper/vac truck, stone crusher, stone spreader, sub-grader tractor with attachments (2 or more provided both attachments are being used).	\$28.28	\$13.17	\$41.45
<u>GROUP IV:</u> Crawler or rubber tire tractor no attachments), compressors, elevator operator, firemen, fuel truck, grease truck, grout pump, light plant, mighty midget with compressor, single conveyor, space heaters, welding machines, welldriller, wellpoint system, deck hands, oilers (all types).	\$24.65	\$13.17	\$37.82

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FISCAL YEAR 2021 PREVAILING WAGE RATES

JOURNEYMEN	HOURLY RATE	FRINGE BENEFITS	TOTAL
Truck Driver			
- Goose Neck Drop Frame	\$15.82	\$3.75	\$19.57
- Trailer Driver	\$15.50	\$3.75	\$19.25
- Flat Bed and Pickup	\$13.89	\$3.75	\$17.64
- Dump Truck Driver (Site Only) Welder Receives Rate For Craft Involved	\$12.85	\$4.60	\$17.45

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FISCAL YEAR 2021 PREVAILING WAGE RATES

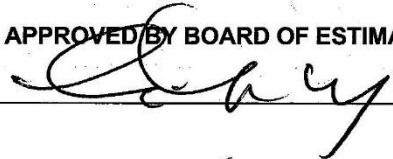
APPRENTICESHIP RATES
PERCENTAGE OF JOURNEYMAN'S HOURLY RATE
PLUS, FULL JOURNEYMAN'S FRINGE BENEFITS (UNLESS PARTIAL FRINGE BENEFITS
ARE APPROVED BY THE MARYLAND APPRENTICESHIP AND TRAINING COUNCIL)

<u>ASBESTOS WORKERS</u>	
First year	45
Second year	55
Third year	65
Fourth year	75
Fifth year	85

<u>BOILERMAKERS</u>	
First 6 months	50
Second 6 months	60
Third 6 months	65
Fourth 6 months	70
Fifth 6 months	75
Sixth 6 months	80
Seventh 6 months	85
Ninth 6 months	90

<u>BRICKLAYERS & STONE MASONS</u>	
First 6 months	50
Second 6 months	55
Third 6 months	60
Fourth 6 months	70
Fifth 6 months	80
Sixth 6 months	90

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FISCAL YEAR 2021 PREVAILING WAGE RATES

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APPRENTICESHIP RATES
PERCENTAGE OF JOURNEYMAN'S HOURLY RATE
PLUS, FULL JOURNEYMAN'S FRINGE BENEFITS (UNLESS PARTIAL FRINGE BENEFITS
ARE APPROVED BY THE MARYLAND APPRENTICESHIP AND TRAINING COUNCIL)

<u>CARPENTERS</u>	
First year	60
Second year	70
Third year	80
Fourth year	90

<u>CEMENT FINISHERS</u>	
First 500 hours	50
Second 500 hours	55
Third 500 hours	60
Fourth 500 hours	65
Fifth 500 hours	70
Sixth 500 hours	75
Seventh 500 hours	80
Eighth 500 hours	90

<u>ELECTRICIANS</u>	
First 6 months	40
Second 6 months	40
Second year	55
Third year	65
Fourth year	70
Fifth year	75

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JAN 13 2021

FISCAL YEAR 2021 PREVAILING WAGE RATES

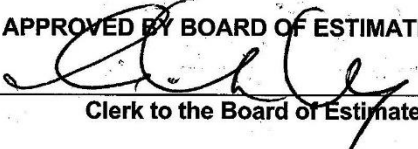
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PLUS FULL JOURNEYMAN'S FRINGE BENEFITS (UNLESS PARTIAL FRINGE BENEFITS
ARE APPROVED BY THE MARYLAND APPRENTICESHIP AND TRAINING COUNCIL)

<u>IRONWORKERS</u>	
First 1,000 hours	60
Second 1,000 hours	65
Third 1,000 hours	70
Fourth 1,000 hours	75
Fifth 1,000 hours	80
Sixth 1,000 hours	85
Seventh 1,000 hours	90
Eighth 1,000 hours	95

<u>MILLWRIGHTS</u>	
First year	60
Second year	70
Third year	80
Fourth year	90

<u>PAINTERS</u>	
First 1,000 hours	55
Second 1,000 hours	70
Third 1,000 hours	85

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FISCAL YEAR 2021 PREVAILING WAGE RATES


APPRENTICESHIP RATES
PERCENTAGE OF JOURNEYMAN'S HOURLY RATE
PLUS FULL JOURNEYMAN'S FRINGE BENEFITS (UNLESS PARTIAL FRINGE BENEFITS
ARE APPROVED BY THE MARYLAND APPRENTICESHIP AND TRAINING COUNCIL)

<u>PLASTERERS</u>	
First 1,000 hours	50
Second 1,000 hours	55
Third 1,000 hours	60
Fourth 1,000 hours	65
Fifth 1,000 hours	70
Sixth 1,000 hours	75
Seventh 1,000 hours	80
Eighth 1,000 hours	85

<u>PLUMBERS/STEAMFITTERS/ PIPEFITTERS</u>	
First year	40
Second year	50
Third year	60
Fourth year	70
Fifth year	80

<u>POWER EQUIPMENT OPERATORS</u>	
First period	55
Second period	60
Third period	65
Fourth period	70
Fifth period	75
Sixth period	80

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JAN 13 2021

FISCAL YEAR 2021 PREVAILING WAGE RATES

APPRENTICESHIP RATES
PERCENTAGE OF JOURNEYMAN'S HOURLY RATE
PLUS FULL JOURNEYMAN'S FRINGE BENEFITS (UNLESS PARTIAL FRINGE BENEFITS
ARE APPROVED BY THE MARYLAND APPRENTICESHIP AND TRAINING COUNCIL)

<u>ROOFERS</u>	
First year	55
Second year	65
Third year	75

<u>SHEET METAL WORKERS</u>	
First 6 months	40
Second 6 months	45
Third 6 months	50
Fourth 6 months	55
Fifth 6 months	60
Sixth 6 months	65
Seventh 6 months	70
Eighth 6 months	75
Ninth 6 months	80
Tenth 6 months	85

<u>SHEET METAL WORKERS</u>	
First 6 months	45
Second 6 months	50
Third 6 months	55
Fourth 6 months	60
Fifth 6 months	65
Sixth 6 months	70
Seventh 6 months	75
Eighth 6 months	80
Ninth 6 months	85
Tenth 6 months	90

APPROVED BY BOARD OF ESTIMATES


Clerk to the Board of Estimate

JAN 13 2021

FISCAL YEAR 2021 PREVAILING WAGE RATES

APPRENTICESHIP RATES
PERCENTAGE OF JOURNEYMAN'S HOURLY RATE
PLUS FULL JOURNEYMAN'S FRINGE BENEFITS (UNLESS PARTIAL FRINGE BENEFITS
ARE APPROVED BY THE MARYLAND APPRENTICESHIP AND TRAINING COUNCIL)

<u>LABORERS</u>	
First year	70
Second year	90


LABORER'S WORK

Laborers may not assist mechanics in the performance of mechanic's work, nor use tools peculiar to established trades. Their work should be confined to the following manual tasks:

1. Digging and filling holes and trenches.
2. Loading, unloading and stockpiling materials.
3. Cleaning and sweeping.
4. Driving stakes.
5. Placing concrete and asphalt (not finishing)
6. Stripping forms.
7. Ripping out material which is to be discarded, including asbestos.
8. Clearing and grubbing.

The above definition is to preclude inadvertent misclassification of laborers.

APPROVED BY BOARD OF ESTIMATES


 Clerk to the Board of Estimates **JAN 13 2021**

ART. 5, § 25-9

BALTIMORE CITY CODE

(2) In such a case, the Wage Commission may, pursuant to similar procedures as provided in Article 11, Subtitle 1 of the Baltimore City Code, as amended, order appropriate restitution or the reinstatement of such employee with backpay to the date of violation.
(City Code, 1976/83, art. 1, §19(c)(4).) (Ord. 73-348; Ord. 04-672; Ord. 08-085.)

§ 25-9. Required records - In general.

(a) Contractors to maintain.

The contractor and each of his subcontractors shall maintain payrolls and basic records relating thereto during the course of the work and shall preserve them for a period of 3 years thereafter for all laborers, mechanics, and apprentices working directly upon the site of the work.

(b) Contents.

These records shall contain:

- (1) the name and address of each such employee;
- (2) his classification in accordance with the classifications fixed in the contract;
- (3) a designation of laborer, mechanic, or apprentice;
- (4) the number of hours worked each day;
- (5) the hourly wage rate;
- (6) the gross wages, deductions made, and actual wages paid;
- (7) a copy of the Social Security returns and evidence of payment thereof;
- (8) a record of fringe benefit payments including contributions to approved plans, funds, or programs and/or additional cash payments; and
- (9) such other data as may be required by the Board of Estimates from time to time.
(City Code, 1950, art. 1, §14(e); 1966, art. 1, §16(f)(1st sen.); 1976/83, art. 1, §19(d)(1).) (Ord. 45-225; Ord. 59-1960; Ord. 67-969; Ord. 73-348; Ord. 04-672.)

§ 25-10. Required records - Project payroll reports.

(a) Contractor to submit.

The contractor shall submit 2 complete copies of his weekly project payrolls and the weekly project payrolls of each of his subcontractors, consecutively numbered, not later than 14 days from the end of their respective payroll periods, 1 copy to be sent to the contracting agency, the other to the Wage Commission where the same will be available for public inspection during regular business hours.

(b) *Contents.*

The weekly project payrolls shall contain:

- (1) the name of the prime contractor and the subcontractor, if any;
- (2) a designation of the project and location;
- (3) the name, Social Security Number, and occupation of each employee;
- (4) his classification in accordance with the classifications fixed in the contract;
- (5) a designation of laborer, mechanic, or apprentice;
- (6) the number of hours worked daily by said employee at straight time and at overtime and his hourly wage rate for each;
- (7) the gross wages paid to said employee per week; and
- (8) such other data as may be required by the Board of Estimates from time to time.

(c) *Prime contractor responsible for subcontractors.*

The prime contractor shall be responsible for the submission of all subcontractors' payrolls covering work performed directly at the work site.

(d) *Signed statement of compliance.*

Each copy of the payroll shall be accompanied by a statement signed by the contractor or the subcontractor, as the case may be, indicating:

- (1) that the payroll is correct;
- (2) that the wage rates contained therein are not less than those established by the Board of Estimates as set forth in the contract;
- (3) that the classification set forth for each laborer, mechanic, or apprentice conforms with the work he performed; and
- (4) that the contractor and the subcontractor, as the case may be, has complied with the provisions of this subtitle.

(City Code, 1966, art. 1, §16(f)(2nd sen.); 1976/83, art. 1, §19(d)(2).) (Ord. 59-1960; Ord. 67-969; Ord. 73-348.)

U.S. Department of Labor
Wage and Hour Division

PAYROLL

(For Contractor's Optional Use; See Instructions at www.dol.gov/whd/forms/wh347instr.htm)

Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number.

NAME OF CONTRACTOR ☐ OR SUBCONTRACTOR ☐

ADDRESS

PAYROLL NO.

FOR WEEK ENDING

PROJECT AND LOCATION

PROJECT OR CONTRACT NO.

OAS No.: 1235-0008
Expires: 02/28/2018

Rev. Dec. 2008

[illegible]

While completion of Form WH-347 is optional, it is mandatory for covered contractors performing work on Federally financed or assisted construction contracts to respond to the information collection contained in 29 C.F.R. §§ 3.3, 3.5(a)(9). The Copeland Act [40 U.S.C. § 3145] requires contractors performing work on Federally financed or assisted construction contracts to "furnish weekly a statement with respect to the wages paid each employee during the preceding week." U.S. Department of Labor (DOL) regulations at 29 C.F.R. § 3.5(a)(3)(ii) require contractors to submit weekly a copy of all payrolls to the Federal agency contracting for or financing the construction project, accompanied by a signed "Statement of Compliance" indicating that the payrolls are correct and complete and that each laborer or mechanic has been paid not less than the proper Davis-Bacon prevailing wage rate for the work performed. DOL and federal contracting agencies seeking this information to enforce the information to determine if employees have received legally required wages and fringe benefits.

Public Burden Statement

We estimate that it will take an average of 35 minutes to complete this collection, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. If you have any comments regarding these estimates or any other aspect of this collection, including suggestions for reducing this burden, send them to the Administrator, Wage and Hour Division, U.S. Department of Labor, Room 33502, 200 Constitution Avenue, N.W., Washington, D.C. 20210.

[over]

SC-2 EQUAL OPPORTUNITY COMPLIANCE**Article 5 §29-15****Mandatory nondiscrimination contract clause:**

Contractor shall not discriminate on the basis of race, gender, religion, national origin, ethnicity, sexual orientation, gender identity or expression, age, or disability in the solicitation, selection, hiring, or treatment of subcontractors, vendors, suppliers, or commercial customers. Contractor shall provide equal opportunity for subcontractors to participate in all of its public sector and private sector subcontracting opportunities, provided that nothing contained in this clause shall prohibit or limit otherwise lawful efforts to remedy the effects of marketplace discrimination that has occurred or is occurring in the marketplace, such as those specified in Article 5, Subtitle 28 of the Baltimore City Code, as amended from time to time. Contractor understands and agrees that violation of this clause is a material breach of the contract and may result in contract termination, debarment, or other sanctions. This clause is not enforceable by or for the benefit of, and creates no obligation to, any third party.

Article 5 §29-16**Contractor bid requirements:**

As part of its bid or proposal, Bidder shall provide to the City a list of all instances within the past 5 years where there has been a final adjudicated determination in a legal or administrative proceeding in the State of Maryland that the bidder has discriminated against its subcontractors, suppliers, vendors, or commercial customers on the basis of race, gender religion, national origin, ethnicity, sexual orientation, gender identity or expression, age or disability, and a description of any resulting sanction entered and remedial action taken.

Bidders may submit this document in a separate sealed envelope with the bid documents.

Article 5 §29-17**Contract disclosure requirement:**

Upon the City's request, and only after filing a complaint against Contractor pursuant to Article 5, Subtitle 29, of the Baltimore City Code, as amended from time to time, Contractor agrees to provide the City within 60 calendar days, a truthful and complete list of the names of all subcontractors, vendors, and suppliers that Contractor has used in the past 4 years on any of its contracts that were undertaken with the Baltimore City Market Area as defined in Article 5, §28-1(d) of the Baltimore City Code, as amended from time to time, including the total dollar amount paid by Contractor for each subcontract or supply contract. Contractor agrees to fully cooperate in any investigation conducted by the City pursuant to the City's Commercial Non -Discrimination Policy, as contained in Article 5, Subtitle 29, of the Baltimore City Code as amended from time to time. Contractor understands and agrees that violation of this clause is a material breach of the contract and may result in contract termination, debarment, and other sanctions.

SC-3 PAYMENTS TO THE CITY

Any payments to the Mayor and City Council or any of its Departments, Agencies, Board or Commissions due under the terms of this Agreement or arising incident thereto, shall be made to the Director of Finance and be mailed or delivered to:

Director of Finance
Abel Wolman Municipal Building, Room One
Baltimore, Maryland 21202

SC-4 CONTRACTOR TO EXECUTE REQUIRED DOCUMENTS AND START WORK PROMPTLY

Replace Section 00 51 00.07 of the Standard Specifications with the following:

The successful Bidder shall promptly execute and submit a formal Contract, all subcontract agreements in accordance with Article 5 Subtitle 28 of the Baltimore City Code, any and all contract documents specified in an Award Letter, the required Bonds, and all insurance policies or certified copies thereof issued in favor of the Mayor and City Council of Baltimore, as provided in the Special Provisions, all of which shall be subject to the approval of the City Solicitor as to form, terms and conditions. Failure to comply with these requirements within thirty (30) calendar days after the Award shall be just cause for the annulment of the Award. It is understood and agreed that in the event of annulment of the Award, the Board of Estimates may require the Bidder to forfeit, to the use of the City, the amount of the certified check deposited with its Proposal, not as penalty, but as liquidated damages. 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.

SC-5 TRAFFIC INSPECTION

The assigned Project Engineer (or his designated representative) will inspect the Maintenance of Traffic on a routine basis. Any deficiencies that are noted will be brought to the Contractor's attention for correction.

If any of the deficiencies are not corrected within twelve (12) hours from the documented notice being given to the Contractor, an appropriate deduction will be made from the Contractor's next Progress Estimate. The deduction will be \$200.00 per day for each day or portion thereof that the deficiencies exist and will continue until the deficiencies are satisfactorily corrected and accepted by the Project Engineer. The amount of money deducted will be a permanent deduction from the Contract and will not be recoverable.

SC-6 OVERTIME REIMBURSEMENT

The Contractor shall reimburse the City for inspection and other services required when and if, the Contractor chooses to work in excess of the normal eight (8) hour workday, forty (40) hour work week, weekends, or on a City holiday as designated by the City Labor Commissioner available at <http://labor-commissioner.baltimorecity.gov/official-city-holidays>. The amount due the City shall be deducted from the Contractor's monthly pay estimate at the hourly rate of \$32.00. The rate specified is per inspector on the project while the overtime work is ongoing. The Contractor should assume that, if one (1) to two (2) crew is working, one (1) inspector will be on site. If three (3) to five (5) crews are working, two (2) inspectors will be on site. If more than five (5) crews are working, three (3) inspectors will be on site. This overtime reimbursement will not apply to overtime work done at the City's request.

The Contractor may be required to work nights, weekends, and public holidays. The Contractor may be required to work in, but not limited to, permit confined spaces, adverse weather, hot weather, and possibly freezing weather conditions. Any costs accrued by the Contractor associated with irregular work hours/days and adverse working conditions shall be considered incidental to the work under this Contract, and there shall be at no additional costs to the City.

SC-7 PROJECT IDENTIFICATION

To Section 01 58 00 PROJECT IDENTIFICATION of the Standard Specifications add:

The Contractor shall furnish, install, and maintain project signs on this Project, in accordance with the City Of Baltimore DPW Specifications for Materials, Highways, Bridges, Utilities, and Incidental Structures, 2006 version, using the design listed below, at location as directed by the Engineer:



At some locations, the Contractor will be required to furnish and install magnetic information sign(s) to be placed on at least one vehicle at each work location, or as directed by the Engineer. The magnetic information sign(s) which will be placed on the vehicle shall be approximately 2' x 2' in size or as directed by the Engineer.

The signs shall be installed prior to start of work and be removed when directed by the Engineer, and shall then become the property of the Contractor.

SC-8 PROGRESS PAYMENT PROCEDURES

To Section 01 29 76 PROGRESS PAYMENT PROCEDURES of the City of Baltimore, DPW – Specifications for Material, Highways, Bridges, Utilities and Incidental Structures, add:

Pursuant to the City of Baltimore Guidelines for the Performance Evaluation of Design Consultants and Construction Contractors- Section II subsection 12.0 - Ratings, the request to have any held retainage reduced is based on the ratings that are received after and performance evaluation has been completed, submitted to the Office of Boards and Commissions (OBC) and OBC has accepted the submittal.

A Contractor achieving two consecutive “Excellent” or “Good” interim evaluations can request that the retainage for the Contract be reduced from 5.0% to 1.5% (for Excellent) or 5.0% to 3.0% (for Good) at the 50% completion milestone (as expressed in terms of monies earned excluding stored material). The request shall be accompanied by a document from the Surety indicating approval of said reduction. A Contractor shall remain eligible for this reduction in retainage by maintaining an “Excellent” or “Good” rating. If a subsequent evaluation is less than an “Excellent” or “Good” rating, 10% monthly retainage

shall re-commence until the maximum amount of retainage is again withheld: 5% of the Contract value. Retainage will not be released until final payment (unless partially released in a semifinal payment). When the amount earned during any one month or period, less the appropriate retained percentage shall be less than Five Hundred Dollars (\$500), no payment will be made except on the last current estimate, until the total amount earned, less retained percentage, since the last preceding payment is at least Five Hundred Dollars (\$500). The appropriate retained percentage shall be deducted from each and every estimate made under the entire Contract and shall be retained until final completion of all work covered by the Contract, notwithstanding any provision to the contrary that may appear in the Contract Documents.

Payment estimates will not be paid until all CCTV files are delivered to and approved by the Engineer (Refer to SP-3, SC-28 & SC-32).

SC-9 PAYMENT TO SUBCONTRACTORS

In accordance with the Baltimore City code, Article 5, § 28-55, the payment to the subcontractors must be made within seven (7) calendar days after the prime Contractor receives payment from the City. All other terms and conditions of the Baltimore City Code, and Standard Specifications shall apply.

SC-10 TEMPORARY PARKING RESTRICTIONS

- a. Scope of section.
 1. Except as specified in paragraph (2) of this subsection, this section applies whenever parking on a street is to be temporarily discontinued or otherwise restricted by the City or other person to accommodate construction, repair, or other work to be done on or adjacent to the street, or a special event.
 2. This section does not apply in the case of an emergency, where the work on or adjacent to the street must be done immediately to protect life, health, safety, or property.
- b. Prior notice – Posting.
 1. The Contractor shall post the affected area with advance notice of the parking restrictions at least 3 calendar days before the restrictions become effective or as directed by the Engineer. “NO PARKING” signs shall be posted in well-lit and visible locations of the affected area.
 2. The posted notice shall include:
 - I. The dates and times when the restrictions will be effective;
 - II. The name of the City agency, the contract number, and the Contractor responsible for the work;
 - III. A brief description of the work to be done or special event; and
 - IV. A phone number and email address at which further information can be obtained.
- c. Prior notice – Delivery.
 1. If a violation of the temporary parking restrictions will authorize impoundment, the Contractor shall also give written notice to the occupants of the properties abutting the affected area at least 3 calendar days before the restrictions become effective.

ART. 31, § 2-7 BALTIMORE CITY CODE

This written notice shall include:

- I. The information required by subsection (b) of this SC for the posted notice; and
- II. A prominent warning that the parking restrictions may be enforced by impoundment. (Ord. 11-490.)

SC-11 MOBILIZATION/DEMobilIZATION

Supplement Standard Specifications Section 01 71 13 with the following:

Mobilization and demobilization is considered incidental to the work being performed and no separate payment for mobilization and demobilization will be made. The cost of mobilization/demobilization shall be reflected in the appropriate bid Items in this Contract. This work shall consist of the performance of construction preparatory operations for the establishment of the Contractor's facilities necessary to begin work on the Contract. This work shall include the movement of personnel and equipment to and from the project site, moving on and off site all construction materials, equipment, tools, and incidentals required to complete the work, the establishment of storage areas any other facilities required by the Standard Specifications and Special Conditions of the Contract, as well as by local or state law and regulations, the scheduling and holding of meetings with the Sediment and Erosion Control Inspector and all other work including initial expenses and operations which must be performed prior to the beginning of any work.

The Contractor will be required to Mobilize to the work site within one (1) week, once the work is assigned by the Engineer. In case the task is deemed urgent work or as directed by the Engineer, the Contractor must proceed with the work within forty-eight (48) hours upon receipt of an assignment. The work shall be completed in an expedient manner as noted in Special Provision SP-3 "Time of Completion of Task Orders".

The Contractor shall furnish, install and maintain information signs on this Project. The signs shall be placed at each work location as directed by the Engineer. (See the Special Conditions for additional sign details). The signs shall be installed prior to start of work and be removed when directed by the Engineer, and shall then become the property of the Contractor.

The Contractor shall furnish and maintain two (2) new cell phones with direct connect service for use by the City for the duration of this contract. The cell phones shall be capable of capturing good quality pictures (10 MP or better) and videos which can be transmitted electronically. The cell phones shall be activated at the time of notice to proceed and all costs associated with these cell phones shall be incurred by the Contractor. If any of the cell phones become defective, are stolen, or for any other reasons do not function as intended, they shall be replaced in-kind at no additional cost to the City. They shall remain operational until returned to the Contractor at the conditional acceptance of the Contract.

Ownership of the cell phones will remain with the Contractor. The City assumes no responsibility or liability for the condition of the cell phones when they are returned.

SC-12 ESTIMATED QUANTITIES

Delete paragraph D in Section 00 21 13.16 of the Standard Specifications and delete paragraph D in Section 01 26 34 of the Standard Specifications and replace with the following:

D. VARIATION IN ESTIMATED QUANTITIES

In this contract, regardless of whether quantities are titled as "contingent", all quantities are, in fact, contingent. The City has made estimates based on the needs of its utility maintenance system, and it is likely that there will be overruns and underruns of various bid quantities. The Contractor shall be aware that the quantities provided are estimated, for bidding purposes only, and may be increased, decreased, or eliminated entirely. The Contractor will be paid for work which is actually performed by the Contractor and accepted by the Engineer.

SC-13 REMOVAL AND DISPOSAL OF TRASH AND DEBRIS

There will be no separate payment for this item. The costs for removal and disposal of trash and debris shall be reflected in the appropriate Utility bid items in this Contract.

This work shall include the removal all trash and debris within the limit of disturbance or project area including surface and sub-surface items uncovered by the construction effort. This item may also include, but is not limited to fallen trees in the stream channel, concrete and masonry rubble, pipe sections, metal, construction waste, landscaping waste, and refuse waste. All trash and debris removed from the site must be disposed of by the Contractor. The Contractor shall make all necessary arrangements to obtain suitable disposal locations and shall furnish the Engineer with a copy of resulting agreements.

SC-14 TERMINATION FOR CONVENIENCE OF THE CITY

- A. Performance of work under this Contract may be terminated by the City in accordance with this clause, in whole or in part, whenever the City shall determine that such termination is in the best interest of the City. Any such termination shall be affected by delivery to the Contractor of a written Notice of Termination specifying the extent to which performance of work is terminated and the effective date of termination.
- B. After receipt of a Notice of Termination, and except as otherwise directed by the Engineer, the Contractor shall:
 - 1. Stop work under the Contract on the date and to the extent specified in the Notice of Termination;
 - 2. Place no further orders or subcontracts for materials, services or facilities, except as may be necessary for completion of the portion of the work under the Contract as is not terminated;
 - 3. Terminate all orders and subcontracts to the extent that they relate to the work terminated by the Notice of Termination;
 - 4. Assign to the City, in the manner, at times, and to the extent directed by the Engineer, all of the right, title, and interest of the Contractor under the orders and subcontracts so terminated, in which case the City shall have the right, in its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts;
 - 5. Settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts, with the approval or ratification of the Engineer, to the extent he may require, which approval or ratification shall be final for all the purposes of this clause;
 - 6. Transfer title and deliver to the City, in the manner, at the times, and to the extent, if any, directed by the Engineer, fabricated or unfabricated parts, work in process, completed work, supplies, and other material produced as a part of, or acquired in connection with the performance of the work terminated by the Notice of Termination, and/or completed or partially completed plans, drawings, information, and other property which, if the Contract had been completed, would have been required to be furnished to the City;
 - 7. Use its best efforts to sell, in the manner, at the times, to the extent, and at the price or prices directed or authorized by the Engineer, any property of the types referred to in (6) above. The

Contractor will not be required to extend credit to any purchaser, and may acquire any such property under the conditions prescribed by and at a price or prices approved by the Engineer; provided further that the proceeds of any such transfer or disposition shall be applied in reduction of any payments to be made by the City to the Contractor under this contract or shall otherwise be credited to the price or cost of the work covered by this contract or paid in such other manner as the Engineer may direct;

8. Complete performance of any part of the work that has not been terminated by the Notice of Termination; and
 9. Take any action that may be necessary, or as the Engineer may direct, for the protection and preservation of the property related to this Contract which is in the possession of the Contractor and in which the City has or may acquire an interest.
 10. Submit to the Engineer a list, certified as to quantity and quality, of any or all items of termination inventory not previously disposed of, exclusive of those items for which the disposition has been directed or authorized by the Engineer. The Contractor may request the City to remove such items or enter into a storage agreement covering them. Not later than fifteen (15) days thereafter, the City shall accept title to these items and remove them or enter into a storage agreement covering the same; provided, that the list submitted shall be subject to verification by the Engineer upon removal of the items, or if the items are stored, within forty-five (45) days from the date of submission of the list. Any correction to this list shall be made prior to final settlement.
- C. After receipt of a Notice of Termination, the Contractor shall submit to the Engineer its termination claim, in the form and with certification prescribed by the Engineer. This claim shall be submitted promptly but in no event later than six (6) months from the effective date of termination, unless one or more extensions in writing are granted by the Engineer upon request of the Contractor made in writing within the six-month period or authorized extension thereof. However, if the Engineer determines that the facts justify such action, he may receive and act upon any such termination claim at any time after the six-month period or any extension thereof. Upon failure of the Contractor to submit his termination claim within the time allowed, the Engineer may determine, on the basis of information available to him, the amount, if any, due to the Contractor by reason of the termination and shall thereupon pay to the Contractor the amount so determined.
- D. Subject to the provisions of paragraph (C), the Contractor and the Engineer may agree upon the whole or any part of the amount or amounts to be paid to the Contractor by reason of the total or partial termination of work pursuant to this clause, which amount or amounts may include a reasonable allowance for profit on work done; provided, that such agreed amount or amounts, exclusive of settlement costs, shall not exceed the total contract price as reduced by the amount of payments otherwise made and as further reduced by the contract price of work not terminated. The Contract shall be amended accordingly, and the Contractor shall be paid the agreed amount. Nothing in paragraph (E) of this clause, prescribing the amount to be paid to the Contractor in the event of failure of the Contractor and the Engineer to agree upon the whole amount to be paid to the Contractor by reason of the termination of work pursuant to this clause, shall be deemed to limit, restrict, or otherwise determine or affect the amount or amounts that may be agreed upon to be paid to the Contractor pursuant to this paragraph.

- E. In the event of the failure of the Contractor and the Engineer to agree as provided in paragraph (D) upon the whole amount to be paid to the Contractor by reason of the termination of work pursuant to this clause, the Engineer shall pay to the Contractor the amounts determined by the Engineer as follows, but without duplication of any amounts agreed upon in accordance with paragraph (D):
1. With respect to all contract work performed before the effective date of the Notice of Termination, the total (without duplication of any items) of:
 - a) The cost of the work;
 - b) The cost of settling and paying claims arising out of the termination of work under subcontracts or orders, as provided in paragraph (B) (5) above, exclusive of amounts paid or payable on account of supplies or materials delivered or services furnished by subcontractors or vendors before the effective date of the Notice of Termination, which amounts shall be included in the costs payable under (i) above; and
 - c) A sum, as profit on (i) above, determined by the Engineer to be fair and reasonable; provided, however, that if it appears that the Contractor would have sustained a loss on the entire Contract had it been completed, no profit shall be included or allowed under this subdivision (iii) and an appropriate adjustment shall be made reducing the amount of the settlement to reflect the indicated rate of loss; and
 2. The reasonable cost of the preservation and protection of property, incurred pursuant to paragraph B(8) above, and any other reasonable cost incidental to termination of the work under this Contract, including expenses incidental to the determination of the amount due to the Contractor as the result of the termination of the work under the Contract.
 3. The total sum to be paid to the Contractor under (1) of this paragraph shall not exceed the total contract price as reduced by the amount of payments otherwise made and as further reduced by the contract price of work not terminated. Except for normal spoilage, and except to the extent that the City shall have otherwise expressly assumed the risk of loss, there shall be excluded from the amounts payable to the Contractor as provided in (E) (1) above, the fair value, as determined by the Engineer, of property that is destroyed, lost, stolen, or damaged so as to become undeliverable to the City or to a buyer pursuant to paragraph B (7).
- F. Costs claimed, agreed to, shall be in accordance with all applicable City, State and local laws, regulations and ordinances.
- G. The Contractor shall have the right of appeal, under the clause of the Specifications entitled "Disputes," from any determination made by the Engineer unless the Contractor has failed to submit his claim within the time provided herein and has failed to request and receive a written extension of time in which to submit his claim. In any case where the Engineer has made a determination of the amount due to the Contractor, the City shall pay to the Contractor the following:
1. If there is no right of appeal hereunder or if no timely appeal has been taken, the amount so determined by the Engineer, or
 2. If an appeal has been taken, the amount finally determined on such appeal.

- H. In arriving at the amount due the Contractor under this clause there shall be deducted
1. All unliquidated advances or other payments made to the Contractor, applicable to the terminated portion of this contract,
 2. Any claim that the City may have against the Contractor in connection with this contract, and
 3. The agreed price for, or the proceeds of sale of, any materials, supplies, or other things acquired by the Contractor or sold, pursuant to the provisions of this clause, and not otherwise recovered by or credited to the City.
- I. If the termination hereunder is partial, the Contractor may file with the Engineer a claim for an equitable adjustment of the price or prices specified in the contract relating to the continued portion of the contract (the portion not terminated by the Notice of Termination), and such equitable adjustment as may be agreed upon shall be made in such price or prices. Any claim by the Contractor for an equitable adjustment under this clause shall be asserted within ninety (90) days from the effective date of the termination notice, unless an extension is granted in writing by the Engineer.
- J. The City may from time to time, under such terms and conditions as it may prescribe, make partial payments and payments on account against costs incurred by the Contractor in connection with the terminated portion of this contract whenever in the opinion of the Engineer the aggregate of such payments shall be within the amount to which the Contractor shall be entitled hereunder.
- K. Unless otherwise provided for in this Contract, or by applicable statute, the Contractor shall, from the effective date of termination until the expiration of three years after final settlement under this contract, preserve and make available to the City at all reasonable times at the office of the Contractor but without direct charge to the City, all books, records, documents and other evidence bearing on the costs and expenses of the Contractor under this contract and relating to the work terminated hereunder, or, to the extent approved by the Engineer, reproductions thereof.

SC-15 OVERHEAD POWER LINES

All costs of effectively guarding electric lines against dangerous accidental contact during the prosecution of work under this Contract shall be at the Contractor's expense.

SC-16 REQUEST FOR INFORMATION (RFI)

Supplement Section 01 26 13 of the Standard Specifications with the following RFI form:

Chief, Office of Asset Management
Department of Public Works
Room 900 Abel Wolman Building

Date: _____
RFI #: _____

200 Holliday Street
Baltimore, MD 21202

SANITARY CONTRACT NO. 1002R – CLEANING AND INSPECTION OF SANITARY
SEWERS IN BALTIMORE CITY - CITYWIDE

ATTENTION:

REQUEST FOR INFORMATION

TITLE:

REFERENCES: CONTRACT SPEC(S) –
 CORRESPONDENCE –
 CHANGE SKETCHES –

DETAILED DESCRIPTION:

WRITTEN REPLY REQUESTED BY:

REQUESTED BY:

Distribution:

SC-17 CONSTRUCTION CHANGE ORDERS AND DIRECTIVES

ADD the following paragraphs to Section 01 26 46 of the Standard Specifications.

- F. The Contractor shall not work overtime hours on a time and material EXTRA WORK ORDER unless authorized by the City to do so.
- G. The overhead and profit rates and items not subject to overhead and profit shall conform to the format and mark-ups described in Section 01 26 46 of the City Standard Specifications.
- H. A Notice of Proposed Change Order (PCO) form is provided for the Contractor's use. The blank spaces shall be filled in correctly where indicated for each and every line. The PCO number shall be assigned by the Engineer and shall be sequentially numbered.

Chief, Office of Asset Management
Department of Public Works
Room 900, Abel Wolman Building
200 Holliday Street
Baltimore, MD 21202

NOTICE OF PROPOSED CHANGE ORDER

SANITARY CONTRACT NO. 1002R – CLEANING AND INSPECTION OF SANITARY
SEWERS IN BALTIMORE CITY - CITYWIDE

ATTENTION:

TITLE:

REFERENCE:

DETAILED DESCRIPTION:

CONTRACT SPECIFICATIONS REFERENCE:

CORRESPONDENCE:

RELATED RFI's:

DETAILED DESCRIPTION/REASON FOR REQUESTED CHANGE:

SCHEDULE IMPACT ANTICIPATED? (YES/NO)

ESTIMATED COST IMPACT:

SKETCHES PREPARED:

DATE WRITTEN REPLY REQUESTED BY:

REQUESTED BY:

DISTRIBUTION:

SC-18 REMOVAL OF MANHOLE COVERS

The Contractor shall remove and reinstall all manhole covers as required to complete the work. Manhole covers shall be reinstalled at the end of each work day.

SC-19 BYPASS PUMPING OF SANITARY FLOWS

Flow control shall be incidental to the contract. It is not the intent of this contract to require bypass pumping to control heavy flow to complete cleaning and inspection; however, the Contractor must, at a minimum, make reasonable effort to control the flow as described in the Supplemental Technical Specifications.

In accordance with SC-37, sanitary sewer bypass pumping shall be performed by the Contractor and at the expense of the Contractor if needed to maintain sewer flow in the event their equipment becomes stuck in a sewer or lateral, in accordance with Section 33 01 30.87 – Temporary Sewer Bypass Pumping of the Supplemental Technical Specifications.

SC-20 INSURANCE

Supplement Section 00 73 16 of the Standard Specifications with the following:

D. INDEMNIFICATION

The Contractor shall indemnify, defend and hold harmless the City, its elected/appointed officials, employees, and agents from any and all claims, demands, suits, and actions, including attorney's fees and court costs, connected therewith, brought against the City, its elected/appointed officials, employees, and agents, arising as a result of any direct or indirect willful, or negligent act or omission of the Contractor, its officials, employees, and agents, EXCEPT for activities caused by the sole negligent act or omission of the City, its elected/appointed officials, employees and agents arising out of this contract.

Delete Part D.1 in Section 00 73 16.01 of the Standard Specifications and replace with the following:

D. INSURANCE REQUIREMENTS

1. By the date of execution of this contract, the Contractor shall purchase and maintain, during the life of this contract, insurance against claims for injuries to persons or damages to property which may arise from, or in connection with, the performance of work hereunder by the Contractor, its officials, employees, agents, representatives, and/or subcontractors. The costs of such insurance shall be paid by the Contractor or subcontractor. The Contractor shall furnish separate certificates of insurance and policy endorsements for each subcontractor as evidence of compliance with the insurance requirements of this contract.

Delete Section 00 73 16.01.E of the Standard Specifications and replace with the following:

E. COMMERCIAL GENERAL LIABILITY INSURANCE

1. The Contractor shall purchase and maintain commercial general liability insurance in an amount of not less than two million dollars (\$2,000,000) combined single limit per occurrence for all damages arising out of bodily injuries or death and property damage and

with those policies with aggregate limits; a three million dollar (\$3,000,000) aggregate limit is required. In case any Work is subcontracted, the Contractor shall require the Subcontractor or anyone directly or indirectly employed by any of them to procure the same coverage.

a. Such insurance shall include:

- 1) Products - Completed operations insurance.
- 2) Contractual liability insurance.
- 3) Premises and operations insurance.

2. There shall be no exclusions pertaining to collapse of or damage to any building or structure, damage to underground property, or injury or damage arising out of blasting or explosion, products/completed operations, independent contractors, broad form property damage, contractual liability, or cross liability. The provision shall apply to operations by the Contractor or any Subcontractor in the performance of this contract.

Delete Section 00 73 16.01.F of the Standard Specifications and replace with the following:

F. BUSINESS AUTOMOBILE LIABILITY INSURANCE

The Contractor shall purchase and maintain, during the life of this Contract, Business Automobile Liability Insurance, at a limit of not less than One Million Dollars (\$1,000,000) per occurrence for all claims arising out of bodily injuries or death and property damage. The Insurance shall apply to any owned, hired or non-owned automobiles used in the performance of this contract.

Delete Section 00 73 16.01.H of the Standard Specifications and replace with the following:

H. WORKERS' COMPENSATION

The Contractor shall purchase and maintain Workers' Compensation coverage as required by the State of Maryland, as well as any similar coverage required for this work by applicable Federal or "Other States" State Law.

Delete Section 00 73 16.01.I of the Standard Specifications and replace with the following:

I. DEDUCTIBLES AND SELF-INSURED RETENTIONS

Any deductibles or self-insured retentions must be declared to, and approved by, the City. The deductible or self-insured retention assigned to the policies shall be the sole responsibility of the Contractor.

Delete Section 00 73 16.01.J of the Standard Specifications and replace with the following:

J. OTHER INSURANCE PROVISIONS

The insurance policies required in the contract are to contain, or be endorsed to contain, the following provisions:

1. General Liability Policies

- a. The Mayor and City Council of Baltimore, its elected/appointed officials, employees, and agents (referred to as the "City") are to be covered, by endorsement, as additional

insureds with respect to liability arising out of activities performed by or on behalf of the Contractor in connection with this contract.

- b. To the extent of the Contractor's negligence, the Contractor's insurance coverage shall be primary insurance with respect to the City, its elected/appointed officials, employees, and agents. Any insurance and/or self-insurance maintained by the City, its elected/appointed officials, employees, or agents shall not contribute with the Contractor's insurance or benefit the Contractor in any way.
- c. The Contractor's insurance shall apply separately to each insured against whom claim is made and/or lawsuit is brought, except with respect to the limits of the insurer's liability.
- d. As to the interest of the City as additional insured, the insurance coverage afforded by the policy(ies) purchased by the Contractor as required shall not be cancelled, non-renewed, reduced in coverage or in limits, or invalidated due to any breach or violation by the named insured of any warranties, declarations or conditions, except for the exclusions in the policy, but this shall not prevent the reduction of the applicable aggregate limit by claims paid, until after forty-five (45) days prior written notice has been given to the City and opportunity to cure.
- e. The policy(ies) will automatically include and cover all phases of Work, equipment, persons, etc., which are normally covered while performing Work under the above Contract, whether specifically written therein or not.
- f. The insurance company(ies) providing insurance coverage as required herein is (are) prohibited from pleading governmental function in the absence of any specific written authority by the City.

2. All Policies

- a. Coverage shall not be suspended, voided, canceled, reduced in coverage or in limits, except by the reduction of the applicable aggregate limit by claims paid, until after forty-five (45) days prior written notice has been given to the City. There will be an exception for non-payment of premium, which is ten (10) days' notice of cancellation. Delete Section 00 73 16.01.L of the Standard Specifications and replace with the following:

L. VERIFICATION OF COVERAGE

At least ten days prior to commencement of work, the Contractor shall furnish the City a "Certificate of Insurance", with copy(ies) of the additional insured endorsement(s), as verification that coverage is in force. The certificates and endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The certificates and endorsements for each insurance policy are to be on forms approved by the City prior to the commencement of activities associated with this

contract. The City reserves the right to require complete, certified copies of all required insurance policies at any time, such evidence of insurance shall refer to the project name and contract number.

Delete Section 00 73 16.01.M of the Standard Specifications and replace with the following:

M. SUBCONTRACTORS

The Contractor shall include all Subcontractors as insured under its policies or shall furnish separate certificates of insurance and policy endorsements for each subcontractor. Insurance coverages provided by Subcontractors as evidence of compliance with the insurance requirements of this contract shall be subject to all of the requirements stated herein.

Add the following to Section 00 73 16.01 of the Standard Specifications:

N. ENVIRONMENTAL LIABILITY COVERAGE

The Contractor shall purchase and maintain during the life of this contract Environmental Liability Coverage. The limits of liability shall not be less than five million dollars (\$5,000,000) per claim or in the aggregate. If the coverage is written on a claims-made form:

1. The "Retro Date" must be shown and must be before the date of the contract or the beginning of contracted work.
2. Insurance must be maintained and evidence of insurance must be provided for at least three (3) years after completion of the contract work and acceptance by the City.
3. If the coverage is cancelled or not renewed or replaced with another claims-made policy form with a "Retro Date" prior to the contract effective date, the Contractor must purchase "Extended Reporting" coverage for a minimum of three (3) years after completion of the contract work.
4. A copy of the claims reporting requirements must be submitted to the City for review.
5. The Mayor and City Council of Baltimore must be named as "Additional Insured".

O. COMMERCIAL UMBRELLA/EXCESS LIABILITY

The Contractor shall maintain either a Commercial Umbrella or Excess Liability at a limit of liability of not less than ten million dollars (\$10,000,000) per each occurrence or in the aggregate. The Contractor agrees to endorse the City as an "Additional Insured" on the Commercial Umbrella/Excess Liability, unless the Commercial Umbrella/Excess Liability provides coverage on a pure/true follow-form basis, or the City is automatically defined as an Additional Protected Person.

P. RAILROAD PROTECTIVE LIABILITY

The Contractor and all subcontractors shall provide, with respect to activities it or any of its agents perform within 50 feet vertically or horizontally of railroad tracks, Railroad Protective Liability Insurance in the Name of the Owner of the Railroad, in the amount of not less than \$5,000,000 per occurrence, \$10,000,000 per aggregate.

SC-21 PERMITS, LICENSES, CHARGES AND NOTICES

Supplement Section 01 41 26 of the Standard Specifications with the following:

It shall be the Contractors responsibility to obtain the appropriate permits for the off-site disposal of waste material.

The City will obtain a construction permit from the Maryland Department of the Environment, if required.

SC-22 DOCUMENT RETENTION

The Contractor shall maintain records of all actions, and accurate books of account for all funds received and disbursed, with full documentation to substantiate the transactions. Records shall be retained for a period of at least five (5) years after receipt of the final payment under this Contract. If Contractor and its parent organization should cease to exist, custody of the records for the Contract will be immediately transferred to the City.

SC-23 RIGHT OF ACCESS TO PRIVATE PROPERTY OWNERS

The City Utility Easement agreements with private property owners provide for authorized City contractors and maintenance crews to access, occupy, and work within the limits of the easements. Most City sewers are constructed within Utility Easements. Occasionally, sewers are found outside utility easements.

However, it is often found that the Contractor must traverse private property to access the sewer within the utility easement. The City policy is to request from the Property Owner a Right-of-Entry (ROE) Agreement or permission letter for this access. The City will provide documentation of access permission to the Contractor prior to issuing the notice-to-proceed.

Sewers and manholes may be located in easements through private property, City owned parklands and rights-of-way and restricted alleyways where no paved access may exist or paved access is obstructed to the extent that would inhibit equipment and materials mobilization. The City Utility Easement agreements with private property owners provide for authorized City contractors and maintenance crews to access, occupy, and work within the limits of the easements. Most City sewers are constructed within Utility Easements. Occasionally, sewers are found outside utility easements. It is often found that the Contractor must traverse private property to access the sewer within the utility easement. Notification of entry is to be provided three days prior to the work to the Property Owner. If there is an objection from the Property Owner to the Contractor entering the property, City policy is to request from the Property Owner a Right-of-Entry (ROE) Agreement or permission letter for this access. The City will provide documentation of access permission to the Contractor.

SC-24 WORK RESTRICTIONS

1. Unless otherwise specified or directed by the Engineer in the scope of work, the regular working day shall begin no earlier than 7:00 AM and end no later than 5:00 PM, Monday to Friday.
2. On some streets, the Contractor will be restricted to work between the hours of 9:00 AM and 3:00 PM only. The Contractor shall contact Department of Transportation's Traffic Engineering Division at 443-984-2173 to identify such streets.
3. A minimum of eight (8) hours shall constitute a regular workday.
4. The Engineer reserves the right to modify or expand the working hours as specified in Contract Documents when it is in the best interest of the City. There will be no additional compensation for modification of working hours at the request of the Contractor. Any request from the Contractor to modify the working hours shall require written approval from the Engineer at

least seventy-two (72) hours prior to implementing the change. The Contractor shall supply a copy of the original working hours with the written request.

5. Work is not permitted on Saturday or Sunday unless prior authorization has been given by the Engineer.
6. Work is not permitted on the holidays, or workdays preceding and following holidays indicated below unless prior authorization has been given by the Engineer.
 - a. New Year's Day, January 1
 - b. Martin Luther King's Birthday, the third Monday in January
 - c. President's Day, the third Monday in February
 - d. Good Friday
 - e. Easter Weekend
 - f. Memorial Day, the last Monday in May
 - g. Independence Day, July 4
 - h. Labor Day, the first Monday in September
 - i. Columbus Day, the second Monday in October
 - j. Veteran's Day, November 11
 - k. Thanksgiving, the fourth Thursday in November
 - l. Christmas Day, December 25
7. Night Work shall require the approval of the Engineer and will also be subject to a 72 hour public notice prior to the use of cleaning or inspection equipment.

SC-25 SPECIAL CONSIDERATIONS AND/OR REQUIREMENTS

- A. Pipes and associated manholes, cleanouts or access points identified for PACP, LACP and MACP inspection shall be cleaned by the Contractor throughout all their respective components of all loose or settled debris. This debris will be removed from the sewer pipes and manholes including the bench and channel using approved equipment per these specifications.
- B. Above Ground Measure (AGM) is required in order to check the horizontal footage of the inspected sewer at the surface as compared to the footage listed in the CCTV video. If a difference in the recorded footage exceeds a tolerance of 2 feet, calibration of CCTV equipment may be needed.
 1. Measure the distance between the center of the start and finish manholes on the ground surface above the sewer to the nearest half an inch using a survey grade ISO 16331-1:2012(E) approved outdoor laser distance measurer capable of attaining 500 feet minimum surface distance, or alternative measuring methods approved by the Engineer, before beginning the sewer inspection. The center of the manhole will be based on the center of the manhole cover regardless of the manhole configuration. If bends are identified to exist within the sewer segment, the Contractor shall approximate the measurement on the ground surface using incremental distances to the approximate alignment of the sewer between the start and finish manholes, to the approval of the Engineer.
- C. It shall be the responsibility of the Contractor to locate the mainline sewer manholes, Lateral Tap access points along the main line (AML), lateral inspection chambers or cleanouts by use of a CCTV camera and sonde locator, where applicable, in conjunction with the use of a metal detector.
 1. Time spent to locate manholes or cleanouts shall be incidental to the Contract. The Contractor shall spend up to one (1) hour attempting to locate each manhole or cleanout.

If the manhole or cleanout cannot be located, the Contractor shall mark the cleaning per the appropriate NASSCO field for Inspection Status, giving adequate reasoning and move on to the next asset for cleaning or inspection. The Contractor shall notify the Engineer of the uninspected asset for further investigation. The Engineer shall communicate to the Contractor to return if the Engineer locates the asset.

2. In the event that a manhole is buried in unpaved areas, the Contractor shall notify the Engineer of the buried manhole occurrence and, upon approval by the Engineer, uncover buried manholes to a depth of three feet. The Engineer may direct the Contractor to fill the hole back in and restore the surface on a case by case basis. This work shall be compensated by time and materials using the allowance, "Difficult to Access Manholes". Access points which could not be unearthed shall be marked for follow up and the Engineer shall be notified. The Contractor does not need to attempt to unearth cleanouts.
 3. In the event that a manhole is buried in paved areas, the Contractor shall mark the approximate location by painting or flagging, notify the Engineer of the buried manhole occurrence, provide a digital image of the painted or flagged location and move on to the next asset for cleaning or inspection. The Engineer shall communicate to the Contractor to return if the Engineer arranges for the raising to grade of the manhole.
 4. Furthermore, for additional Work where efforts to open manholes that may be welded shut, have stripped bolts, broken locking devices, stuck or broken covers, etc. and may require mechanical equipment and hand tools to open, shall be compensated by time and materials using the allowance, "Difficult to Access Manholes". This item will be used as directed by the Engineer, after one (1) hour of labor expended in the Contractors reasonable attempt to access and gaining entry to an individual manhole that has been located.
 5. For manholes or cleanouts that are more than ten feet from the location shown in the mapping or for newly found cleanouts, the Contractor shall provide the Engineer with a legible sketch drawing that provides the location of the manholes, cleanouts, structures, or piping and GPS survey the asset to submeter accuracy. These markups will be approved by the Engineer for mapping corrections by the Engineer.
 6. Once any phase of the Contract is started, work shall continue in a timely manner, until all manholes or pipe sections are cleaned and inspected. Complete internal inspection of manholes within a week after cleaning assuming that the manhole is still clean upon initial inspection. For pipes, the final pass of standard cleaning shall be undertaken in conjunction with the CCTV camera inspection that is to be provided as the final inspection deliverable.
- D. During all cleaning and inspection operations, precautions shall be taken to protect all sewer assets from damage. Any damage to the sewer assets caused by the use of cleaning or inspection equipment, regardless of the cleaning or inspection method, shall be repaired by the City's On-Call Contractor at the cost of the Contractor at no additional cost to the Owner.
- E. Sewers and manholes may be located in easements through private property, City owned parklands and rights-of-way and restricted alleyways where no paved access may exist or paved access is obstructed to the extent that would inhibit equipment and materials mobilization. The City Utility Easement agreements with private property owners provide for authorized City contractors and maintenance crews to access, occupy, and work within the limits of the easements. Most City sewers are constructed within Utility Easements. Occasionally, sewers are found outside utility easements. It is often found that the Contractor must traverse private property to access the sewer within the utility easement. Notification of entry is to be provided three days prior to the work to the Property Owner. If there is an objection from the Property Owner to the

Contractor entering the property, City policy is to request from the Property Owner a Right-of-Entry (ROE) Agreement or permission letter for this access. The City will provide documentation of access permission to the Contractor.

- F. It shall be the Contractor's responsibility, in accordance with the stipulations of the Utility Work Notice, to restore any surface damage to private and City owned property to the satisfaction of the Engineer with no additional compensation to the Contractor.
- G. Where access routes to various manhole and cleanout locations must be cleared of heavy vegetation, the Contractor shall perform the clearing of pathways and alleyways to the extents necessary to facilitate mobilization of cleaning and internal sewer inspection equipment with no additional compensation to the Contractor. The Contractor shall not remove vegetation on private property or outside of the sewer easement or right-of-way.
 - 1. Any vegetation or other debris cleared by the Contractor shall be removed and disposed of properly by the Contractor.
 - 2. The Contractor shall notify the Engineer if they recommend the removal of trees and the Engineer shall contact City Forestry to seek approval prior to removal.
- H. The Contractor shall remove and clear restricted alleyways or easements using Contractor's personnel by typical means and methods sufficient to enable the safe mobilization of inspection and cleaning equipment. This work shall be incidental to the sewer cleaning and inspection activities.
- I. Excessive clearance requirements shall be identified by the Contractor and communicated prior to commencement to the Engineer for approval based upon time and materials, on a case by case basis. This shall include large obstructions that typically cannot be moved by the Contractor's personnel by typical means and methods that prevent vehicular access to a manhole in order to perform the work. Time spent and costs incurred by the Contractor completing excessive clearance shall be subject to the approval of the Engineer and paid for using the "Miscellaneous Allowance" Pay Item.
- J. The Contractor shall schedule, maintain, and coordinate all activities and shall cooperate with the Engineer and Owner personnel such that a minimum of interruption to the services results. The Contractor shall not operate existing system valves, controls, or other appurtenances at any time, but when the same is needed to facilitate and accommodate activities, shall request such operation from the Engineer or Owner. The Contractor shall provide the Engineer with reasonable advance notice for such assistance.

SC-26 ON-SITE STORAGE

All material, equipment, vehicles, etc. must be removed from the construction areas and stored at an off-street location during non-working hours. Arrangement for equipment, vehicle, and material storage on private property is the responsibility of the Contractor.

SC-27 PROPERTY PROTECTION

The Contractor shall exercise all precautions to protect trees, fences, poles and other property in and along the site of the work to be performed under this contract. No such property may be cut, marked, moved or removed unless so permitted by the Engineer. Any such property that is damaged or destroyed shall be restored by the Contractor and at his expense.

SC-28 AS BUILT SUBMITTAL AND WORKING DRAWINGS

Pre and Post Cleaning and Inspection CCTV tapes/CDs and hard drives shall be delivered to the Engineer upon completion of each Task Order within the timeframe indicated in SP-3. It will be the Contractor's responsibility to resolve any and all conflicts with the Engineer. If the Contractor fails to submit CCTV tapes/CD's and/or hard drives for each task order as required herein, payment requisition/s will be withheld until such time as proper CCTV tapes/CDs, and/or hard drives have been furnished and accepted by the Engineer.

As-Built documents shall consist of, but not limited to, the following:

- (1) Pre-Cleaning CCTV tapes/CDs and hard drives
- (2) Post Cleaning CCTV tapes/CDs and hard drives
- (3) Progress reports

SC-29 RAILROAD REGULATIONS

The Contractor shall obtain Railroad Protective Liability Insurance and Railroad Permit to Enter Agreements as required by the respective Railroad Authority. The cost of these items shall be paid for under the Item "ALLOWANCE FOR RAILROAD PERMIT TO ENTER AGREEMENTS".

SC-30 CODES, RULES, PERMITS AND FEES

The Contractor shall include in the work, without extra cost to the City, any labor, materials, services and drawings required to comply with all applicable laws, ordinances, rules and regulations, whether or not shown on the Contract Drawings and/or specified.

The Contractor shall give all necessary notices, obtain all permits and pay all governmental taxes, fees and other costs in connection with the work; file all necessary plans, prepare all documents, and obtain all necessary approval of all governmental departments having jurisdiction; obtain all required Certificates of Inspection and approval for the work and deliver same to the Engineer, except as noted hereinafter. It shall be the Contractor's responsibility to obtain the appropriate permits for the off-site disposal of waste material. The costs for these items shall be reflected in the Contractor's bid for the various items in this project.

The Contractor shall be responsible for applying for and obtaining Right of Entry Permits to enter upon Railroad properties including the existing easement. The Contractor shall submit a copy of the official executed permit documents to the City for approval prior to start of work on Railroad property. Any costs assessed by and payable to the Railroad for right of entry to the railroad property will be paid for under the Item "ALLOWANCE FOR RAILROAD PERMIT TO ENTER AGREEMENTS".

SC-31 RESTRICTIONS TO SCHEDULE

No work shall be conducted within Railroad property until the necessary Right of Entry Permit is obtained by the Contractor.

For task orders for work on Railroad property the task order notice-to-proceed will be issued after receipt of the Railroad Right-of-Entry agreement.

SC-32 CLOSED CIRCUIT TELEVISION INSPECTION

The CCTV inspection (between manholes) of the sewer section(s) directed by the Engineer for Cleaning and CCTV must be implemented upon completion of the cleaning activity. This CCTV inspection shall

be provided to the Engineer as specified in the Construction Details. Payment for cleaning and CCTV inspection shall not be made until after the CCTV data has been submitted to the Engineer and reviewed for compliance with Construction Detail requirements.

SC-33 SHOP DRAWING SUBMITTAL

Supplement Section 01 33 00 of the Standard Specifications with the following:

The Contractor shall submit shop drawings for approval, prior to ordering the materials for below listed items:

- a) Type and details of "Mapping Grade" GPS handheld unit
- b) Documentation verifying the experience and certification requirements for GPS use
- c) Documentation verifying experience and certification requirements for CCTV QA/QC reviewer(s).

All shop drawings, catalog cuts, etc. must be submitted in electronic (pdf) format.

Note: Additional shop drawings may be required throughout this contract and the Contractor will be required to submit, for review and approval any requested drawings, catalog cuts, etc. within seven (7) working days of the written request.

Action related to providing immediate assistance to other agencies or utilities. (This would include aid to BGE, Trigen, City and County Fire Departments as emergencies warrant, such as gas and steam leaks, fires, train derailments, etc.)

It shall be the Contractor's responsibility through the Engineer, to notify in writing all consumers affected, and provide them with an emergency phone number and contact person. The Contractor may need to re-notify those consumers, once the water outage ends and just before they are returned to regular service and shall direct them to flush their in-house plumbing by running water and temporarily removing aerators, after they are returned to regular service. The Contractor shall provide the Engineer with a letter stating when and where notifications were delivered.

Any information provided along with the notifications must be pre-approved by the Engineer. The Contractor must supply the Engineer with a list confirming the number, locations and date the notifications were delivered, of which the Engineer will verify.

Unless otherwise directed, the Contractor will be responsible for distributing all notices to consumers for the duration of this contract, and the cost for the same shall be considered incidental to the utility bid item(s) in this Contract. If one or more shutoff valves do not work, additional valves may need to be operated to achieve the complete shutdown. In such case, the Contractor shall be required to notify any and all consumers at no extra cost to the City.

SC-34 SANITARY SEWER SPILLS & OVERFLOWS

Supplement Section 00 73 76 and Section 33 31 13.01 Part 3.6.D.3 of the Standard Specifications with the following:

The Contractor understands that Baltimore City shall incur significant and substantial penalties from the state of Maryland in the event that sewage is discharged onto the ground or into any streams as related to

the work in this Contract. In the event that sewage is released into the environment as a result of the Contractor's performing the work, the Contractor shall immediately rectify the situation and notify the Engineer.

Should any liquid or solid matter be spilled, discharged, leaked or otherwise deposited into the open environment the Contractor must immediately contact 311 to report the incident. The Contractor shall notify the Owner and perform required cleanup and disinfection of the affected area at no additional cost to the Owner.

SC-35 LOCATING EXISTING WATER MAINS AND FITTINGS

After "Miss Utility" marks the existing water mains, the Contractor shall verify the location of the existing water mains and fittings using metal detector, line locator, and/or other suitable means before beginning initial excavation for water main replacement, or at any tie-in location. All associated costs shall be considered incidental to all utility bid items in this Contract.

The Contractor shall be responsible for conducting test pits at locations deemed necessary, as required, and/or as directed by the Engineer, in order to determine the locations of all existing utilities, determine possible obstructions, conflicts, and for other construction/project purposes.

SC-36 UNCHARTED ASSETS

- A. If television inspection reveals new manholes, access points or cleanouts, locate, mark by painting or flagging and name the asset in accordance with the methodology for temporary or new asset ID for new manholes, cleanouts, access points and sewers as specified by the Engineer. If the manhole is outside of pavement and non-permanent structures, but is within the City's right of way, the Contractor shall unearth within three (3) feet of grade if requested by the Engineer. The Engineer may direct the Contractor to fill the hole back in and restore the surface on a case by case basis. This work shall be compensated by time and materials using the allowance, "Difficult to Access Manholes". Access points which could not be unearthed shall be marked for follow up and the Engineer shall be notified. The Contractor does not need to attempt to unearth cleanouts.
- B. All uncharted manholes will be inspected as per Supplemental Technical Specifications Section 33 01 30.50, Manhole Panoramic Inspection and also internally scanned during the pipe inspection (in case manhole inspection is not possible).
- C. Surface photographs of private property access points shall be provided to the Engineer, with adequate referencing, to support location and markup dimensioning as necessary.
- D. For manholes that are more than ten feet from the location shown in the mapping or for newly found manholes, the Contractor shall provide the Engineer with a legible sketch drawing that provides the location of the manholes, structures, or piping and GPS survey the manhole to submeter accuracy. These markups will be approved by the Engineer for mapping corrections by the Engineer.
- E. Found manholes will be assigned Asset IDs by the CCTV crew operator by adding an alpha-suffix to original upstream manhole (alpha character starting with "A"). Example: MH123456789A, if one manhole is found on a sewer section; MH123456789B for the second manhole found on the same section.
- F. The resulting split sewer pipe segments will be assigned Asset IDs by the CCTV crew operator by adding sequential numeric suffix to the original pipe asset ID. Example S31Q1_014G1-1 and S31Q1_014G1-2 where two new manholes are found.

SC-37 REMOVAL OF EQUIPMENT THAT BECOMES STUCK IN A SEWER OR LATERAL SEWER ASSET

- A. The Contractor shall inform the Engineer immediately if equipment becomes stuck in a sewer or lateral sewer asset. The Contractor shall attempt to remove equipment that is stuck using whatever means are necessary for up to four (4) hours. The Contractor shall inform the Engineer if the equipment cannot be freed after four (4) hours and mark the position on the surface over the sewer or lateral where the equipment is stuck.
- B. If equipment becomes stuck in a lateral, the Contractor shall inform the Engineer immediately. The Engineer shall communicate directly with the Private Property Owner. The Contractor shall not communicate directly with the Private Property Owner unless explicitly given permission by the Engineer.
- C. The Contractor is to arrange for other means of equipment removal such as divers (where safe to access and if appropriate to the pipe diameter) to remove the equipment that is stuck. It is the Contractor's duty to ensure the equipment is removed safely; all costs incurred due to the equipment removal activity shall be incidental and at the cost of the Contractor.
- D. If needed, the Engineer will arrange to have an excavation made to the top of the lateral or sewer where the equipment is stuck. The excavation contractor shall remove the top of the pipe. If there has been no obvious negligence on the part of the Contractor, the work of the excavation contractor will be at the cost of the Owner.
- E. The Contractor shall ensure bypass pumping is undertaken to ensure the normal sewer or lateral flow continues while the equipment is stuck. It is the Contractor's duty to ensure existing flows are uninterrupted and maintained while the equipment is stuck within the sewer or lateral; all costs incurred due to the bypass pumping activity shall be at the cost of the Contractor.
- F. The Contractor and Engineer shall be present during the excavation and once the top of the sewer or lateral is exposed and the excavation is secured, the Contractor shall do one of the following:
 - 1. Retrieve the equipment stuck in the sewer; or
 - 2. Defer retrieval of the stuck equipment to the excavation contractor. Damages caused to the stuck equipment will not be the responsibility of the excavation contractor. No claim for equipment damages will be made against the excavation contractor.
- G. The Engineer will arrange to have the sewer or lateral repaired after removal of the equipment that was stuck.
- H. The Contractor shall clean and remove backfill and debris that may have entered the sewer or lateral during removal of the equipment and subsequent repair of the sewer.
- I. No additional compensation will be provided to remove equipment in the event the Contractor's equipment becomes stuck in the pipe or is otherwise damaged as a result of conducting work in the sewer.

SC-38 DAMAGE TO OWNER AND / OR PRIVATE PROPERTY

- A. In the event of damage to Owner's assets and / or private property the Contractor shall immediately notify the Engineer.
 - 1. All communications with private residents need to be approved by the Engineer.
 - 2. The Contractor shall provide written reports to the Engineer for each property attended for investigation of damage. Reports shall include photographs of all damage, dates and times, written agreements with property owner and all actions taken or proposed to rectify the

damage. Reports shall be submitted to the Engineer within 24 hours of attending the property.

3. Backup on private property resulting from failed bypass pumping, surcharge from pumped flows within and immediately downstream of the bypassed area and associated manhole chambers is not acceptable and shall be avoided at all costs.
4. The Contractor shall provide the Engineer with a 24-hour contact number in the event the Contractor needs to be notified that damage has occurred at a property. The Contractor shall arrange for immediate clean-up and repair of private property by cleaning professionals, at the expense of the Contractor.
5. The Contractor shall be solely responsible for the repair of willful and negligent damage done to private and public property at no additional cost to the Owner.
6. Lateral backup or “blow-back” on private property resulting from cleaning or inspection activities is not acceptable and shall be avoided at all costs. It is expected that where this possibility exists the Contractor shall take appropriate measures such as making modifications to cleaning equipment and/or taking additional time to clean such chambers.
 - a. Clean-up of affected residences shall be done by cleaning professionals but may be done by the Contractor with the resident’s approval. Prior to clean up, contractor must receive written approval from the resident and copy of approval must be provided to the Engineer. Under no circumstances are cleaning equipment operators to enter residences unless they are neat and presentable.
 - i. Upon review by both the Engineer and Contractor, where actual sewage or “grey water” has flooded private property the Contractor shall immediately clean and disinfect all affected areas as well as flush all weeping tile. The Contractor shall immediately hire an independent certified water damage or flood restoration Contractor to assess any damage to contaminated building materials such as drywall, insulation, carpets, weeping tile or sub-floors, and immediately make any required repairs at the Contractor’s own cost.
 - b. If a residence is uninhabitable as a result of a sewer back-up the Contractor shall pay for reasonable hotel accommodations and meals for all affected residents at the expense of the Contractor.

SC-39 OBSERVED FAILURES DURING INSPECTIONS

- A. Cross-bores are intersections of one utility pipeline through another utility asset, such as when a gas pipeline is inadvertently installed through a sewer pipe, lateral or manhole. Cross-bores generally occur when a third-party utility is installed using a trenchless method that prevents visibility of the underground sewer pipeline and are commonly a water or gas service.
 1. Cutting devices are to be used in conjunction with CCTV equipment only.
 2. Cutting devices are not to be used in the vicinity of cross-bores.
 3. Capture photograph or digital images and notify the Engineer within a day where third-party cross-bores are observed during the sewer inspection. Provide the captured CCTV or digital images and the distance from the start node of the inspection along the pipe to note the location of the cross-bore to the Engineer immediately after observation.
 4. A reverse set-up inspection shall be performed when a cross-bore prevents completion of the inspection from the initial access point. Move the equipment to a different access point and attempt to complete the inspection of the entire pipe.

- B. Capture photographs or digital images if issues identified in the table below are observed during the sewer or manhole inspections as applicable. Notify the Engineer and provide the captured images to the Engineer within a day after observation.

i. Structural:

Defect	Grade	Description
X	5	Collapse

ii. Operational

Defect	Grade	Description
OBI	5	Obstruction Intruding Through Wall
IG	5	Infiltration Gusher
IR	4	Infiltration Runner

iii. Miscellaneous

Defect	Grade	Description
MWLS	5	Miscellaneous Water Level > 75%

- C. The Contractor shall place barricades around the location above the sewer, lateral, manhole or access chamber in the case of imminent danger or collapse where a void is visible or suspected to be outside of the pipe or access chamber. The Contractor shall immediately notify the Engineer, City of Baltimore DPW (OWNER) Emergency Services at telephone number 410-396-5352, or by calling 311 after normal working hours if the Engineer cannot be reached. The Contractor shall also attempt to notify the resident if the void is identified on private property. If the Contractor is to leave the site, the Contractor shall document site conditions by taking digital photographs of the site prior to leaving for record purposes. Time spent and costs incurred by the Contractor placing barricades, notifying parties and documentation of site issues shall be subject to the approval of the Engineer and paid for using the “Miscellaneous Allowance” Pay Item.
- D. The Engineer will arrange for emergency sewer or manhole repairs to be performed if required as soon as possible if the inspection cannot be completed or the sewer or manhole condition poses an immediate operational or safety concern such as a complete collapse. For laterals owned by the private property owner requiring emergency repair, the Contractor shall communicate the requirement for an emergency repair to the Engineer and no further action shall be required. The Engineer shall communicate directly with the Private Property Owner. The Contractor shall not communicate directly with the Private Property Owner unless explicitly given permission by the Engineer.
- E. Emergency sewer or manhole repairs will be prioritized if more than one emergency repair arises at the same time.
- F. Carry out inspection of other sewers and laterals not affected by the emergency repair and complete cleaning and / or inspection of the sewer or lateral when notified by the Engineer that the emergency repair has been completed.

SC-40 DEBRIS REMOVAL

- A. All loose or settled debris, and material resulting from all cleaning operations shall be removed at the downstream manhole of the section of sewer being cleaned. Passing material from

manhole to manhole which could cause line stoppages, accumulations of sand in wet wells, or damage to pumping equipment, shall not be permitted.

- B. Contractor shall be responsible for daily removal of the removed material from the work site and the proper disposal of the removed material at an approved disposal site. Material will not be accepted by the Owner or Engineer for disposal. Removal of debris shall be incidental to contract.
- C. All debris, residue and other materials resulting from cleaning operations shall be removed from the site no less often than at the end of each workday and shall be disposed of in an approved manner. Under no circumstances will the accumulation of debris, residue, etc., be left at the work site overnight, unless prior written authorization is given for storage in totally enclosed containers.
- D. Decant or dewater debris removed from sewers and manholes and legally dispose of solid and semi-solid debris. Return decanted or dewatered liquid to the sewer of origin as soon as possible, but not within three (3) sewer sections upstream of a lift station. If decanting is required it shall be done immediately downstream of the lift station. Any spillage from the container system is not allowed.
- E. Store debris in totally sealed containers at all times and remove from the Site at the end of each day. Vehicles used to transport sewage within the Owner's limits must conform to City of Baltimore laws, licensing and permits as necessary.
- F. Off-site debris dewatering facilities must meet State environmental regulations and requirements.
- G. Landfill reports must be submitted. Keep a log containing the following information for each debris disposal unit. The Engineer may ask for a copy of the landfill reports at any time.
 - 1. Contract Name and Bid Opportunity Number
 - 2. Vehicle ID – License Number
 - 3. Date of Disposal
 - 4. Time of Disposal
 - 5. Origin of Debris
 - 6. Net Weight. of Load
- H. The Contractor is responsible for monitoring weather conditions continuously during the cleaning operations. If the combined sanitary sewer flows, including increased flows due to storm or snow melt runoff, disrupt the cleaning operation at any time during the Work, the Contractor must be prepared to remove their equipment and restore the sewer system to normal operation.
 - 1. Any Contractor costs that are a result of high flows or unsuitable weather conditions will not be reimbursed by the Owner.
- I. Immediately upon completion of work, the Contractor shall ensure that the entire area is cleaned of all debris, and that all debris is disposed of properly.

SC-41 WATER SUPPLY FOR SEWER CLEANING

- A. Obtain permit(s) for hydrant use for water supply for sewer cleaning in accordance with DPW and Section 01 51 36 – TEMPORARY WATER per the Standard Specifications.
- B. When additional quantities of water from fire hydrants are necessary to avoid delay in normal working procedures, prior coordination will be required with City of Baltimore Department of

Public Works (DPW) the owner of the hydrant. The cost of the hydrant permit, water meter rental and any other related costs shall be paid by the Contractor and shall be considered incidental to the work. Water shall be conserved and not used unnecessarily.

- C. No fire hydrant shall be obstructed so as to prevent its use in case of a fire in the area served by the hydrant, nor shall a hydrant be used for the purpose described unless a vacuum break is provided.
- D. The Contractor is responsible to remove any ice resulting from water leaking, and subsequently freezing, during the withdrawal of water from a permitted source.
- E. Water supply for the Work may be taken from DPW hydrants in accordance with the following.
 - 1. Water shall be taken from any hydrants.
 - 2. The Contractor shall supply and use a Backflow Protection Arrangement when taking water from Owner's hydrants. Alternatively, the Contractor may rent the Backflow Protection Arrangement from the DPW if available. All costs associated with the supply of the Backflow Protection Arrangement or rental of same from DPW will be included in the cost of sewer cleaning.
 - 3. The Contractor is permitted to turn approved hydrants on and off provided the Contractor has received training by the DPW. The Engineer may request that the turn-ons and turn-offs are done in the presence of the Engineer.
 - 4. Hydrants approved for use shall be considered to be "in the Contractor's control" from the time the Contractor has turned the hydrant on until the Contractor has notified the Owner the hydrant has been turned off and the flow meter has been removed.
 - 5. The Contractor shall take all necessary precautions to prevent freezing of hydrants and related appurtenances for hydrants in their control and shall be responsible to pump out hydrants turned off by Emergency Services. Under freezing conditions, protection of hydrants will be required by the Contractor. All costs associated with hydrant protection shall be included in the price of "Sewer Cleaning" and no separate measurement or payment will be made.
 - 6. If a hydrant or appurtenance is damaged due to freezing or improper turn-on or turn-off procedures while in the Contractor's control, DPW will assess the damage and determine if DPW will repair the damage or if the Contractor will be responsible to repair the damage. Costs for repairs completed by DPW will be deducted from payments owing the Contractor. Repairs completed by the Contractor will be at the Contractor's expense.
 - 7. Erect and maintain appropriate signage warning oncoming traffic of hose crossings to the satisfaction of the Engineer as per 3.13.
 - 8. Direct hook-up of sewer flushing equipment to a hydrant is not permitted unless approved by the Engineer and by DPW.
 - 9. DPW may instruct the Contractor to make other arrangements for hydrant turn-ons and turn-offs.
 - 10. Charges incurred for the permit and water meters shall be paid for by the Contractor when taken out. The Contractor shall forward the invoice to the Engineer for reimbursement. The billing for water usage sent to the Contractor shall be forwarded to the Engineer for payment. The Contract number shall be noted on each permit.

SC-42 SEWER FLOW CONTROL

- A. When flow in a sewer line is bypassed by the Contractor, the Contractor shall take sufficient precautions to protect the public health and to protect the sewer lines from damage that might result from sewer surcharging. Further, the Contractor shall take precautions to ensure that sewer flow control operations do not cause flooding or damage to public or private property being served by the sewers involved. The Contractor shall be responsible for any damage resulting from their flow control operations.
 - 1. Provide the Engineer with at least 48 hours' notice and proposed method of flow control before undertaking flow control measures.
 - 2. Provide the Engineer with information on capacity of pumping equipment for review before setting up bypass pumping.
 - 3. Any liquid or solid matter which is bypass pumped from the sewer collection system shall be discharged to another sewer manhole or appropriate vehicle or container only.
 - 4. No such liquid or solid matter shall be allowed to be discharged, stored or deposited to the open environment.
- B. The Contractor is hereby made aware no flow shall be discharged to the river, streams, banks, or any other storm outlet during cleaning or inspection operations. Additionally, no sewage shall be permitted to surcharge to the point that it overflows to any of the above or back into private buildings through lateral connections. The Contractor must notify the Engineer immediately of any spill event. Any damage or fines resulting from such occurrences are the sole responsibility of the Contractor.

SC-43 SENSITIVE LOCATIONS

- A. All sanitary sewer main work near school buildings (or similar institutions) shall be initiated in consultation with school authorities or similar, and completed during a period when the schools (or similar institutions) are closed.
- B. In case of work near commercial buildings, the same provisions are to be followed in consultation with the business/property owners such that the work causes the least disruption to their operations.

SC-44 NOTICE TO RESIDENTS

- A. Unless otherwise directed, the Contractor will be responsible for distributing all notices (letters, door hangers, etc.) to customers for the duration of this contract.
- B. The Contractor shall deliver notices provided by the Engineer via the Owner to residents and businesses on the affected sewers by 16:00 hours, 3 days prior to the use of flushing equipment, for either sewer cleaning or sewer inspection or where private property needs to be traversed.
- C. The notices will be in effect for a 3-day period which the Contractor will indicate with dates stamped on the notice. The Contractor shall make every effort to complete the affected sewer lines within the notification window.
- D. All costs associated with delivering notices shall be included in the price bid in the appropriate bid items and no separate measurement or payment will be made.

SC-45 TEST PIT EXCAVATION

Delete PART 3 EXECUTION, Paragraph B (Section 31 23 16.05) of the Standard Specifications in its entirety and substitute with the following:

1. Before pipe installation:
 - a. Dig test pit(s) to determine size, type, and exact location of existing pipe to which proposed pipe will connect.
 - b. Excavate sufficient trench in advance and test pit all existing underground utilities or structures, whether shown on the Drawings or visually identified in the field to:
 - i. Verify actual locations
 - ii. Make reasonable changes in line and grade to resolve conflicts, with the Engineer's approval.
 - iii. Furnish the Engineer with location and elevation information when previously unknown or different underground utilities or structures are encountered.
2. After conducting the test pits, the Contractor shall provide the Engineer with:
 - a. The location of the test pit, including a detailed sketch and photos.
 - b. Information obtained from the test pit, such as horizontal and vertical location of the existing structure or utility (plan and profile of the utility).
 - c. Extent of conflicts, if any, with the alignment of the proposed water main, and recommendations to avoid such conflicts which may exist.
 - d. Detailed sketch identifying, to the best extent possible, the type of utility encountered.
3. Use of vacuum excavation for test pits is allowed with the Engineer's approval.
4. Additional work made necessary because of failure to follow the above procedures will be at no cost to the City.
5. Payment for those test pits as described above and or identified in the contract drawings are incidental to the appropriate utility bid items in this contract.
6. Only those test pits performed at the direction of the Engineer will be paid for at the contingent unit price.
7. Test pits that are not backfilled, but utilized as part of the trench excavation, are considered incidental to the appropriate utility bid items.

SC-46 PUBLIC NOTIFICATION FOR SCHEDULED UNDERGROUND UTILITY WORK

When underground utility work is scheduled on or adjacent to private property, the Contractor shall prepare and distribute the attached notification to those residences, institutions and businesses which will be impacted by the work. Neighbors on the fringes of the work who might have the slightest chance of being impacted should also receive a notice.

Instances requiring 72-hour or more notification:

- ◆ Scheduled and unscheduled contract work,
- ◆ Water outages,
- ◆ Possible or expected discolored water,
- ◆ Possible or expected low water pressure,
- ◆ Paving disturbances – sidewalks, streets and alleys,
- ◆ Removal of vegetation including lawns, shrubs and trees,
- ◆ Street closures and detours,
- ◆ Barriers to vehicles and pedestrians,
- ◆ The erection of temporary structures or temporary mains,
- ◆ Loud noise - especially near institutions, e.g. schools and churches, and at night,
- ◆ Other circumstances where a courtesy or safety notification may be in order.

The attached notification is required, except in case of water emergencies, and must be distributed no later than **72 hours prior** to the start of the work. If the area impacted is exceptionally large, .5 square miles or more, or impacts hospitals, schools, nursing homes, dialysis centers or similar institutions, then notification must occur **at least one week in advance, preferably two weeks in advance.**

Water emergencies are generally defined as:

- ◆ Unanticipated damage on a main, valve, hydrant or drain requiring immediate attention,
- ◆ Flooding of public or private property,
- ◆ Work related to immediate public safety and health considerations. (This would include sewage overflows, hydrant work where backup protection is unavailable, off-site valve repair or replacement to address a shutdown on a broken main, etc.)
- ◆ Action related to providing immediate assistance to other agencies or utilities. (This would include aid to BGE, Trigen, City and County Fire Departments as emergencies warrant, such as gas and steam leaks, fires, train derailments, etc.)

It shall be the Contractor's responsibility through the Engineer, to notify in writing all consumers affected, and provide them with an emergency phone number and contact person. The Contractor may need to re-notify those consumers, once the water outage ends and just before they are returned to regular service and shall direct them to flush their in-house plumbing by running water and temporarily removing aerators, after they are returned to regular service. In addition, the Contractor shall also notify and e-mail the completed UTILITY WORK NOTIFICATION form and the temporary water plans to Captain Paul Demme of the Baltimore City Fire Dept. at: Paul.Demme@baltimorecity.gov. The Contractor shall provide the Engineer with a letter stating when and where notifications were delivered.

Any information provided along with the notifications must be pre-approved by the Engineer. The Contractor must supply the Engineer with a list confirming the number, locations and date the notifications were delivered, of which the Engineer will verify.

Unless otherwise directed, the Contractor will be responsible for distributing all notices to consumers as well as other City entities for the duration of this contract, and the cost for the same shall be considered incidental to the utility bid item(s) in this Contract. If one or more shutoff valves do not work, additional valves may need to be operated to achieve the complete shutdown. In such case, the Contractor shall be required to notify any and all consumers at no extra cost to the City.



Brandon M. Scott
Mayor



Bureau of Water and Wastewater **UTILITY WORK NOTIFICATION**

Dear Property Owner/Resident:

The City of Baltimore's Bureau of Water and Wastewater will be performing important utility work in your area. The work to be performed consists of emergency repairs/planned maintenance/urgent need repairs/planned capital work for the storm, water or sanitary utility.

Date:		
Time:		
Address and Zip:		
City Council District:		
Police District:		
Description of Work To Be Completed:		
Contact Person:	Name:	Telephone Number:
Project #:		

If water service is interrupted during the performance of this work, you may experience discolored or cloudy water. Once service is restored, it would be beneficial to open a tap in the basement of your property and let the water run. This should clear the water within five to ten minutes.

If you have any questions about this project, or if your water does not clear, please call (410) 396-8331 Monday through Friday between 8:30 a.m. and 4:30 p.m. Please call 311 (in Baltimore City) or (410) 396-5352 (in Baltimore County) for weekend and after-hours concerns or for service requests.

While we endeavor to do everything we can to make operations run smoothly and with minimum disruptions for you and your neighbors, there are times when that will not be possible due to the nature of our work. We do want to hear from you whether it is a suggestion on how we can improve our work or to acknowledge a successful outcome.

Thank you in advance for your patience.

SC-47 STEEL PLATE POLICY

- A. All excavations and trenches shall be plated at the end of each workday and “STEEL PLATES AHEAD” warning signs displayed in advance.
- B. Unless otherwise specified or directed, all Steel Plates shall be installed as per Baltimore City Standard Detail BC 576.17-1 or latest revisions, except the plates shall overlap the excavation a minimum of 12-inches. All Steel Plates or temporary paving patches must be clearly marked so that ownership is easily discernible.
- C. Steel plates are not to be used in lieu of temporary paving. No steel plates shall be kept in place for an extended period of time, unless authorized by the Engineer in writing. Those steel plates that need to be in place for an extended period of time shall be recessed such that the top of the plate is flush with the existing pavement, as per Baltimore City Standard Detail BC 576.17-2.

SC-48 SELECTED BACKFILL

Supplement Section 31 23 23.13 of the Standard Specifications with the following:

For excavation in roadways, the Contractor shall not use the material excavated from utility trenches as backfill materials, unless directed otherwise by the Engineer. All other requirements of Baltimore City Standard Specification Section 31 23 33 shall apply.

PART 3 EXECUTION:

The use of No. 57 stone shall be limited to the water main related work within the Contract, unless directed otherwise by the Engineer:

For all new water mains related work in this Contract, the Contractor shall use No. 57 stone as a pipe bedding material for 6 inches below the pipe and up to 12-inches above the top of pipe, under valves in roadway boxes, and any appurtenances. From 12-inches above the top of pipe to sub-grade, Crusher Run Aggregate CR-6 shall be used, and placed and compacted in accordance with the Baltimore City Standard Specifications and Details. The Contractor shall follow the Baltimore City Standard Details for use of No. 57 stone for all fire hydrant installations.

All open trenches behind the curb shall be backfilled with existing excavated materials and compacted in place. The backfill shall not contain any rocks larger than six (6) inches in size.

PART 4 MEASUREMENT AND PAYMENT:

Selected Backfill using No. 57 Stone or using Crusher Run Aggregate CR-6, for work performed in accordance with this Special Condition and within the limit of proposed water main work shall not be measured, but will be considered incidental to the appropriate utility bid item in this Contract, and will include all labor, tools, material, equipment, compaction, and incidentals necessary to complete the Work.

SC-49 STREET CUT AND RESTORATION OF PAVEMENT POLICY AND PAVEMENT

This Special Condition applies to permanent pavement restoration (base and surface course) due to utility trench excavation. Permanent paving under this contract shall be performed by others, unless

otherwise indicated. In the event that the Contractor is directed to perform permanent restoration, the following shall apply:

A. PERMANENT PAVEMENT RESTORATION

The Contractor is required to mill and resurface the City roadways in accordance with their status as “Revised” or “Standard” streets as listed on the Contract Drawings, unless directed otherwise by the Engineer.

After completion of water main work, all streets with flexible pavement and flexible surface-rigid base pavement shall be restored in accordance with the “Trench Repair and Intermittent Utility Cuts” as per Standard Details BC 576.19-1 and BC 576.20-1.

For all “Standard” streets, no further pavement restoration or milling and resurfacing will be required, unless directed otherwise by the Engineer. Such paving and trench restoration on “Standard” streets shall be incidental to all utility bid items in this Contract, with the exception of repair and restoration of rigid base for flexible pavements, which shall be measured separately and will be paid under the appropriate paving bid item in this Contract.

For all “Revised” streets, additional milling and resurfacing shall be required to extend the limits of surface course beyond the limits of the full depth patch, in accordance with Standard Detail BC 576.19-2. All such additional milling and resurfacing on account of “Revised” street shall be measured separately and will be paid under the appropriate paving bid item in this Contract.

All permanent pavement restoration of rigid pavements shall be done in accordance with Standard Detail BC 576.18, BC 576.18-1, and BC 576.18-2, which shall be measured separately and will be bid under the appropriate paving bid items in this contract.

Replace paving material and thickness to match existing.

Guidelines for Hot Mix Asphalt (HMA) Pavement Sections:

1) Neighborhood Streets - No truck traffic (typical section):

- 2” HMA Superpave 9.5 mm PG 64-22 for Surface Level 2 (Surface Course)
- 5” HMA Superpave 19.0 mm PG 64-22 for base Level 2 (Base Course) – (2 lifts of 2.5”)
- 6” CR-6

2) Major Routes with truck traffic (typical section):

- 2” HMA Superpave 12.5 mm PG 64-22 for Surface Level 2 (Surface Course)
- 7” HMA Superpave 19.0 mm PG 64-22 for base Level 2 (Base Course) – (2 lifts of 3.5”)
- 12” CR-6 (2 lifts of 6”)

3) Industrial Area (typical section):

- 2” HMA Superpave 12.5 mm PG 64-22 for Surface Level 2 (Surface Course)
- 7” HMA Superpave 25.0 mm PG 64-22 for base Level 2 (Base Course) – (2 lifts of 3.5”)
- 12” CR-6 (2 lifts of 6”)

Wedge and level if required. Use HMA Superpave 9.5 mm for wedge and level.

NOTE 1: HMA Superpave 19.0 mm PG 64-22 for base Level 2 (base) can be compacted a minimum of 2.0" to a maximum of 4.0" lift thickness (desired lift thickness is 3").

NOTE 2: The Section 32 01 30.10 of the City of Baltimore Standard Specifications, pertains to the restoration of existing pavement due to trench and utility cut excavations. Any reference to Overall Condition Index (OCI) of 1 or 2 refers to the "Revised" streets, and OCI of 3, 4 or 5 refers to the "Standard" streets, and the applicable restoration must be followed. The "Revised" and "Standard" streets shall be as identified in the contract drawings, or as directed by the Engineer.

NOTE 3: Neighborhood Streets and Major Routes shall be as identified in the Contract Drawings, or as directed by the Engineer. Per City DOT, roads classified as primary and/or secondary are considered "major routes"; tertiary roads are considered "Neighborhood Streets".

NOTE 4: Any pavement cut 5'x5' or less in size shall be considered as "Intermittent Utility Cuts". The Contractor shall follow the appropriate pavement restoration for "Trench Repair" and "Intermittent Utility Cuts".

B. MEASUREMENT AND PAYMENT

- 1) For restoration of rigid or flexible base for installation of water supply services (WSS), ductile iron pipe and fittings, including 6" hydrant leads, the measurement shall not exceed the "Trench Width for WSS and Ductile Iron Pipe and Fittings" as specified below, plus the appropriate cut backs as specified in the Standard Detail BC 576.19-1 and BC 576.20-1.

TRENCH WIDTH FOR WSS & DUCTILE IRON PIPE AND FITTINGS	
Nominal Pipe Size (in.)	Maximum Trench Pay Width (in.)
½ to 2	24
4	28
6	30
8	32
10	34
12	36
16	40
20	44
24	48
30	54
36	60

- 2) All temporary pavement restorations for any water main work in this Contract shall not be measured, but shall be considered incidental to all utility bid items.

C. SPECIAL REQUIREMENTS FOR PAVEMENT RESTORATION

Supplement Standard Specification Sections 32 01 29.64, 32 01 30.10, 32 12 16.13, and 32 13 13.33 with the following:

1. Upon completion of the permanent patch or resurfacing, the surface shall be thoroughly compacted, smooth, and free from ruts, humps, depressions, or irregularities and shall not separate from pre-existing adjacent pavement.
2. The Contractor shall have available, at all times, a ten feet (10') straightedge approved by the Engineer. After final compaction of each course, the surface of each pavement course shall be true to the established line and grade and shall be sufficiently smooth so that when tested with a ten feet (10') straightedge placed upon the surface parallel with the center line, the surface shall not deviate more than one-eighth inch (1/8"). The transverse slope of the finished surface of each course when tested with a ten feet (10') straightedge placed perpendicular to the centerline, the surface shall not deviate more than three sixteenths inch (3/16").
3. Transverse joints on each course shall be checked with a ten feet (10') straightedge immediately after the initial rolling. If the surface of each course varies more than one eighth inch (1/8") from true, the Contractor shall make immediate corrections acceptable to the Engineer so that the finished joint surface shall comply.
4. Patches and other resurfacing work shall have a cross (transverse) slope consistent with the design of the existing roadway. Positive drainage shall be maintained to existing condition or better along all directions of the roadway to the intended curb line or drainage structure. Paving over existing gutter pan shall not alter the drainage pattern along the curb line, cover any existing drainage or underdrain outlets and/or result in overtopping of the curb.
5. For all curb to curb paving in this Contract, the Contractor shall perform pre and post-construction topographic survey of top of curb, edge of pavement and centerline of the roadway as necessary and as directed by the Engineer. All costs shall be considered incidental to the appropriate paving bid item in this Contract.
6. Repair due to unacceptable and rejected patching and resurfacing of the roadway by the Contractor shall be remedied by the Contractor at no extra cost to the City.

SC-50 TEMPORARY PAVEMENT

Permanent paving under this contract shall be completed by others. The Contractor shall maintain temporary pavement at any disturbed areas for no longer than 45 days following completion of construction activities at each site.

Supplement Section 32 12 16.15 of the Standard Specification with the following:

PART 2 PRODUCTS

When Hot Mix Asphalt (HMA) is not available, the Contractor shall use high performance cold mix asphalt, approved by the Engineer. The Contractor to provide shop drawing/catalog cut sheet for approval by the Engineer.

High Performance Cold Mix Asphalt:

Composed of approved suitable aggregate, plant mixed with approved asphaltic liquid blend following blend manufacturer's specifications.

- a. Final mix:
 2. Stripping resistance of retained coating minimum 75% when testing to ASTM-D-1664, latest revision.
 3. Remain flexible and cohesive to minus fifteen degrees F (-26 degrees C).
 4. Homogeneous, free of lumps.
 5. Retain its adhesive qualities in wet applications.
- b. Acceptable aggregate: Consist of 10% crushed stone or laboratory approved equivalent under ASTM C-136.

Recommended Gradation:

Sieve Size	Percent Passing by Weight
3/8"	90-100%
#4	20-55%
#8	5-30%
#16	0-10%
#50	0-5%
#200	0-2%

PART 3 EXECUTION

3.17 TEMPORARY PAVEMENT

A. Place temporary pavement as specified herein unless directed otherwise by the Engineer:

- 1) The Contractor shall backfill the utility cut or trench using approved backfill materials as specified in this contract specifications, up to temporary paving sub-base.
- 2) From sub-base to the finished grade, place and compact Hot Mix Asphalt (HMA), or Engineer approved high performance Cold Mix Asphalt, in one 3" lift, to match the existing grade.
- b. Stockpiling of high performance cold mix asphalt will be permitted provided it is stored in manner to prevent infiltration of deleterious material and not longer than one (1) month from date of mixing.
- c. Compact high performance cold mix asphalt using uniform tamping equipment.
- d. If permanent pavement replacement is not completed before December 1, replace all cold mix with hot mix asphalt bituminous concrete mix.
 - 3) Provide hot mix asphalt for temporary curb and gutter, walks, and driveways.
 - 4) Mark temporary pavement repairs in all roads with blue paint for water or water and sewer, and green paint for sewer in 4 inch high letters with the Contractor's name.
 - 5) Maintain temporary pavement in condition acceptable to Engineer until permanent pavement is placed, which shall be accomplished within 45 days of all utility work completion on any street. The only exception will be for weather related issues for which prior approval of the Resident Engineer is required.
 - 6) If temporary pavement becomes defective and creates an emergency, commence repair to rectify situation within one (1) hour after notification by the Engineer or Engineer may arrange to have Work performed by others and deduct costs of corrective measures from monies owed by the Contractor.

PART 4 MEASUREMENT AND PAYMENT

Temporary pavement using hot mix asphalt (HMA) or high performance cold mix asphalt shall not be measured, but will be considered incidental to all appropriate utility bid items in this Contract.

SC-51 PERMANENT PAVING RESTORATIONS

Permanent pavement restoration under this contract shall be performed by others unless otherwise indicated. The Contractor shall maintain temporary patches or plates as indicated below for no longer than 45 days following completion of construction activities.

All temporary patches of pavement and sidewalk cuts shall be promptly stenciled, which shall include the Contractor's name and patch installation date, and shall be kept properly identified until permanent restoration is performed. Temporary patches must be maintained at grade, in a condition acceptable to the Resident Engineer. If steel plates are utilized, they must be installed in accordance with Baltimore City Standard BC-576.17.

Failure to comply with DOT's street/sidewalk restoration policies may result in violation notices issued by DOT, along with the imposition of fines. Any fines assessed must be paid in a timely manner and all cost shall be borne solely by the Contractor. Unpaid fines may be withheld from pay requests and monthly estimates.

DPW reserves the right to perform and complete permanent paving restoration on its own should the Contractor fail to complete pavement and/or sidewalk restorations in a timely and efficient manner as determined by DPW. Any costs incurred by DPW to complete pavement and/or sidewalk restorations may be withheld and/or recovered from the Contractor's approved monthly estimates upon formal notification from DPW.

SC-52 STREET LIGHTING

In the event a street light must be removed for construction purposes, the Contractor shall notify the Street Lighting Maintenance Section of the Baltimore City Department of Transportation, the Transportation Engineering and Construction Division, at 410-396-4446, to schedule and complete that item of work. The Contractor is required to provide at least a fourteen (14) days' notice. The Contractor must provide temporary lighting prior to the removal of the street lights. The Contractor will be responsible for the installation, maintenance and removal of the temporary lights and related equipment. The Contractor must provide power for any temporary lights installed. All temporary lights must be in service prior to the removal of the street lights and remain in service until the street lights are reinstalled and operating.

The Contractor shall be responsible for maintaining the street light cable during construction. If any crossings are removed or damaged, the Contractor must replace the crossing per current City standards at no cost to the City. If a street lighting duct or cable is hit, the Contractor is to immediately notify Street Lighting Maintenance, at 410-396-4446 and Mr. Eric Barger of Baltimore Gas and Electric Company (BGE), at 410-859-9466. If a street light pole base or pole is damaged during construction, it must be replaced per current City standards at no cost to the City.

All street lighting related work must be done in coordination with the Street Lighting Maintenance Section of the Baltimore City Department of Transportation, the Transportation Engineering and Construction Division, and the Baltimore Gas and Electric Company.

SC-53 CONSTRUCTION PHOTOGRAPHS

Delete Section 01 32 33 in its entirety and substitute with the following:

A. Photography.

1. Submit prior to beginning any Work that may cause site disturbance.
 - a. Digital date-stamped color photography provided in CD disc format.
 - 1) Photographs:
 - a) Take at sufficient intervals to fully document the pre-construction conditions of the work site, not more than 100 feet apart along the street and/or right of way; progress photos in one month intervals to be submitted with the invoice and; as documentation with requests for Change Orders.
 - b) Include identification markers such as houses, businesses, signs, property numbers, mail boxes, or landscaping, in each view to properly confirm location of the view for ease of identification.
 - c) Devote particular attention of per-existing damage to streets, curbs, sidewalks, driveways, signs, mailboxes, retaining walls, landscaping, etc.
 - d) Out of focus photos will not be accepted.
 - b. Submit Photo log along with CD disc that provides;
 - 1) Name and number of the contract.
 - 2) Name of Contractor.
 - 3) Name of photographer.
 - 4) Include for each photograph;
 - a) File name
 - b) Date taken
 - c) Location of the view

B. Pre-Construction Video.

1. Document by video, and submit in digital format on DVD;
 - a. All pre-existing site conditions adjacent to and within the limits of construction.
 - b. Clear and continuous view of the project alignment.
2. Submit prior to beginning Work that may cause site disturbance.

B. All costs associated with pre and post construction photographs and video shall be considered incidental to all utility bid items in this Contract and no separate payment will be made.

SC-54 SUPPORT AND/OR PROTECTION OF EXISTING UTILITIES

The Contractor shall support street light poles adjacent to the excavation and all existing utilities within the limits of excavation. Should any utility and/or utility structure, in the opinion of the Contractor and verified by the Engineer, be impacted by the Contractor's work, the utility shall be supported, protected and/or temporarily relocated as needed to maintain service and accommodate the Contractors work without cost to the City. Refer to Sections 01 76 04, 01 76 05 and 01 76 06 of the City of Baltimore Department of Public Works Standard Specifications for additional requirements.

Fourteen (14) working days prior to starting excavation, the Contractor shall submit to the Engineer his or her proposed method of utility support for approval.

No separate payment will be made for the cost of temporary or permanent support and/or protection of existing utilities over, under or adjacent to the excavations for proposed work. All work, materials, labor, etc., associated with temporary or permanent support and/or protection of existing utilities will be considered incidental to the work required under this Contract.

Bracing of utilities or utility poles (other than BGE poles) shall be designed by a Maryland Registered Professional Engineer and the bracing plan submitted to the Engineer for approval and shall be considered incidental to the work.

The Contractor must notify BGE at least 4 weeks in advance to support BGE poles affected by his work. BGE will brace the poles at no cost to the Contractor. Contact Shaahin Bahmani @ 410-470-7868 or 410-672-0232.

SC-55 CONTRACTOR'S QUALITY CONTROL

Supplement section 01 45 00 with the following:

1.1 Within fifteen days after Notice to Proceed has been issued, Contractor shall submit a quality control plan to Engineer for review.

A. Contractors Quality Control Plan shall include but not limited to:

1. Definable features of work
2. Assigned individuals, independent testing agencies and manufacturers who will be responsible for the contractor required testing and inspections.
3. Contractor shall submit for approval independent testing agencies for all necessary testing and inspection required for the contractor's quality control program.
4. The contractor shall also provide resumes of individuals who are assigned to perform required inspections as part of the Contractors quality control program.
5. The contractor shall also provide a description of how contractor will verify and document, contract and specification compliance.
6. A testing plan listing and describing types of required testing for all definable feature of work, the governing agency standards and methods contractor will use. The testing plan shall also describe testing procedures, including equipment, materials and chemicals used. Points of injection, sample points, injection equipment, drain and discharge ports, and point of discharge, particularly if discharge will be into the City's sewer or storm drain system.
7. Testing logs and schedules: Logs and schedules shall include all required tests and inspections, locations of scheduled tests, date of tests, type of test, length of test for all definable features of work. Special consideration will be paid to all piping to be tested in regards to lengths of piping and appurtenances tested, testing pressures, amounts of chemicals used for disinfection, chlorine residual results, disinfection results, dates of test results, and if test was successful or a re-test is required.
8. Testing shall be shown in the project's CPM schedule and shall be cost loaded and show expected durations.
9. Contractor shall keep up to date and accurate documentation of all testing performed, including all testing and results from City performed tests.

10. Contractor shall provide to the Engineer, copies of all field reports, and certified lab reports from all testing agencies, agents, and manufacturers.

- Inspection plan: Contractor shall perform all required inspections for compliance on delivered materials and or equipment and document the results. If any deficient and or non-compliant materials or equipment are encountered, contractor shall immediately inform the Engineer, and shall clearly mark the deficient/non-conforming materials or equipment as such, so these materials or equipment shall not to be used. Contractor shall remove them from site immediately.
- Provide updated testing documents to the City for review on a monthly basis.
- Contractor shall provide to the Engineer Certificates of Proper Installation (COPI) for all equipment, and machinery installed. COPI shall be signed by the manufacturer, the contractor and the City of Baltimore or their appointed representatives. Contractor shall demonstrate to the City of Baltimore that all equipment, machinery, and appurtenances installed as part of the contract operate in accordance with the contract requirements. City and contractor shall both sign a certificate of acceptance. City will not accept any deliverable without a COPI and certificate of acceptance. City of Baltimore reserves the right to withhold payment until such certificates are provided to the Engineer as part of the required close out documents. This clause will be applicable only to the following appurtenances:
 - Valves 16-inch and larger
 - Services 4-inch and larger (New Installations Only)
 - Installation of PCCP and steel mains
- Contractor shall at all times keep on site all quality control documentation for review.

B. Contractor shall be responsible for all quality control requirements of their sub-contractors.

C. Contractor shall notify City of Baltimore a minimum of 48 hours in advance, in writing for any testing and or inspections to be performed, either by Contractor or by the City of Baltimore or their respective sub-contractors.

1.2 Testing

A. All required testing to be performed by the Contractor or approved contractors testing agencies shall be incidental to the work being performed at no additional cost to the City.

B. Contractor shall be responsible for testing density and compaction of all backfill materials per required specifications. All testing shall be incidental to the work being performed at no additional cost to the City.

C. Contractor shall be responsible for the testing of all cast in place concrete per required specifications. All testing shall be incidental to the work being performed at no additional cost to the City.

D. The cost of any retest due the Contractors, negligence, neglect or work failing to meet the required specification shall be borne solely by the Contractor. Contractor shall not be allowed to claim for delay due to any failing tests.

- 1.3 Failure on the part of the City of Baltimore and or its sub-contractors and or appointed agents to implement specific testing and inspections as part of the contract testing and inspection requirements, shall not relieve the contractor of his obligations to perform the necessary testing and inspections in accordance with the contract requirements.

SC-56 SCHEDULES AND REPORTS

Supplement Section 01 32 16 with the following:

1. Paragraph S, replace “.prx files” with “.xer files”.
2. Paragraph CC: CONTRACTOR’S ORGANIZATION,
Replace “software P3 or P3e/c or higher” with “software Primavera P6 version 8.1 or higher”
3. The cost of Primavera scheduling software P6 (initial purchase cost, software maintenance/technical support, license renewal fee etc.) shall be incidental to bid item for Mobilization.

SC-57 REVISIONS TO THE ASPHALT PAVING SPECIFICATIONS

Supplement Section 32 12 16.13 of the Standard Specifications with the following:

2.1 MATERIALS

References to the following draft or provisional standards shall be substituted as follows:

AASHTO MP1 shall be M320
 Binder ETG draft shall be PP42
 AASHTO MP2 shall be M323
 AASHTO PP28 shall be R35
 AASHTO TP4 shall be AASHTO T 312
 Reference of RAP less than 15 percent should read less than 20 percent.

3.11 SAMPLING AND TESTING FOR DENSITY

Delete in its entirety and replace with the following:

3.11 SAMPLING AND TESTING FOR DENSITY AND MIXTURE

Mixture sampling shall be performed before the material is compacted. Density testing shall be performed before allowing traffic or construction equipment on the placed mat and before the placement of the next lift. All sampling will be done by the Contractor. Quality Control testing will be performed by the Contractor. Acceptance testing will be performed by the City. All tests shall be performed by Certified Technicians and Testers in accordance with MSMT 731.

A. Mixture Sampling

An HMA mixture lot size is approximately equal to 6000 tons of a mix per project. A mix lot ends on the day when 6000 tons is reached. A mixture subplot size shall not exceed 1000 tons. A subplot size up to 200 tons can be combined with the previous 1000 ton subplot placed on the same day. A mix lot constitutes all sublots of a mix created during the production of required tonnage for a lot as defined herein. A new lot number for a mix will be given when there is a change in the approved job

mix formula. Samples shall be obtained from the mat behind the paver in accordance with MSMT 457, Sampling HMA Prior to Compaction, as witnessed by the Engineer.

A minimum of two samples per mixture subplot, shall be obtained. The Contractor shall retain half of the mixture samples for Quality Control testing and the Engineer will take possession of the remaining mixture samples for acceptance testing.

1. Quality Control Testing

The Contractor shall test a minimum of one mix sample per subplot in conformance with MSMT 735 for asphalt content and gradation after each days paving operation and make the results available to the Engineer within five (5) working days.

2. Acceptance Testing

The Engineer will test mixture samples in conformance with MSMT 735 for asphalt content, gradation, and volumetrics. The Engineer may accept quality control test data without comparing them with acceptance data based on the Contractor's past quality control and performance history.

Acceptance testing of these mixture samples will be in conformance with MSMT 735, Table 2. Mixture acceptance will be based on a composite percent within Specification limits (CMPWSL) of the lot based on asphalt content, voids total mix (VTM), percent passing No 4, No. 8, and No. 200 sieve material for dense mixes and gap-graded mixes.

C. Compaction Testing

An HMA compaction lot size shall equal one paving day's production per mix. A lot shall be divided into a minimum of five equal sublots. A subplot shall not be greater than 500 tons. When a paving day's production per mix is greater than 2500 tons, then each subplot size shall be 500 tons or fraction thereof. Core locations shall be selected by the Engineer in conformance with MSMT 459 and taken by the Contractor in conformance with MSMT 458, as witnessed by the Engineer. The diameter of the cores shall be 6 in. except that a 4 in. core may be used for mixes smaller than 25 mm. Additional core locations for acceptance testing can be selected by the Engineer outside of the standard paving width.

A minimum of two cores per subplot shall be taken. The Contractor shall retain half of the cores for Quality Control testing and the Engineer will take possession of the remaining cores for acceptance testing.

1. Quality Control Testing

The Contractor shall test at a minimum one core per lift, per mix design, per daily occurrence, in accordance with MSMT 452. The Contractor shall make quality control test data available to the Engineer no later than the beginning of the next paving day.

The Contractor may use a density gauge to perform additional Quality Control checks. The Contractor, when using a density gauge shall perform daily validations and standard counts as recommended by the manufacturer. A log of these validations and counts shall be with the gauge at all times.

Refer to the appropriate Special Condition CONTRACTOR'S QUALITY CONTROL.

2. Acceptance Testing.

The Engineer will take immediate possession of the cores after taken and deliver the cores to the Laboratory.

The Engineer will note any density waivers on the daily field density forms with remarks for the waivers.

The Laboratory will test core samples in conformance with MSMT 452. The specific gravity of the core samples will be expressed as a percentage of the maximum specific gravity determined for mixture for each day's placement. When more than one mixture sample is obtained per day's placement, an average of all maximum specific gravity tests for the day will be used for the determination of percent compaction of each core sample.

HMA compaction lots will be evaluated for compaction compliance (density) using the Engineer's acceptance test data and the Contractor's quality control data based on the core method. The Contractor's quality control test data for compaction for core method will be included in the acceptance based on the analysis in conformance with MSMT 733 (F test and t test method). All test data for a given subplot and lot shall be within 92.0 and 97.0 percent of maximum theoretical density. The process for determining statistical outliers will be in conformance with MSMT 734.

On projects when a lift thickness is less than 3/4 in., the lift shall be tested by a density gauge only and payment for this lift will be based upon the Contractor's quality control test data. The Engineer will select test location for the density gauge in conformance with MSMT 459 and witness the Contractor's testing. The Engineer will verify the Contractor's data by testing with a density gauge at random locations.

4.2 PRICE ADJUSTMENT FOR ASPHALT BINDER

Delete in its entirety and replace with the following:

4.2 PRICE ADJUSTMENT FOR ASPHALT BINDER

The Standard Specifications Section 32 12 16.13 requirements and revisions shall apply. However, there will be no cost adjustment for any asphalt items.

SC-58 EXPERIENCE REQUIREMENTS FOR GPS USE

- A. Individual(s) involved in collecting the spatial data utilizing GPS technologies shall have adequate surveying experience and training. The training shall cover at the minimum, the basics of GPS theory, field receiver operation, differential correction, and data documentation. Prior knowledge of sources of error, the proper uses of GPS, and limitations will help ensure that quality spatial data is obtained with GPS receivers.
- B. The data collection by GPS and/or conventional ground survey must be supervised and the post processed data must be reviewed and endorsed, by an employee who is Professional Land Surveyor registered in the State of Maryland. With each "as-built" submittal, the Contractor shall submit a cover letter certifying that the data submitted meets or exceeds the requirements set forth in the Contract Specifications. This letter must be signed and sealed by Professional Land Surveyor registered in the State of Maryland, who supervised the data collection and reviewed the post processed data.
- C. Upon request from the Engineer, the Contractor may be required to submit a report on the accuracy of the data collected. The report shall include the post processing accuracy level of all coordinates.

Within two (2) weeks of the pre-construction meeting, the Contractor must also submit references for a minimum of two recent projects where at least 1,000 decimeter GPS accuracy points were collected. All submittals are subject to approval by Baltimore City.

SC-59 MATERIAL TO BE SUPPLIED BY BALTIMORE CITY

The Contractor will be responsible for furnishing and installing all materials for this Contract.

C. CONSTRUCTION DETAILS AND MATERIALS

In this section, requirements have been given to revise, and/or supplement articles of the Standard Specifications. The Contractor is reminded that he must abide by all the articles of the Standard Specifications when the other Contract Documents or the Engineer may so direct.

DIVISION 01 – GENERAL CONDITIONS – SECTION 01 00 00

In this section, requirements have been given to revise, and/or supplement articles of the Standard Specifications. The Contractor is reminded that he must abide by all the articles of the Standard Specifications when the Engineer may so direct.

This Contract shall consist of all work necessary to clean and/or inspect the existing sanitary sewer system in Baltimore City – Citywide. The work required under these terms includes but is not limited to cleaning and/or inspection of sanitary sewers and appurtenances.

The Engineer will provide a monthly schedule of sewer assets to be cleaned and/or inspected to the Contractor. The Contractor shall provide adequate crews and equipment and backup equipment to support the continuous schedule of work provided. Work will be required at several locations simultaneously, therefore the Contractor will be required to provide multiple crews.

The necessary work at any given location may include, but is not limited to one or any combination of the following tasks:

1. Closed circuit television inspection of sanitary sewers including videotaping and cleaning.
2. Acoustic inspections of sanitary sewers.
3. Cyclical cleaning of sanitary sewers with application of grease abatement chemical where needed.
4. Manhole inspection and cleaning.
5. Traffic control.

Assignment of Work

Task orders will be generated that identify the lines to be cleaned/inspected in each sewer basin. The Contractor will have the opportunity to aggregate the task orders to minimize travel time between work locations, but must maintain a schedule to complete the work within one month of issuance. There will be no payment for mobilization/demobilization for sewer cleaning and inspection work.

ITEM 101: TEMPORARY TRAFFIC SIGNS

Supplement Standard Specifications Section 10 14 53.23 Part 1.1 Description with the following:

This item is to be used for payment when the Engineer directs the Contractor to provide additional signs for maintenance of traffic where the Maintenance of Traffic location requires additional temporary traffic signs that are shown on the Standard Traffic Control Plans in Appendix A.

ITEM 102: PLASTIC TRAFFIC CONTROL DRUMS

Supplement Standard Specifications Section 34 71 13.02 Part 1.1 Description with the following:

This item is to be used for payment when the Engineer directs the Contractor to provide additional Plastic Traffic Control Drums where the Maintenance of Traffic location requires additional Plastic Traffic Control Drums that are shown on the Standard Traffic Control Plans in Appendix A.

ITEM 103: ARROW PANELS

Supplement Standard Specifications Section 10 14 63.12 Part 1.1 Description with the following:

This item is to be used for payment when the Engineer directs the Contractor to provide additional Arrow Panels where the Maintenance of Traffic location requires additional Arrow Panels that are shown on the Standard Traffic Control Plans in Appendix A.

ITEM 104: PORTABLE VARIABLE MESSAGE SIGNS (PVMS)

Supplement Standard Specifications Section 10 14 63.11 Part 1.1 Description with the following:

This item is to be used for payment when the Engineer directs the Contractor to provide additional Portable Variable Message Signs where the Maintenance of Traffic location requires additional Portable Variable Message Signs that are shown on the Standard Traffic Control Plans in Appendix A.

ITEM 105: FLAGGER FOR TRAFFIC CONTROL

Supplement Standard Specifications Section 34 01 13.20 Part 1.1 Description with the following:

This item is to be used for payment when the Engineer directs the Contractor to provide additional Flaggers where the Maintenance of Traffic location requires additional Flaggers that are shown on the Standard Traffic Control Plans in Appendix A.

Supplement Standard Specifications Section 34 01 13.20 Part 4 Measurement and Payment with the following:

- C. The flagger will be measured and paid for at the Contract Unit Price on a “per day” basis for each 8-hour day for maintenance of traffic. For example, if traffic control is active for 8 to 12 hours, the Contractor will be paid for 1.5 days, and if traffic control is active for 12 to 16 hours, the Contractor will be paid for 2 days. “Active” time excludes set up and take down time of traffic control devices. The Contract Unit Price payment includes all clothing, all materials, labor, tools, equipment, and all incidentals necessary to complete the work.

ITEM 106: ALLOWANCE FOR RAILROAD PROTECTIVE LIABILITY INSURANCE**PART 1 GENERAL**

This item includes obtaining right of entry agreements with railroad authorities as related to the work performed under this Contract. When needed, the Contractor shall apply for, and obtain railroad protective liability insurance as related to the work to be performed under this contract.

PART 4 MEASUREMENT AND PAYMENT

This item will not be measured.

During the course of the individual project tasks under this Contract, the Contractor shall submit an all-inclusive estimate to the Engineer for acquiring the insurance. The estimate shall be used as a basis for payment with the associated amount being deducted from the allowance amount set for this Item.

Payment will be made on a per each basis as deducted from the allowance amount for the actual costs incurred for the Contractor to acquire railroad protective liability insurance as required by the railroad authority for the specific work as assigned by the Engineer.

The upset value of this Item shall not be exceeded without prior approval of the Engineer.

This allowance may or may not be used in its entirety. Any remaining amount not utilized, will not be paid to the Contractor.

The allowance amount will be shown on the bid form and made a part of the Contractor's total price bid.

ITEM 107: ALLOWANCE FOR RAILROAD PERMIT TO ENTER AGREEMENTS

PART 1 GENERAL

1.1 DESCRIPTION

When needed, the Contractor shall apply for and obtain temporary Right of Entry Permits to access Railroad property as required for the work. The cost payable to the Railroad for obtaining temporary Right of Entry Permits to access the railroad property shall be paid for out of the stipulated allowance.

PART 4 MEASUREMENT AND PAYMENT

This item will not be measured.

Payment will be made on a per each basis as deducted from the allowance amount for the total cost invoiced by the Railroad and approved by the Engineer.

The upset value of this Item shall not be exceeded without prior approval of the Engineer.

This allowance may or may not be used in its entirety. Any remaining amount not utilized, will not be paid to the Contractor.

The allowance amount will be shown on the bid form and made a part of the Contractor's total price bid.

ITEM 108: ENGINEER'S OFFICE

Not used in this contract.

DIVISION 33 – UTILITIES – SECTION 33 00 00

Note: In addition to the work specified for each Item, all Utility Bid Items include “common” elements of work such as mobilization/demobilization, project identification sign(s), locating existing utilities, restoration of any paving stone, block or brick paving or brick gutters, as-built record keeping and submissions, photo documentation prior to and during construction, notifications (letters, doorhangers) to consumers, maintenance of traffic, full depth pavement cuts, temporary pavement restoration, permitting, clearing and grubbing, removal of trash and debris, as appropriate, and as required at no additional cost.

ITEM 801: CLEANING OF 6” THROUGH 8” DIAMETER SANITARY SEWERS

ITEM 802: CLEANING OF 10” THROUGH 12” DIAMETER SANITARY SEWERS

ITEM 803: CLEANING OF 14” THROUGH 18” DIAMETER SANITARY SEWERS

ITEM 804: CLEANING OF 20” THROUGH 24” DIAMETER SANITARY SEWERS

ITEM 805: CLEANING OF 25” THROUGH 29” DIAMETER SANITARY SEWERS

ITEM 806: CLEANING OF 30” THROUGH 34” DIAMETER SANITARY SEWERS

ITEM 807: FIRST 9 FEET OF PHYSICALLY ATTACHED SOLID DEBRIS CUTTING – CONTINUOUS OR CUMULATIVE DEFECT FOR 6” THROUGH 18” DIAMETER SANITARY SEWERS

ITEM 808: ADDITIONAL SOLID DEBRIS CUTTING – CONTINUOUS OR CUMULATIVE DEFECT FOR 6” THROUGH 18” DIAMETER SANITARY SEWERS

ITEM 809: POINT LOCATION SOLID DEBRIS CUTTING – AT PIPE JOINTS AND SERVICES OF 6” THROUGH 18” DIAMETER SANITARY SEWERS

ITEM 810: REMOVING INTRUDING SEWER TAPS – FOR 6” THROUGH 18” DIAMETER MAINLINE SANITARY SEWERS

ITEM 811: REMOVAL OF EXCESSIVE GREASE AND OR ROOTS PER SEWER SEGMENT OF 6” THROUGH 18” DIAMETERS

ITEM 812: FIRST 9 FEET OF PHYSICALLY ATTACHED SOLID DEBRIS CUTTING – CONTINUOUS OR CUMULATIVE DEFECT FOR 20” THROUGH 34” DIAMETER SANITARY SEWERS

ITEM 813: ADDITIONAL SOLID DEBRIS CUTTING – CONTINUOUS OR CUMULATIVE DEFECT FOR 20” THROUGH 34” DIAMETER SANITARY SEWERS

ITEM 814: POINT LOCATION SOLID DEBRIS CUTTING – AT PIPE JOINTS AND SERVICES OF 20” THROUGH 34” DIAMETER SEWER

ITEM 815: REMOVING INTRUDING SEWER TAPS – FOR 20” THROUGH 34” MAINLINE DIAMETER SANITARY SEWERS

ITEM 816: REMOVAL OF EXCESSIVE GREASE AND OR ROOTS PER SEWER SEGMENT FOR 20" THROUGH 34" DIAMETERS

The following applies to Item Nos. 801 through 816:

Sanitary sewer mainline cleaning including standard cleaning, solid debris cutting, removal of intruding sewer taps and removal of excessive grease and roots shall be completed in accordance with Section 33 01 30.41 – Sanitary Sewer Pipeline Cleaning of the Supplemental Technical Specifications.

ITEM 817: CCTV INSPECTION OF 6" THROUGH 8" DIAMETER SANITARY SEWERS**ITEM 818: CCTV INSPECTION OF 10" THROUGH 12" DIAMETER SANITARY SEWERS****ITEM 819: CCTV INSPECTION OF 14" THROUGH 18" DIAMETER SANITARY SEWERS**

The following applies to Item Nos. 817 through 819:

CCTV inspection of mainline sanitary sewers 6-inch through 18-inch diameter shall be completed in accordance with Section 33 01 30.10 – Small Diameter Sanitary Sewer Pipeline Inspection of the Supplemental Technical Specifications.

ITEM 820: CCTV INSPECTION OF 20" THROUGH 24" DIAMETER SANITARY SEWERS**ITEM 821: CCTV INSPECTION OF 25" THROUGH 29" DIAMETER SANITARY SEWERS****ITEM 822: CCTV INSPECTION OF 30" THROUGH 34" DIAMETER SANITARY SEWERS**

The following applies to Item Nos. 820 through 822:

CCTV inspection of mainline sanitary sewers 20-inch through 34-inch diameter shall be completed in accordance with Section 33 01 30.11 – Large Diameter Sanitary Sewer Pipeline Inspection of the Supplemental Technical Specifications.

ITEMS 823: CYCLICAL CLEANING ONLY WITH OPTIONAL SCHEDULED FOG ABATEMENT CHEMICAL USE FOR 6" THROUGH 8" DIAMETER SANITARY SEWERS**ITEMS 824: CYCLICAL CLEANING ONLY WITH OPTIONAL SCHEDULED FOG ABATEMENT CHEMICAL USE FOR 10" THROUGH 12" DIAMETER SANITARY SEWERS****ITEMS 825: CYCLICAL CLEANING ONLY WITH OPTIONAL SCHEDULED FOG ABATEMENT CHEMICAL USE FOR 14" THROUGH 18" DIAMETER SANITARY SEWERS**

The following applies to Item Nos. 823 through 825:

Cyclical cleaning of mainline sanitary sewer pipes 6-inch through 18-inch diameter shall be completed in accordance with Section 33 01 30.41 – Sanitary Sewer Pipeline Cleaning of the Supplemental Technical Specifications.

ITEM 826: ACOUSTIC INSPECTION FOR 6" THROUGH 8" DIAMETER SANITARY SEWERS**ITEM 827: ACOUSTIC INSPECTION FOR 10" THROUGH 12" DIAMETER SANITARY SEWERS**

The following applies to Items 826 and 827.

Acoustic inspection of mainline sanitary sewers 6-inch through 12-inch in diameter shall be completed in accordance with Section 33 01 30.65 – Sanitary Sewer Acoustic Inspection of the Supplemental Technical Specifications.

ITEM 828: LIGHT LATERAL CLEANING FROM CLEANOUTS TO MAINLINES OR MANHOLES AT INDIVIDUAL OR SCATTERED LOCATIONS WITH 4" THROUGH 12" DIAMETER SEWER LATERALS**ITEM 829: HEAVY LATERAL CLEANING FROM CLEANOUTS TO MAINLINES OR MANHOLES AT INDIVIDUAL OR SCATTERED LOCATIONS WITH 4" THROUGH 12" DIAMETER SEWER LATERALS****ITEM 830: SPECIALTY LATERAL CLEANING FROM CLEANOUTS TO MAINLINES OR MANHOLES AT INDIVIDUAL OR SCATTERED LOCATIONS WITH 4" THROUGH 12" DIAMETER SEWER LATERALS****ITEM 831: PUSH CAMERA INSPECTION FROM CLEANOUTS TO MAINLINES OR MANHOLES AT INDIVIDUAL OR SCATTERED LOCATIONS WITH 4" THROUGH 12" DIAMETER SEWER LATERALS****ITEM 832: LIGHT LATERAL CLEANING FROM MAINLINES OR MANHOLES TO PROPERTY LINE AT INDIVIDUAL OR SCATTERED LOCATIONS WITH 4" THROUGH 12" DIAMETER SEWER LATERALS****ITEM 833: HEAVY LATERAL CLEANING FROM MAINLINES OR MANHOLES TO PROPERTY LINE AT INDIVIDUAL OR SCATTERED LOCATIONS WITH 4" THROUGH 12" DIAMETER SEWER LATERALS****ITEM 834: SPECIALTY LATERAL CLEANING FROM MAINLINES OR MANHOLES TO PROPERTY LINE AT INDIVIDUAL OR SCATTERED LOCATIONS WITH 4" THROUGH 12" DIAMETER SEWER LATERALS****ITEM 835: CCTV LATERAL LAUNCH INSPECTIONS FROM MAINLINES OR MANHOLES TO PROPERTY LINE AT INDIVIDUAL OR SCATTERED LOCATIONS WITH 4" THROUGH 12" DIAMETER SEWER LATERALS****ITEM 836: LIGHT LATERAL CLEANING FROM MAINLINES OR MANHOLES TO PROPERTY LINE AT ALL LATERALS ALONG MAINLINE WITH 4" THROUGH 12" DIAMETER SEWER LATERALS****ITEM 837: HEAVY LATERAL CLEANING FROM MAINLINES OR MANHOLES TO PROPERTY LINE AT ALL LATERALS ALONG MAINLINE WITH 4" THROUGH 12" DIAMETER SEWER LATERALS**

ITEM 838: SPECIALTY LATERAL CLEANING FROM MAINLINES OR MANHOLES TO PROPERTY LINE AT ALL LATERALS ALONG MAINLINE WITH 4" THROUGH 12" DIAMETER SEWER LATERALS

ITEM 839: CCTV LATERAL LAUNCH INSPECTIONS FROM MAINLINES OR MANHOLES TO PROPERTY LINE AT ALL LATERALS ALONG MAINLINE WITH 4" THROUGH 12" DIAMETER SEWER LATERALS

The following applies to Items 828 through 839.

Sanitary sewer lateral cleaning including light cleaning, heavy cleaning and specialty cleaning shall be completed in accordance with Section 33 01 30.44 – Lateral Sewer Pipeline Cleaning of the Supplemental Technical Specifications.

Sanitary sewer lateral CCTV inspection by push camera and lateral launch shall be completed in accordance with Section 33 01 30.15 – Lateral Sewer Pipeline Inspection of the Supplemental Technical Specifications.

ITEM 840: MANHOLE CLEANING

Manhole cleaning shall be completed in accordance with Section 33 01 30.53 – Manhole Cleaning of the Supplemental Technical Specifications.

ITEM 841: MANHOLE INSPECTION

Manhole inspections shall be completed in accordance with Section 33 01 30.50 – Manhole Panoramic Inspection of the Supplemental Technical Specifications.

ITEM 842: ALLOWANCE FOR DIFFICULT TO ACCESS MANHOLES

PART 1 GENERAL

1.1 DESCRIPTION

When needed, the Contractor may have difficulty accessing manholes to complete various work. The cost to gain access to these difficult areas shall be paid for out of the stipulated allowance.

PART 4 MEASUREMENT AND PAYMENT

This item will not be measured.

Payment will be made on a per each basis as deducted from the allowance amount for the total cost to gain difficult access to manholes.

The upset value of this Item shall not be exceeded without prior approval of the Engineer.

This allowance may or may not be used in its entirety. Any remaining amount not utilized, will not be paid to the Contractor.

The allowance amount will be shown on the bid form and made a part of the Contractor's total price bid.

ITEM 843: FOG ABATEMENT CHEMICAL

See Section 33 01 30.41 – Sanitary Sewer Pipeline Cleaning of the Supplemental Technical Specifications for use and measurement & payment for FOG abatement chemical.

ITEMS 844 - 871: NOT USED

ITEM 901: ALLOWANCE FOR MISCELLANEOUS

PART 1: DESCRIPTION:

This item shall be used to compensate the Contractor for unanticipated work that may be required to complete cleaning and inspection tasks assigned.

PART 4: MEASUREMENT AND PAYMENT

The Contractor shall proceed with this work upon approval of the Engineer and will be compensated using a time and materials force account. The upset value for this Item shall not be exceeded without prior approval of the Engineer.

This allowance may or may not be used in its entirety. Any remaining amount not utilized will not be paid to the Contractor. The allowance amount will be shown on the bid form and made a part of the Contractor's total price bid.

D. MAINTENANCE OF TRAFFIC NOTES AND DETAILS

MAINTENANCE OF TRAFFIC SEQUENCE OF OPERATION

1. NO WORK IS TO BEGIN UNTIL ALL TEMPORARY SIGNS, BARRICADES AND CHANNELIZING DEVICES ARE IN PLACE, ACCEPTED AND OPERATIONAL.
2. EXISTING TRAFFIC AND ACCESS TO PRIVATE PROPERTY SHALL BE MAINTAINED AT ALL TIMES.
3. ALL DEBRIS SHALL BE REMOVED ON A DAILY BASIS TO MINIMIZE TRAFFIC INTERRUPTIONS.
4. PERFORM SANITARY SEWER CLEANING AND CCTV INSPECTIONS BETWEEN MANHOLES.
5. AFTER COMPLETION OF THE WORK, REMOVE ALL TEMPORARY TRAFFIC CONTROL DEVICES AND RESTORE ANY DISTURBED TRAFFIC CONTROL SYSTEMS AND PAVEMENT MARKINGS

TRAFFIC CONTROL NOTES

1. WHERE THE PROPOSED CONSTRUCTION UNDER THIS CONTRACT IMPEDES OR OTHERWISE OBSTRUCTS THE NORMAL MOVEMENT OF TRAFFIC, THE CONTRACTOR SHALL BE REQUIRED TO FOLLOW SPECIFIC REGULATIONS AND TRAFFIC CONTROL PLANS AND/OR METHODS APPROVED BY THE ENGINEER. WITH THE EXCEPTION OF EMERGENCY TASK ORDERS, NO CONSTRUCTION SHALL BE ALLOWED ON MAJOR/PRINCIPAL ARTERIAL HIGHWAYS/STREETS AS DETERMINED BY THE CITY OF BALTIMORE DEPARTMENT OF TRANSPORTATION DURING THE FOLLOWING PEAK HOURS: 6:00 AM - 9:00 AM AND 3:00 PM - 6:00 PM, WEEKDAYS. FOR RESIDENTIAL/NEIGHBORHOOD STREETS WITHIN THE CITY OF BALTIMORE, THE ALLOWABLE WORK HOURS AND THE HOURS FOR LANE CLOSURES MAY BE MODIFIED TO 8:00 AM TO 5:00 PM WEEKDAYS ON A CASE BY CASE LOCATION BASIS AND WITH APPROVAL OF THE ENGINEER.

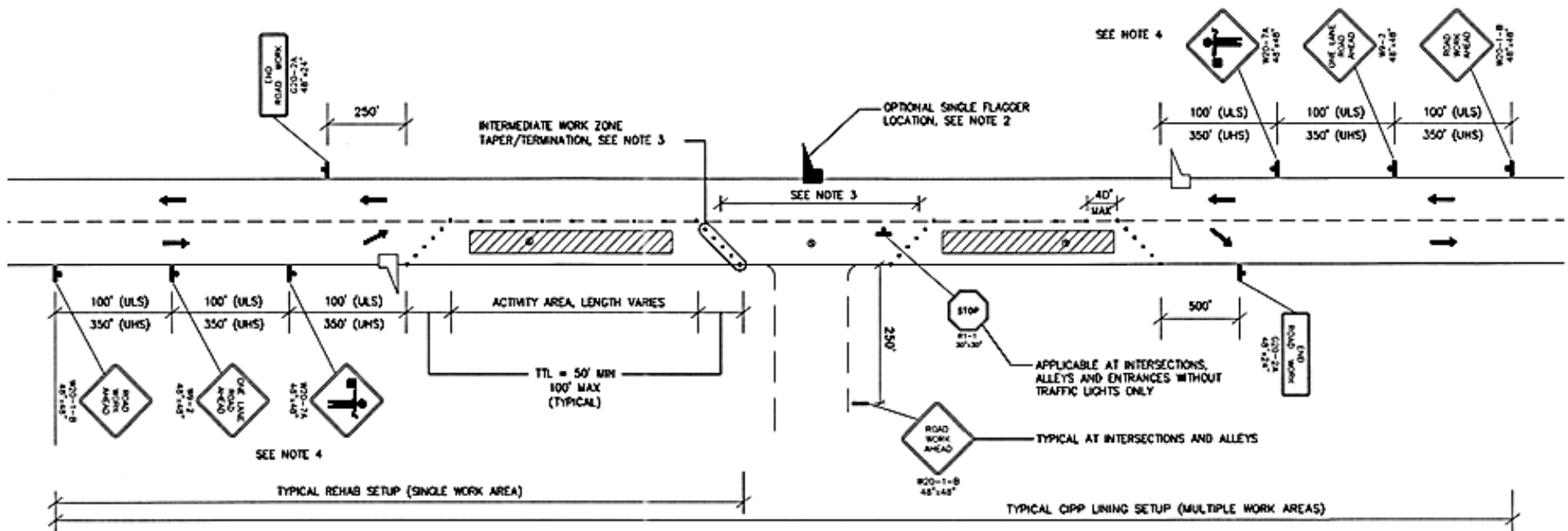
NIGHT TIME IS DEFINED AS THE HOURS BETWEEN 7:00 PM AND 6:00 AM ON WEEKDAYS AND WEEKENDS ARE CONSIDERED BETWEEN 7:00 PM ON FRIDAY AND 6:00 AM ON THE FOLLOWING MONDAY. UNLESS DESIGNATED FOR NIGHT TIME AND/OR WEEKENDS ONLY ON THE DRAWINGS, NO WORK IS PERMITTED DURING NIGHT TIME OR WEEKENDS EXCEPT IN CASES OF EMERGENCY, AND THEN ONLY BY WRITTEN PERMISSION OF THE ENGINEER.

2. WITH THE EXCEPTION OF EMERGENCY TASK ORDERS, THE CONTRACTOR SHALL CONTACT THE TRAFFIC DIVISION OF THE DEPARTMENT OF TRANSPORTATION (DOT) AT (443) 984-2150 ONE (1) WEEK BEFORE

CONSTRUCTION BEGINS. FOR EMERGENCY TASK ORDERS, NOTIFY DOT 24 HOURS BEFORE CONSTRUCTION.

3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SUPPLY, INSTALL, AND MAINTAIN ALL TRAFFIC CONTROL EQUIPMENT FOR THE DURATION OF THE WORK.
4. ALL TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION AND REVISIONS OF THE FEDERAL HIGHWAY ADMINISTRATION MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), THE MARYLAND STATE HIGHWAY ADMINISTRATION (SHA), WORK ZONE TRAFFIC CONTROL STANDARDS, AND THE CITY OF BALTIMORE BOOK OF STANDARDS.
5. THE TRAFFIC CONTROL SETUPS FROM THE CITY BOOK OF STANDARDS INCLUDED IN THIS SPECIFICATION REPRESENT SEVERAL APPLICATIONS ANTICIPATED FOR THIS CONTRACT. THE CONTRACTOR SHALL REFER TO THE BOOK OF STANDARDS FOR ADDITIONAL INFORMATION AND SETUPS AS REQUIRED BY SITE CONDITIONS OR AS DIRECTED BY THE ENGINEER.
6. IN ORDER TO WORK IN THE PUBLIC RIGHT-OF-WAY THE CONTRACTOR SHALL OBTAIN PERMITS FROM THE DEPARTMENT OF GENERAL SERVICES (DGS) PERMITS DIVISION. APPLICATIONS FOR PERMITS ARE ACCEPTED AT THE DGS PERMITS DIVISION IN THE ABEL WOLMAN MUNICIPAL BUILDING LOBBY, 200 N. HOLIDAY STREET, TELEPHONE (410) 396-6865 OR 396-4508. DURING THE PERMIT REVIEW, THE CONTRACTOR MAY BE BILLED ADDITIONAL TRAFFIC INSPECTION FEES NOT RELATED TO ANY PREVIOUS COSTS.
7. THE CONTRACTOR SHALL MAINTAIN A MINIMUM FOUR FOOT (4') WIDE PEDESTRIAN FOOTWAY OR IMPLEMENT AN APPROPRIATE PEDESTRIAN DETOUR WHILE ACTIVELY WORKING IN THE SIDEWALK IN THE ACCORDANCE WITH ADA GUIDELINES AND APPROPRIATE SHA STANDARDS OR CITY STANDARDS.
8. ALL EXCAVATIONS AND TRENCHES SHALL BE STEEL PLATED AT THE END OF EACH WORKDAY AND "STEEL PLATE AHEAD" WARNING SIGNS DISPLAYED IN ADVANCE. STEEL PLATES SHALL BE INSTALLED PER STANDARD BC-576.17 AND SHALL BE CLEARLY MARKED SO THAT OWNERSHIP IS EASILY DISCERNABLE.
9. IN GENERAL, THE CONTRACTOR MUST MAINTAIN A MINIMUM OF ONE (1) TEN-FOOT (10') LANE OF TRAFFIC ON ONE-WAY STREETS AND ONE (1) TEN-FOOT (10') LANE OF TRAFFIC IN EACH DIRECTION ON TWO-WAY STREETS AT ALL TIMES OR PROVIDE A TWO-PERSON FLAGGING OPERATION EQUIPPED WITH STOP/SLOW PADDLES. THE TRAFFIC DIVISION RESERVES THE RIGHT TO LIMIT THE NUMBER AND DURATION OF LANE OR SHOULDER CLOSURES AND THE MINIMUM ACCEPTABLE LANE WIDTH. THE FULL ROADWAY WIDTH SHALL BE OPEN TO TRAFFIC AT THE END OF EACH WORKDAY.

10. THE TRAFFIC DIVISION MUST APPROVE ANY PROPOSED TURNING MOVEMENT RESTRICTIONS AND MAY REQUIRE ALTERNATE TRAFFIC CONTROL PLAN TO MAINTAIN CRITICAL TURNING MOVEMENTS.
11. ACCESS (INGRESS AND EGRESS) SHALL BE MAINTAINED TO ALL LOCAL BUSINESSES AND RESIDENCES UNLESS WRITTEN PERMISSION IS GRANTED BY THE PROPERTY OWNER/MANAGER. ACCESS FOR EMERGENCY VEHICLES SHALL BE MAINTAINED AT ALL TIMES. ALL TEMPORARY PIPING SHALL BE BURIED OR RAMPED TO ALLOW VEHICULAR TRAFFIC TO BE MAINTAINED AT POSTED SPEEDS AND TO PRECLUDE DAMAGE TO PIPING THAT MIGHT DISRUPT SERVICE.
12. THE CONTRACTOR IS RESPONSIBLE FOR REPLACING OR REPAIRING ANY SIGNING AND PAVEMENT MARKINGS DAMAGED OR DESTROYED DURING CONSTRUCTION, INCLUDING THOSE OUTSIDE THE PROJECT LIMITS. ALL EXISTING TRAFFIC CONTROL DEVICES THAT MUST BE REMOVED SHALL BE REPLACED IN THEIR ORIGINAL LOCATION. COSTS FOR REPLACEMENT AND/OR REPAIR OF TRAFFIC CONTROL DEVICES DAMAGED OR DESTROYED AS A RESULT OF THE CONTRACTORS WORK, AS DETERMINED BY THE ENGINEER, SHALL BE PAID BY THE CONTRACTOR.
13. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY TEMPORARY NO STOPPING PROHIBITION SIGNING THAT WILL BE NECESSARY TO COMPLETE THIS PROJECT.
14. THE CONTRACTOR SHALL PROTECT AND MAINTAIN EXISTING TRAFFIC SIGNALS AND ROADWAY AND PEDESTRIAN LIGHTING AT ALL TIMES, INCLUDING UNDERGROUND CONDUIT AND RELATED FACILITIES.
15. NO MATERIALS OR EQUIPMENT SHALL BE STORED ON THE ROADWAY SURFACE OR SIDEWALK DURING NON-WORKING PERIODS. ALL STORED MATERIALS AND EQUIPMENT SHALL BE SET BACK AT LEAST SIX FEET (6') BEHIND THE CURB IN CLOSED SECTION AND TWELVE FEET (12') FROM THE EDGE OF OPEN SECTIONS OF THE ROADWAY. NO HAZARDOUS MATERIALS SHALL BE STORED WITHIN THE PUBLIC RIGHT-OF-WAY.
16. THE CONTRACTOR SHALL COORDINATE THEIR WORK WITH OTHER CONSTRUCTION THAT MAY BE IN THE VICINITY OF THE LIMITS OF CONSTRUCTION. THE CONTRACTOR MUST ALSO ENSURE THAT TRAFFIC CONTROL FOR MULTIPLE WORK ZONES, INCLUDING THOSE ESTABLISHED BY OTHERS, IN THE SAME AREA ARE NOT IN CONFLICT.



NOTES

1. IF THERE IS A PARKING LANE ALONG THE WORK ZONE ROADWAYS, TEMPORARY PARKING RESTRICTIONS (LENGTH VARIES BASED ON TYPE OF WORK AND TRAFFIC CONTROLS REQUIRED) WILL BE PLACED BY THE CONTRACTOR A MINIMUM OF ONE WEEK PRIOR TO WORK COMMENCING ALONG THAT ROADWAY. THE DATE OF THE PARKING RESTRICTION WILL BE PLACED ON THE PARKING NOTICE SIGN.
2. FOR LOW-VOLUME SITUATIONS WITH SHORT WORK ZONES ON STRAIGHT ROADWAYS WHERE THE FLAGGER IS VISIBLE TO ROAD USERS APPROACHING FROM BOTH DIRECTIONS, A SINGLE FLAGGER, POSITIONED TO BE VISIBLE TO ROAD USERS APPROACHING FROM BOTH DIRECTIONS MAY BE USED, SUBJECT TO APPROVAL BY THE DEPARTMENT OF TRANSPORTATION.
3. MAINTAIN CONTINUOUS LANE CLOSURE FOR DURATION OF THE WORK SITE TO MINIMIZE MULTIPLE LANE SHIFTS. AT INTERSECTIONS, ALLEYS, AND ENTRANCES A FLAGGER SHALL BE POSITIONED TO BE VISIBLE TO ROAD USERS APPROACHING THE INTERSECTION.
4. A **"BE PREPARED TO STOP"** SIGN, 48"x48", MAY BE ADDED TO THE SIGN SERIES BEFORE THE **"FLAGGER"** SYMBOL SIGN.
5. IF THERE IS A PARKING LANE ALONG THE WORK ZONE ROADWAYS, TEMPORARY PARKING RESTRICTIONS (LENGTH VARIES BASED ON TYPE OF WORK AND TRAFFIC CONTROLS REQUIRED) WILL BE PLACED BY THE CONTRACTOR A MINIMUM OF ONE WEEK PRIOR TO WORK COMMENCING ALONG THAT ROADWAY. THE DATE OF THE PARKING RESTRICTION WILL BE PLACED ON THE PARKING NOTICE SIGN.

LEGEND

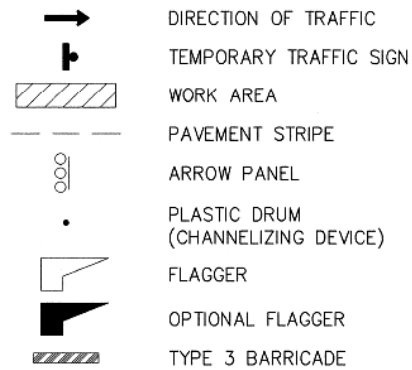


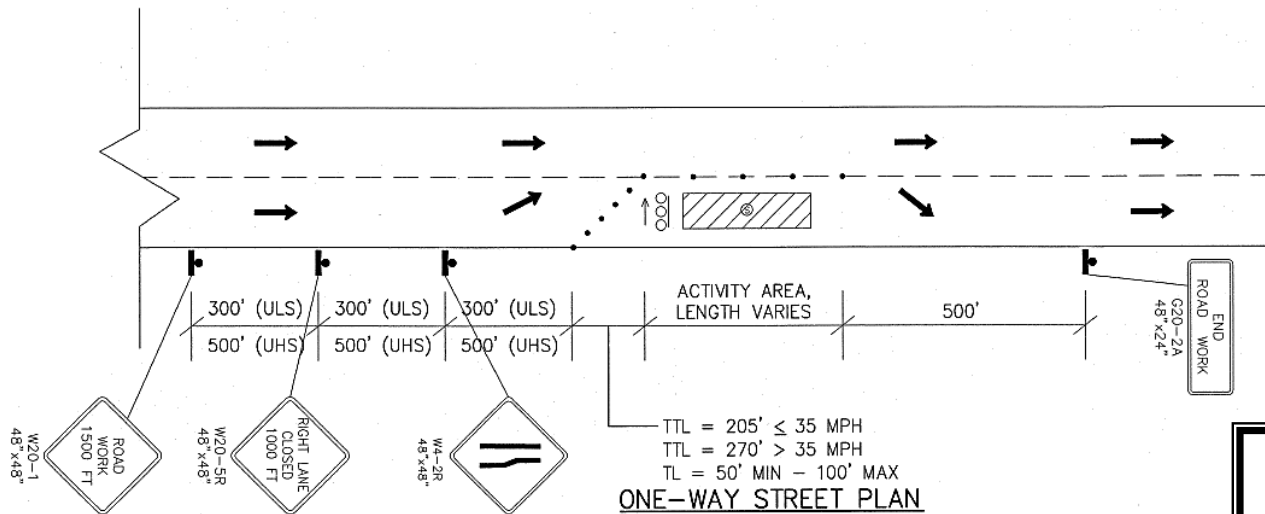
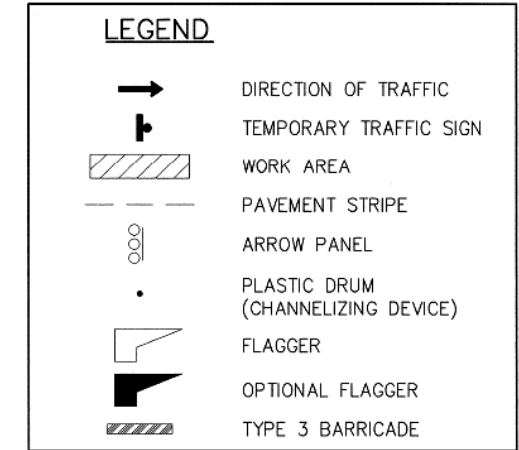
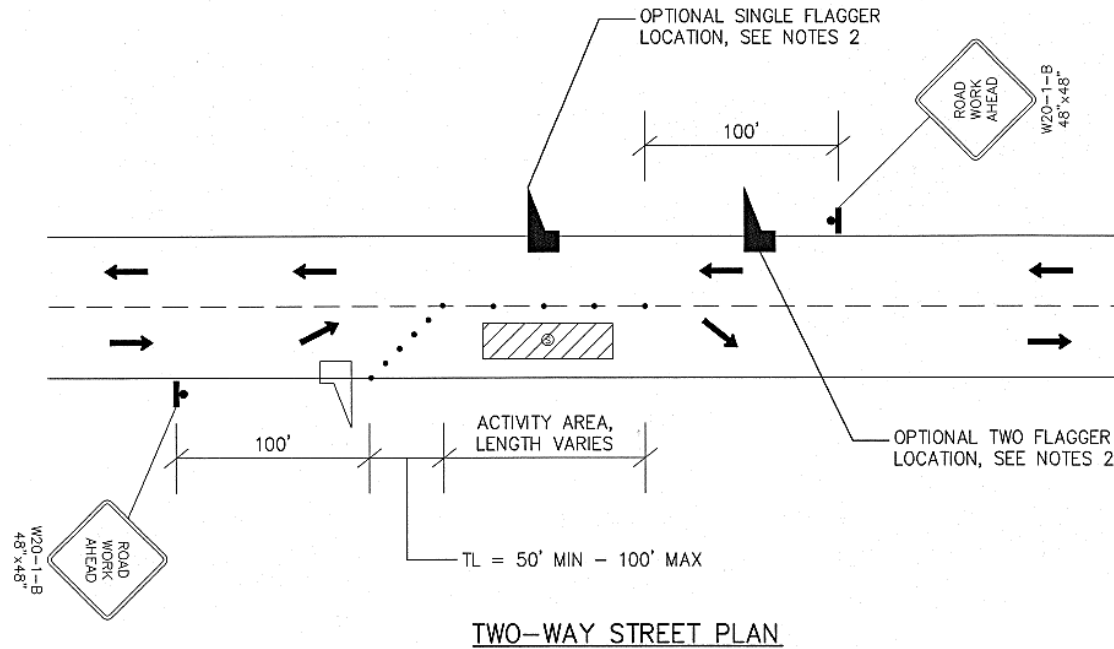
DIRECTION OF TRAFFIC
TEMPORARY TRAFFIC SIGN
WORK AREA
PAVEMENT STRIPE
ARROW PANEL
PLASTIC DRUM
(CHANNELIZING DEVICE)
FLAGGER
OPTIONAL FLAGGER
TYPE 3 BARRICADE

ABBREVIATIONS/DEFINITIONS

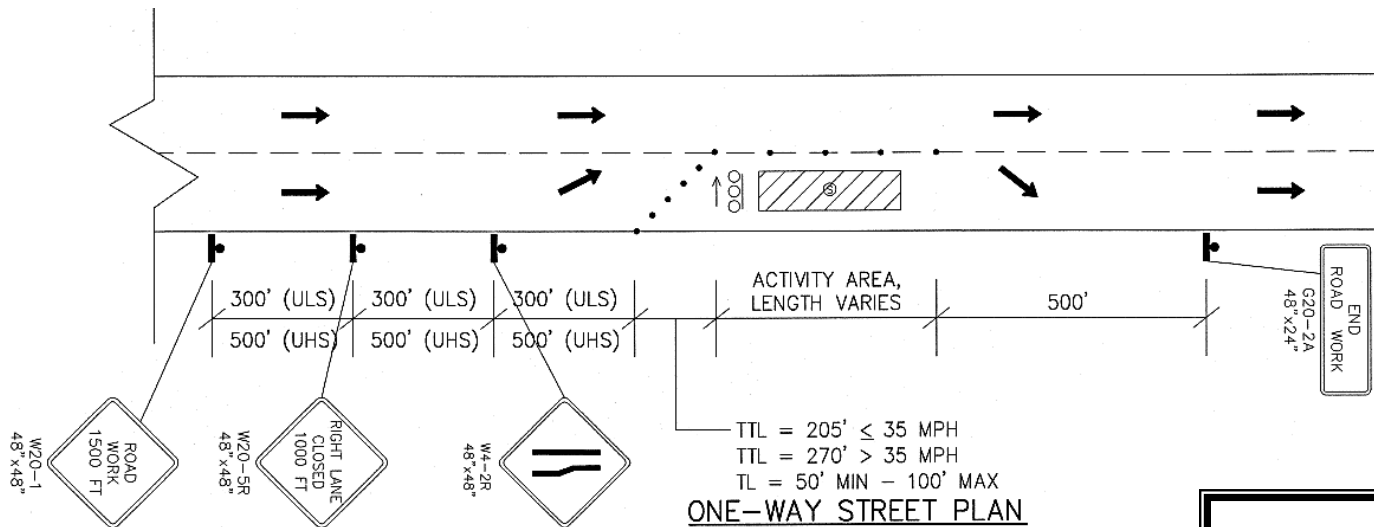
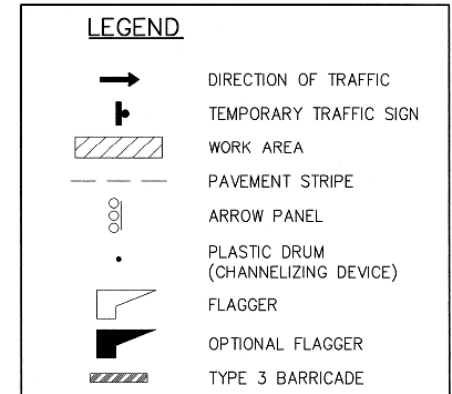
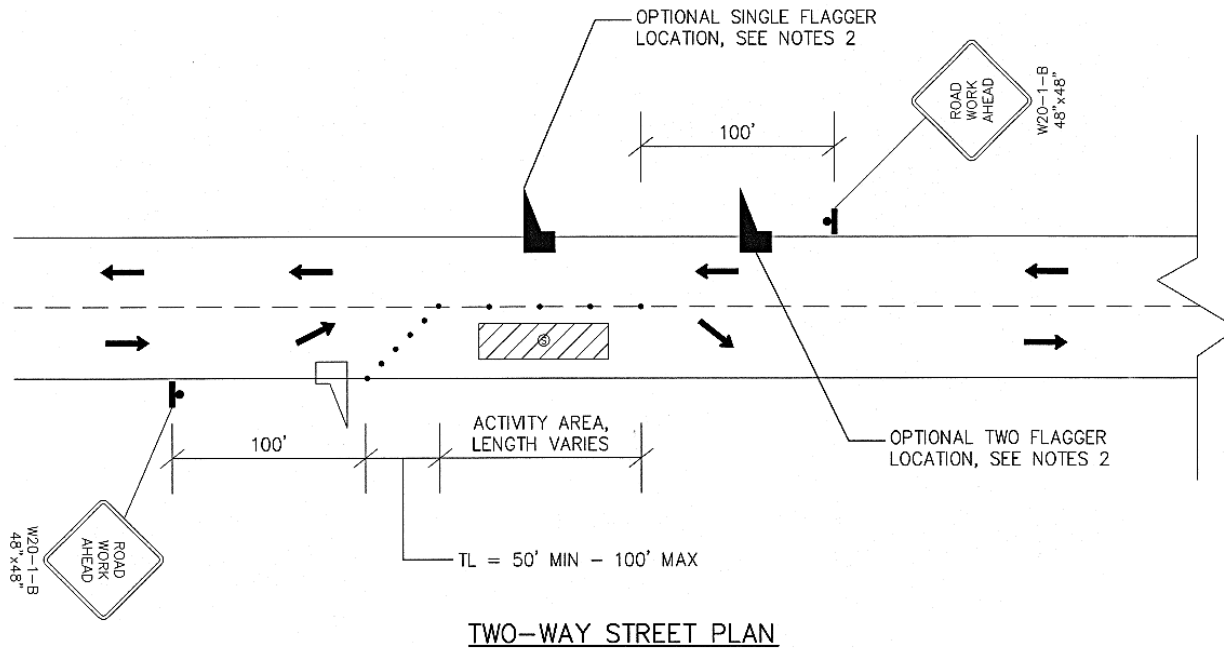
ULS	URBAN (LOW SPEED) = ZONES WHERE THE POSTED SPEED IS LESS THAN OR EQUAL TO 35 MPH
UHS	URBAN (HIGH SPEED) = ZONES WHERE THE POSTED SPEED IS GREATER THAN 35 MPH
TTL	TAPER/TERMINATION LENGTH = TRANSITION OF CHANNELIZING DEVICES BEFORE/AFTER ACTIVITY AREAS $L = \frac{WS^2}{60}$ 40 MPH OR LESS $L = WS$ 45 MPH OR GREATER
LOW VOLUME	ZONES WHERE AVERAGE ANNUAL DAILY TRAFFIC VOLUMES ARE LESS THAN 400

MOT OPTION 1
2 LANE - 2 WAY STREETS

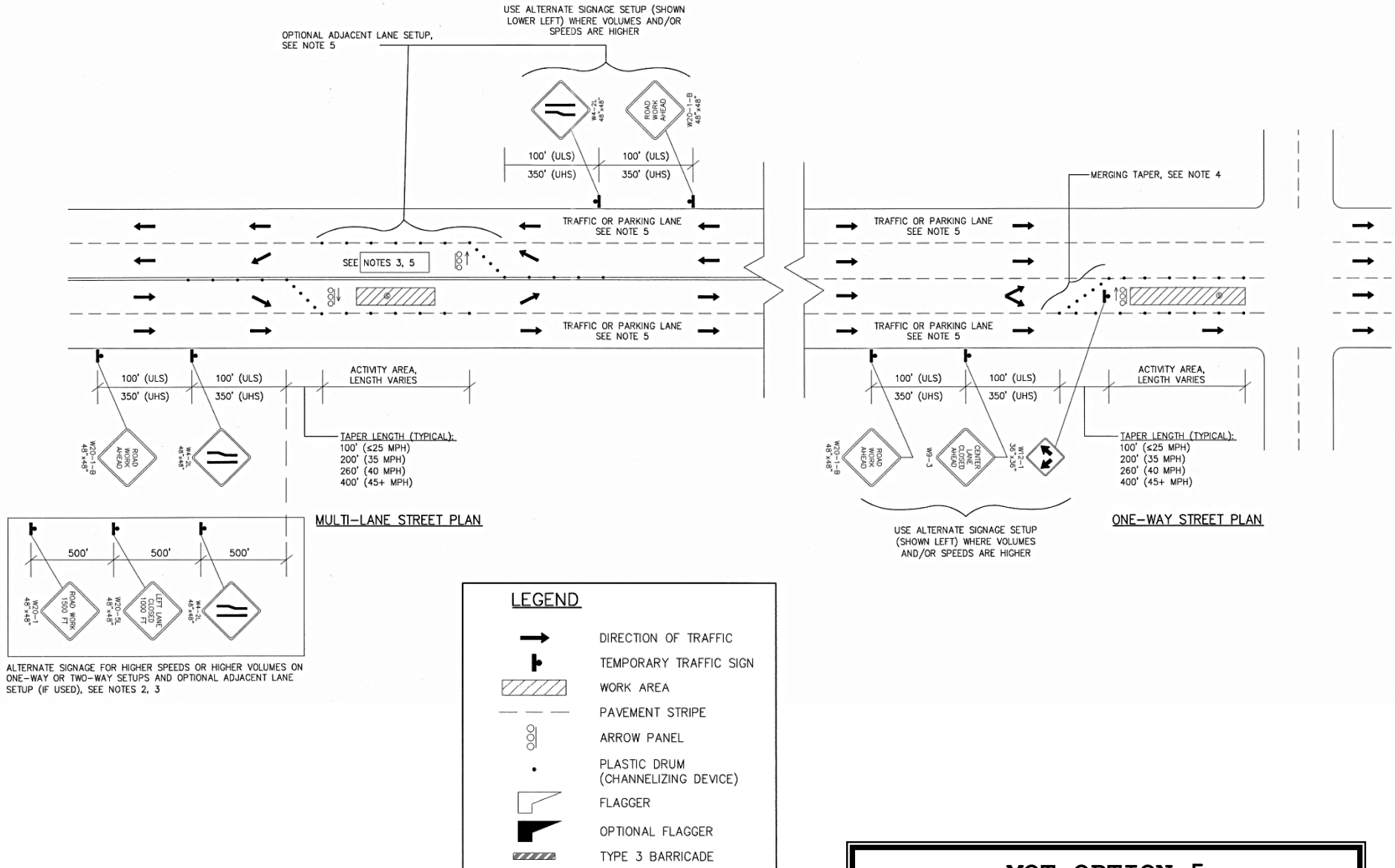




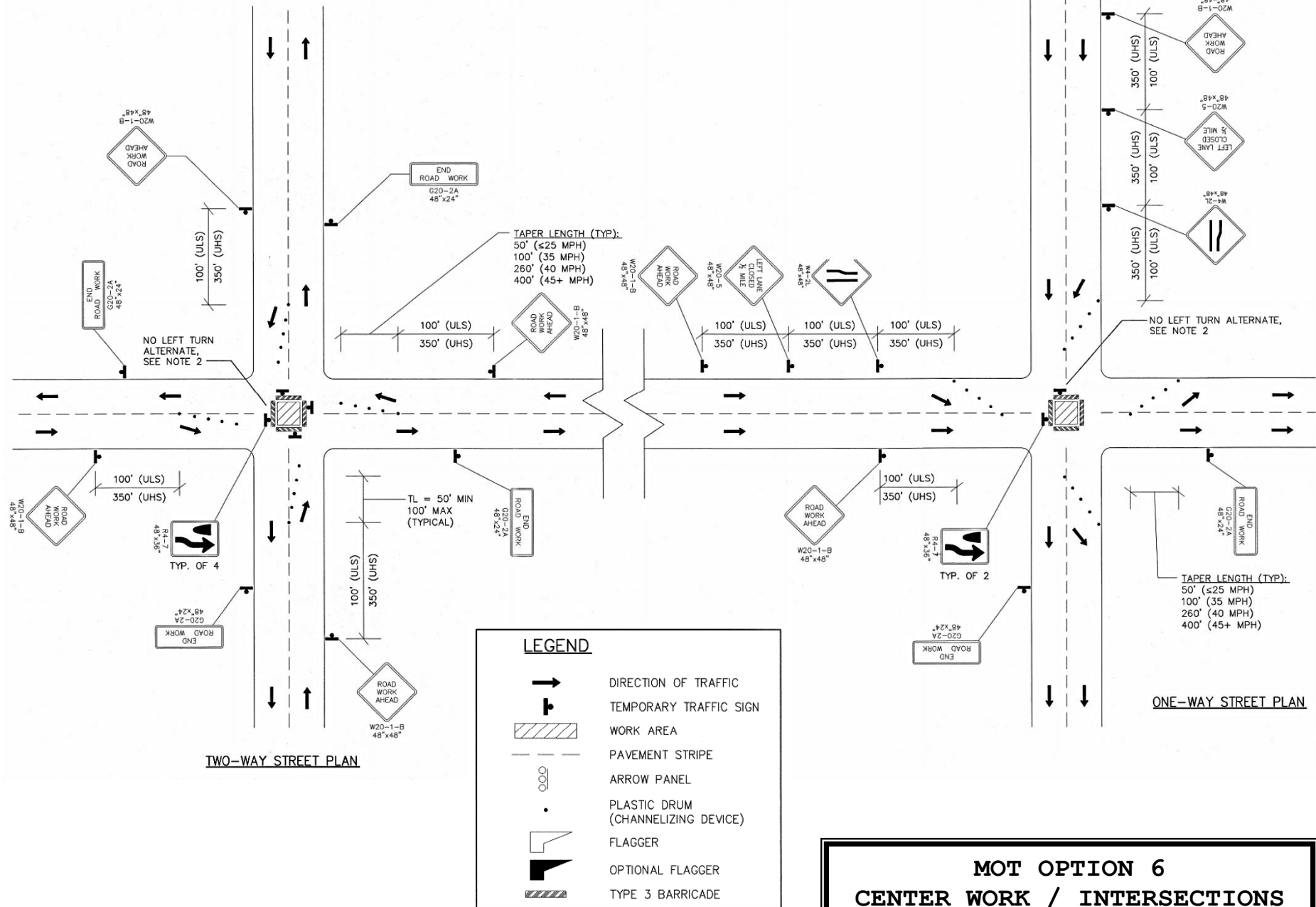
MOT OPTION 3
TWO / ONE WAY LOW TRAFFIC

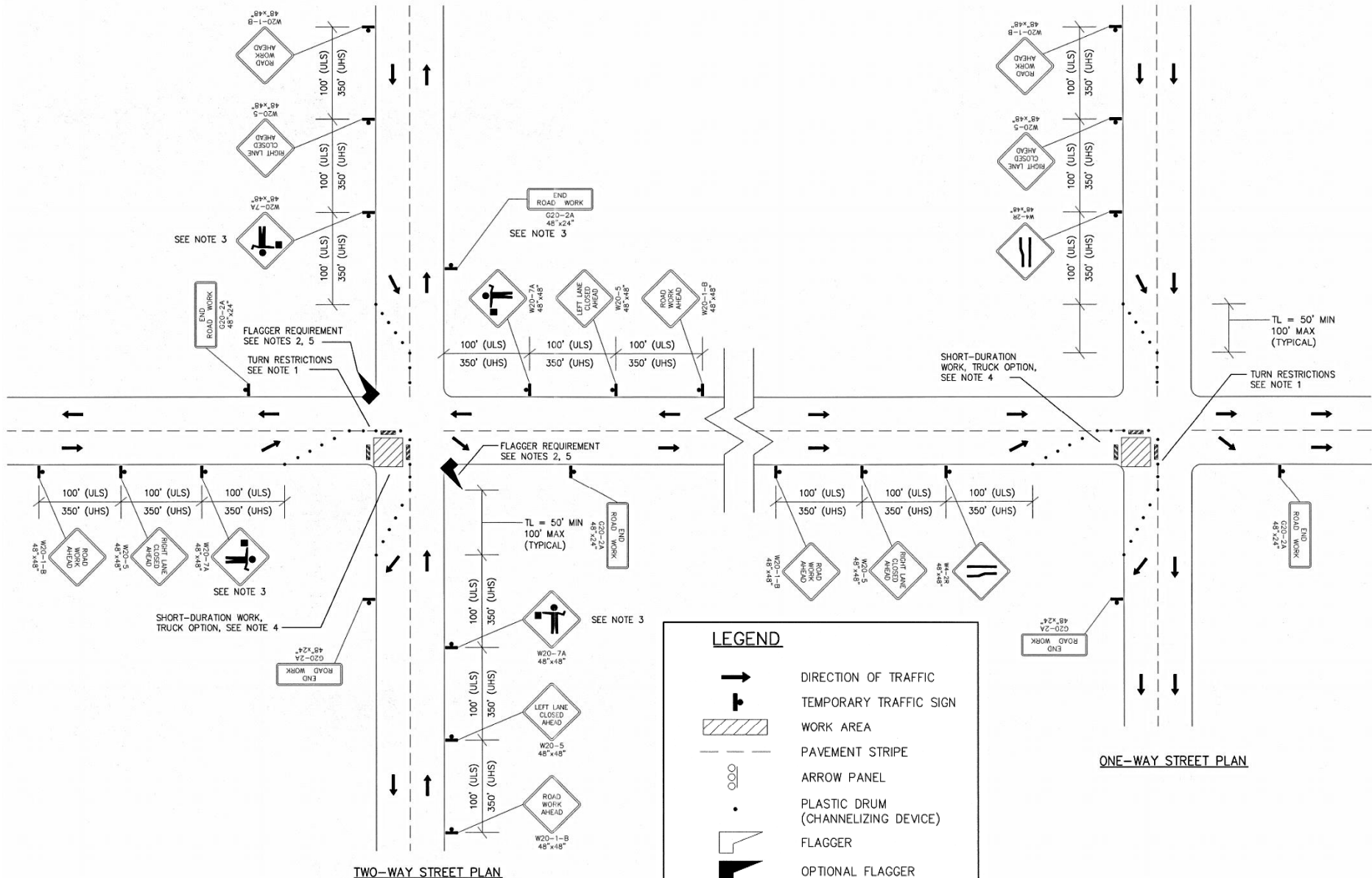


MOT OPTION 4
CENTER WORK / TWO LANE

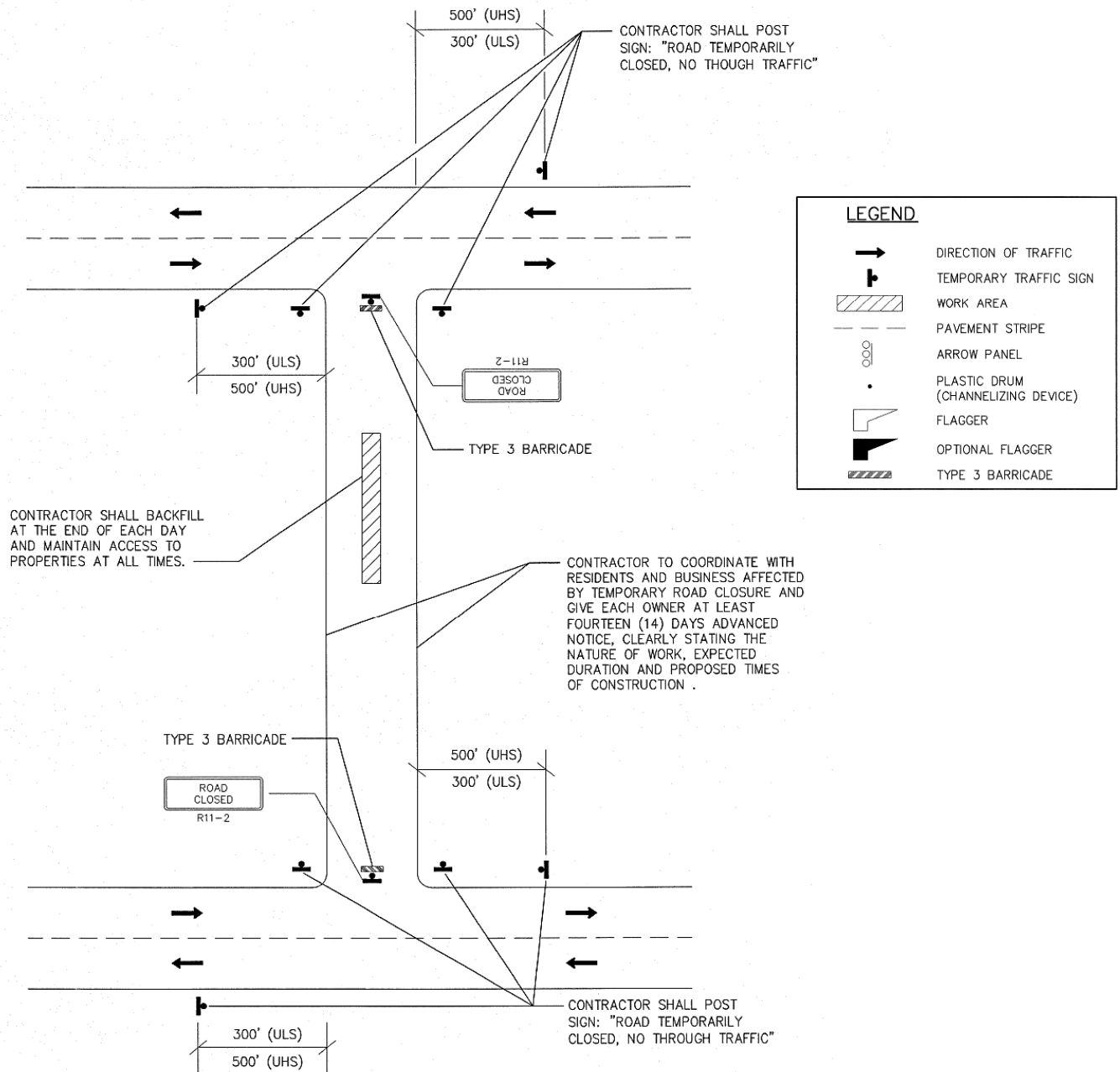


MOT OPTION 5
CENTER WORK / FOUR LANE





**MOT OPTION 7
SIDE WORK /**



**MOT OPTION 8
ROAD CLOSURE**

STANDARD TRAFFIC CONTROL DETAILS**INDEX**

Standard Detail	Title
BC 104.01-1	Guidelines for Temporary Traffic Control
BC 104.01-2	Temporary Traffic Control Plan Preparation and Requirements
BC 104.01-3	Temporary Traffic Control Plan Preparation and Requirements
BC 104.01-4	Sign Spacing, Taper and Buffer Lengths Criteria
BC 104.01-5	Portable Variable Message Sign Placement
BC 104.01-6	Barrier Delineation Barrier 4' or Closer to Edge Line
BC 104.01-7	Barrier Delineation Barrier between 4' and 15' from Edge Line
BC 104.02-10	Flagging Operation/2-Lane, 2-Way Equal/Less Than 40 mph
BC 104.02-12	Bypass Detour/2-Lane, 2-Way Equal/Less Than 40 mph/Over 12 Hrs. or Nighttime Use
BC 104.02-14	Intersection Flagging Operation 2-Lane, 2-Way Equal/Less Than 40 mph
BC 104.02-2	Shoulder Work / 2-Lane, 2 Way Equal or Less Than 40 mph
BC 104.02-4	Lane Shift R or L Side / 2-Lane, 2-Way Equal or Less Than 40 mph / 15 Min. – 12 Hrs. or Daytime
BC 104.02-6	Work in Center of Low-Vol Rd 2-Lane, 2-Way/Equal/Less 40 mph/15 Min. –12 Hrs. or Daytime Only
BC 104.02-8	Lane Shift for Complete Travel Way Blockage/2-Ln,2-Way Equal/Less Than 40 mph/15 Min.–12 Hrs. or Daytime Only
BC 104.03-10	Intersection Far-Left Lane Closure/Multilane Undivided Equal/Less Than 40 mph
BC 104.03-12	Intersection Far-Right Lane Closure/Multilane Undivided Equal/Less Than 40 mph
BC 104.03-14	Intersection Far-Side Lane Closure/Multilane Undivided Equal/Less Than 40 mph
BC 104.03-2	Shoulder Work/Multilane Undivided Equal/Less Than 40 mph
BC 104.03-4	Left Lane Closure/Multilane Undivided Equal/Less Than 40 mph
BC 104.03-6	Right Lane Closure/Multilane Undivided Equal/Less Than 40 mph
BC 104.03-8	Partial Roadway Closure/Multilane Undivided Equal/Less Than 40 mph
BC 104.04-12	Roadway Closure / Divided Unconnected Equal/Less Than 40 mph/ 12 Hrs. or Nighttime Use
BC 104.04-14	Left Turn Bay Closure / Divided Unconnected Equal/Less Than 40 mph
BC 104.04-16	Intersection (Left Lane, Turn Bay) Closure / Divided Unconnected Equal/Less Than 40 mph
BC 104.04-2	Shoulder Work / Divided Unconnected Equal/Less Than 40 mph
BC 104.04-4	Left Lane Closure / Divided Unconnected Equal/Less Than 40 mph
BC 104.04-6	Right Lane Closure / Divided Unconnected Equal/Less Than 40 mph
BC 104.04-8	Center Lane Closure / Divided Unconnected Equal/Less Than 40 mph
BC 104.05	Precast Temporary 32" F Shape Concrete Traffic Barrier (Pin and Loop Joint)
BC 104.05-1	Precast Temporary 32" F Shape Concrete Traffic Barrier (Pin and Loop Joint)
BC 104.06-5	Pedestrian and Curb Lane Control/ Multilane Undivided, All Speeds/Over 12 hrs. or Nighttime Use
BC 104.10-1	Precast Concrete Barrier (Typical Panel)
BC 104.10-2	Precast Concrete Barrier (Section A-A)
BC 104.10-3	Precast Concrete Barrier Flasher Bracket Details
BC 111.01	Traffic Control for Work Activity Off The Road
BC 112.01	Traffic Control for Partial Lane Closure
BC 112.02 2	Right (Left) Lanes Closure / Divided Uncontrolled
BC 114.01	Traffic Control for Two-Way Left Turn Lane Closure
BC 115.01	Flagging Control at 3-Leg Intersection (1)
BC 115.02	Flagging Control at 3-Leg Intersection (2)
BC 115.03	Flagging Control at 3-Leg Intersection (3)
BC 115.04	Flagging Control at 3-Leg Intersection (4)
BC 115.05	Flagging Control at 3-Leg Intersection, Far-Side Closure

BC 116.01	Traffic Control for Right Turn Lane Closure
BC 117.01	Pedestrian Control for Sidewalk Bypass
BC 117.01-1	Ped and Curb-Lane Contr/Multilane Undiv, Less Than or Equal to 40 mph/Over 12 Hrs. or Nighttime
BC 117.01-2	Ped and Curb-Lane Contr/Multilane Undiv, Less Than or Equal to 40 mph/Over 12 Hrs. or Nighttime
BC 117.01-3	Ped and Curb-Lane Contr/Multilane Undiv, Less Than or Equal to 40 mph/Over 12 Hrs. or Nighttime
BC 117.01-4	Ped and Curb-Lane Contr/Multilane Undiv, Less Than or Equal to 40 mph/Over 12 Hrs. or Nighttime

Standard Details can be downloaded from the DOT website site:

<http://apps.baltimorecity.gov/transportation/bookofstandards/Documents.aspx?cid=1>

E. EXTRA WORK CERTIFICATION**CITY OF BALTIMORE
DEPARTMENT OF PUBLIC WORKS**CONTRACT NUMBER: SC No. 1002R**PROJECT:
CLEANING AND INSPECTION OF SANITARY SEWERS
IN BALTIMORE CITY - CITYWIDE**DATE: _____
(Preferably as of end of month)

To the Director of Finance:

In reference to the above referenced contract, we hereby certify that as of the above date no extra work or other conditions that would give rise to additional costs have been authorized either in writing, verbally, or otherwise except that which is represented by fully executed Change Orders Expenditure Authorization Requests and that as of the above date we are not aware of any condition that would give rise to any additional claim upon the Mayor and City Council of Baltimore in reference to the above project, EXCEPT AS FOLLOWS:

Sample Only

CERTIFIED CORRECT:

Name of Contractor_____
Date of CertificationBy: _____
Authorized Signature**THIS FORM MUST ACCOMPANY ALL REQUESTS FOR PAYMENTS.**

SUBCONTRACTOR'S ACKNOWLEDGEMENT
OF PROGRESS PAYMENT

NOTICE: THIS DOCUMENT STATES THAT YOU HAVE BEEN PAID FOR PERFORMING CERTAIN SERVICES. PLEASE READ IT CAREFULLY BEFORE SIGNING.

Estimate Number: _____ Estimate Period: _____

The undersigned has been paid and has received a progress payment in the amount of

\$ _____ for the period ranging from _____ to _____ and
\$ _____ has been paid to date for labor, services, equipment, or
materials furnished to

(Name of General Contractor)

on the following contract of the Mayor and City Council of Baltimore:

SANITARY CONTRACT NO. 1002R

Is your company's work on this contract completed _____ Yes _____ No

Subcontractor Name (Company)

MBE / WBE / SUB
Business Type (Circle one)

By: _____
Subcontractor Representative Name (Signature)

Date

Subcontractor Representative Name (Printed)

Subcontractor Representative Title

**THIS FORM MUST ACCOMPANY ALL REQUESTS FOR
PAYMENTS.**

NOTE: NO INFORMATION OTHER THAN THAT INCLUDED IN OR ATTACHED TO THIS ORIGINAL BID DOCUMENT (WHERE SUCH ATTACHMENT IS PERMITTED) WILL BE USED IN DETERMINING AWARD.

ORIGINAL (NOT TO BE DETACHED)
NOTICE TO BIDDERS

**CITY OF BALTIMORE
DEPARTMENT OF PUBLIC WORKS
OFFICE OF ASSET MANAGEMENT**

THE COMPLETE (ORIGINAL)
CONTRACT BOOK AND
DUPLICATE OF BID OR
PROPOSAL MUST BE
INCLUDED IN THE
BID ENVELOPE

SANITARY CONTRACT NO. 1002R

III. BID OR PROPOSAL

Bids Due: **April 20, 2022**

Certified Check or Bank Cashier's Check or Bank Treasurer's Check or Bid Bond Equal to Two Percent (2%) of the Total Bid Submitted.

Days of Completion **730** Consecutive Calendar Days

Liquidated Damages **\$500** per Calendar day

Made this _____ day of _____ 20____

By _____
(Name)

(Address)

The Bidder shall sign below to signify the following:

I/We have received Addendum Nos. _____
for this Contract.

Signature and Title

To The Board of Estimates of Baltimore City:

I/We the undersigned Contractor, have familiarized myself/ourselves with the Requirements and Stipulations of the Contract Documents, and the site of the proposed work, and fully understand and appreciate the extent and character of the work to be done under the Contract.

SCHEDULE OF PRICES

NOTE: THIS SHALL BE FILLED IN BY THE BIDDER WITH THE PRICES WRITTEN IN WORDS AND NUMERALS, AND THE EXTENSIONS SHALL BE MADE BY HIM, FOR COMPLETE INFORMATION CONCERNING THESE ITEMS SEE SPECIFICATIONS SPECIAL PROVISION, AND CONTRACT FORM

ITEM NOS.	APPROXIMATE QUANTITIES	DESCRIPTION OF ITEMS AND PRICES BID (IN WRITTEN WORDS)	UNIT PRICE		AMOUNTS	
			DOLLARS	.CTS	DOLLARS	.CTS
101	50	SQUARE FEET OF ----- TEMPORARY TRAFFIC SIGNS AT _____ PER SQ. FT.	_____	_____	_____	_____
102	10	EACH OF ----- PLASTIC TRAFFIC CONTROL DRUMS AT _____ PER EACH	_____	_____	_____	_____
103	10	DAYS OF ----- ARROW PANELS AT _____ PER DAY	_____	_____	_____	_____
104	2	DAYS OF ----- PORTABLE VARIABLE MESSAGE SIGNS (PVMS) AT _____ PER DAY	_____	_____	_____	_____
105	25	DAYS OF ----- FLAGGER FOR TRAFFIC CONTROL AT _____ PER DAY	_____	_____	_____	_____

SCHEDULE OF PRICES

NOTE: THIS SHALL BE FILLED IN BY THE BIDDER WITH THE PRICES WRITTEN IN WORDS AND NUMERALS, AND THE EXTENSIONS SHALL BE MADE BY HIM.
 FOR COMPLETE INFORMATION CONCERNING THESE ITEMS SEE SPECIFICATIONS SPECIAL PROVISION, AND CONTRACT FORM

ITEM NOS.	APPROXIMATE QUANTITIES	DESCRIPTION OF ITEMS AND PRICES BID (IN WRITTEN WORDS)	UNIT PRICE		AMOUNTS	
			DOLLARS	.CTS	DOLLARS	.CTS
106	1	ALLOWANCE ----- FOR RAILROAD PROTECTIVE LIABILITY INSURANCE AT _____ ALLOWANCE	\$12,500	00	\$12,500	00
107	1	ALLOWANCE ----- FOR RAILROAD PERMIT TO ENTER AGREEMENTS AT _____ ALLOWANCE	\$10,000	00	\$10,000	00
108		NOT USED				
		END OF CATEGORY NO. 1 NO ALTERNATES				

SCHEDULE OF PRICES

NOTE: THIS SHALL BE FILLED IN BY THE BIDDER WITH THE PRICES WRITTEN IN WORDS AND NUMERALS, AND THE EXTENSIONS SHALL BE MADE BY HIM FOR COMPLETE INFORMATION CONCERNING THESE ITEMS SEE SPECIFICATIONS SPECIAL PROVISION, AND CONTRACT FORM

ITEM NOS.	APPROXIMATE QUANTITIES	DESCRIPTION OF ITEMS AND PRICES BID (IN WRITTEN WORDS)	UNIT PRICE		AMOUNTS	
			DOLLARS	.CTS	DOLLARS	.CTS
801	175,000	LINEAR FEET OF ----- CLEANING OF 6" THROUGH 8" DIAMETER SANITARY SEWERS AT _____ PER LIN. FT.	_____	_____	_____	_____
802	18,000	LINEAR FEET OF ----- CLEANING OF 10" THROUGH 12" DIAMETER SANITARY SEWERS AT _____ PER LIN. FT.	_____	_____	_____	_____
803	5,000	LINEAR FEET OF ----- CLEANING OF 14" THROUGH 18" DIAMETER SANITARY SEWERS AT _____ PER LIN. FT.	_____	_____	_____	_____
804	1,000	LINEAR FEET OF ----- CLEANING OF 20" THROUGH 24" DIAMETER SANITARY SEWERS AT _____ PER LIN. FT.	_____	_____	_____	_____
805	1,000	LINEAR FEET OF ----- CLEANING OF 25" THROUGH 29" DIAMETER SANITARY SEWERS AT _____ PER LIN. FT.	_____	_____	_____	_____

SCHEDULE OF PRICES

NOTE: THIS SHALL BE FILLED IN BY THE BIDDER WITH THE PRICES WRITTEN IN WORDS AND NUMERALS, AND THE EXTENSIONS SHALL BE MADE BY HML FOR COMPLETE INFORMATION CONCERNING THESE ITEMS SEE SPECIFICATIONS SPECIAL PROVISION, AND CONTRACT FORM

ITEM NOS.	APPROXIMATE QUANTITIES	DESCRIPTION OF ITEMS AND PRICES BID (IN WRITTEN WORDS)	UNIT PRICE		AMOUNTS	
			DOLLARS	.CTS	DOLLARS	.CTS
806	1,000	LINEAR FEET OF ----- CLEANING OF 30" THROUGH 34" DIAMETER SANITARY SEWERS AT _____ PER LIN. FT.	_____	_____	_____	_____
807	59	EACH OF ----- FIRST 9 FEET OF PHYSICALLY ATTACHED SOLID DEBRIS CUTTING – CONTINUOUS OR CUMULATIVE DEFECT FOR 6" THROUGH 18" DIAMETER SANITARY SEWERS AT _____ PER EACH	_____	_____	_____	_____
808	210	LINEAR FEET OF ----- ADDITIONAL SOLID DEBRIS CUTTING – CONTINUOUS OR CUMULATIVE DEFECT FOR 6" THROUGH 18" DIAMETER SANITARY SEWERS AT _____ PER LIN. FT.	_____	_____	_____	_____
809	59	EACH OF ----- POINT LOCATION SOLID DEBRIS CUTTING – AT PIPE JOINTS AND SERVICES FOR 6" THROUGH 18" DIAMETER SANITARY SEWERS AT _____ PER EACH	_____	_____	_____	_____
810	27	EACH OF ----- REMOVING INTRUDING SEWER TAPS – FOR 6" THROUGH 18" DIAMETER MAINLINE SANITARY SEWERS AT _____ PER EACH	_____	_____	_____	_____

SCHEDULE OF PRICES

NOTE: THIS SHALL BE FILLED IN BY THE BIDDER WITH THE PRICES WRITTEN IN WORDS AND NUMERALS, AND THE EXTENSIONS SHALL BE MADE BY HNL FOR COMPLETE INFORMATION CONCERNING THESE ITEMS SEE SPECIFICATIONS SPECIAL PROVISION, AND CONTRACT FORM

ITEM NOS.	APPROXIMATE QUANTITIES	DESCRIPTION OF ITEMS AND PRICES BID (IN WRITTEN WORDS)	UNIT PRICE		AMOUNTS	
			DOLLARS	.CTS	DOLLARS	.CTS
811	30	EACH OF ----- REMOVAL OF EXCESSIVE GREASE AND OR ROOTS PER SEWER SEGMENT FOR 6" THROUGH 18" DIAMETERS AT _____ PER EACH	_____	_____	_____	_____
812	1	EACH OF ----- FIRST 9 FEET OF PHYSICALLY ATTACHED SOLID DEBRIS CUTTING – CONTINUOUS OR CUMULATIVE DEFECT FOR 20" THROUGH 34" DIAMETER SANITARY SEWERS AT _____ PER EACH	_____	_____	_____	_____
813	3	LINEAR FEET OF ----- ADDITIONAL SOLID DEBRIS CUTTING – CONTINUOUS OR CUMULATIVE DEFECT FOR 20" THROUGH 34" DIAMETER SANITARY SEWERS AT _____ PER LIN. FT.	_____	_____	_____	_____
814	1	EACH OF ----- POINT LOCATION SOLID DEBRIS CUTTING – AT PIPE JOINTS AND SERVICES FOR 20" THROUGH 34" DIAMETER SANITARY SEWERS AT _____ PER EACH	_____	_____	_____	_____
815	1	EACH OF ----- REMOVING INTRUDING SEWER TAPS – FOR 20" THROUGH 34" MAINLINE DIAMETER SANITARY SEWERS AT _____ PER EACH	_____	_____	_____	_____

SCHEDULE OF PRICES

NOTE: THIS SHALL BE FILLED IN BY THE BIDDER WITH THE PRICES WRITTEN IN WORDS AND NUMERALS, AND THE EXTENSIONS SHALL BE MADE BY HIM FOR COMPLETE INFORMATION CONCERNING THESE ITEMS SEE SPECIFICATIONS SPECIAL PROVISION, AND CONTRACT FORM

ITEM NOS.	APPROXIMATE QUANTITIES	DESCRIPTION OF ITEMS AND PRICES BID (IN WRITTEN WORDS)	UNIT PRICE		AMOUNTS	
			DOLLARS	.CTS	DOLLARS	.CTS
816	1	EACH OF ----- REMOVAL OF EXCESSIVE GREASE AND OR ROOTS PER SEWER SEGMENT FOR 20" THROUGH 34" DIAMETERS AT _____ PER EACH	_____	_____	_____	_____
817	175,000	LINEAR FEET OF ----- CCTV INSPECTION FOR 6" THROUGH 8" DIAMETER SANITARY SEWERS AT _____ PER LIN. FT.	_____	_____	_____	_____
818	18,000	LINEAR FEET OF ----- CCTV INSPECTION FOR 10" THROUGH 12" DIAMETER SANITARY SEWERS AT _____ PER LIN. FT.	_____	_____	_____	_____
819	5,000	LINEAR FEET OF ----- CCTV INSPECTION FOR 14" THROUGH 18" DIAMETER SANITARY SEWERS AT _____ PER LIN. FT.	_____	_____	_____	_____
820	1,000	LINEAR FEET OF ----- CCTV INSPECTION FOR 20" THROUGH 24" DIAMETER SANITARY SEWERS AT _____ PER LIN. FT.	_____	_____	_____	_____

NOTE: THIS SHALL BE FILLED IN BY THE BIDDER WITH THE PRICES WRITTEN IN WORDS AND NUMERALS, AND THE EXTENSIONS SHALL BE MADE BY HIM, FOR COMPLETE INFORMATION CONCERNING THESE ITEMS SEE SPECIFICATIONS SPECIAL PROVISION, AND CONTRACT FORM

SCHEDULE OF PRICES

ITEM NOS.	APPROXIMATE QUANTITIES	DESCRIPTION OF ITEMS AND PRICES BID (IN WRITTEN WORDS)	UNIT PRICE		AMOUNTS	
			DOLLARS	.CTS	DOLLARS	.CTS
821	1,000	LINEAR FEET OF ----- CCTV INSPECTION FOR 25" THROUGH 29" DIAMETER SANITARY SEWERS AT _____ PER LIN. FT.	_____	_____	_____	_____
822	1,000	LINEAR FEET OF ----- CCTV INSPECTION FOR 30" THROUGH 34" DIAMETER SANITARY SEWERS AT _____ PER LIN. FT.	_____	_____	_____	_____
823	60,000	LINEAR FEET OF ----- CYCLICAL CLEANING ONLY WITH OPTIONAL SCHEDULED FOG ABATEMENT CHEMICAL USE FOR 6" THROUGH 8" DIAMETER SANITARY SEWERS. AT _____ PER LIN. FT.	_____	_____	_____	_____
824	6,000	LINEAR FEET OF ----- CYCLICAL CLEANING ONLY WITH OPTIONAL SCHEDULED FOG ABATEMENT CHEMICAL USE FOR 10" THROUGH 12" DIAMETER SANITARY SEWERS. AT _____ PER LIN. FT.	_____	_____	_____	_____
825	800	LINEAR FEET OF ----- CYCLICAL CLEANING ONLY WITH OPTIONAL SCHEDULED FOG ABATEMENT CHEMICAL USE FOR 14" THROUGH 18" DIAMETER SANITARY SEWERS. AT _____ PER LIN. FT.	_____	_____	_____	_____

NOTE: THIS SHALL BE FILLED IN BY THE BIDDER WITH THE PRICES WRITTEN IN WORDS AND NUMERALS, AND THE EXTENSIONS SHALL BE MADE BY HIM, FOR COMPLETE INFORMATION CONCERNING THESE ITEMS SEE SPECIFICATIONS SPECIAL PROVISION, AND CONTRACT FORM

SCHEDULE OF PRICES

ITEM NOS.	APPROXIMATE QUANTITIES	DESCRIPTION OF ITEMS AND PRICES BID (IN WRITTEN WORDS)	UNIT PRICE		AMOUNTS	
			DOLLARS	.CTS	DOLLARS	.CTS
826	300,000	LINEAR FEET OF ----- ACOUSTIC INSPECTION FOR 6" THROUGH 8" DIAMETER SANITARY SEWERS AT _____ PER LIN. FT.	_____	_____	_____	_____
827	30,000	LINEAR FEET OF ----- ACOUSTIC INSPECTION FOR 10" THROUGH 12" DIAMETER SANITARY SEWERS AT _____ PER LIN. FT.	_____	_____	_____	_____
828	2,000	LINEAR FEET OF ----- LIGHT LATERAL CLEANING FROM CLEANOUT TO MAINLINES OR MANHOLES AT INDIVIDUAL OR SCATTERED LOCATIONS FOR 4" THROUGH 12" DIAMETER SEWER LATERALS AT _____ PER LIN. FT.	_____	_____	_____	_____
829	500	LINEAR FEET OF ----- HEAVY LATERAL CLEANING FROM CLEANOUT TO MAINLINES OR MANHOLES AT INDIVIDUAL OR SCATTERED LOCATIONS FOR 4" THROUGH 12" DIAMETER SEWER LATERALS AT _____ PER LIN. FT.	_____	_____	_____	_____
830	200	LINEAR FEET OF ----- SPECIALTY LATERAL CLEANING FROM CLEANOUT TO MAINLINES OR MANHOLES AT INDIVIDUAL OR SCATTERED LOCATIONS FOR 4" THROUGH 12" DIAMETER SEWER LATERALS AT _____ PER LIN. FT.	_____	_____	_____	_____

SCHEDULE OF PRICES

NOTE: THIS SHALL BE FILLED IN BY THE BIDDER WITH THE PRICES WRITTEN IN WORDS AND NUMERALS, AND THE EXTENSIONS SHALL BE MADE BY HNL FOR COMPLETE INFORMATION CONCERNING THESE ITEMS SEE SPECIFICATIONS SPECIAL PROVISION AND CONTRACT FORM

ITEM NOS.	APPROXIMATE QUANTITIES	DESCRIPTION OF ITEMS AND PRICES BID (IN WRITTEN WORDS)	UNIT PRICE		AMOUNTS	
			DOLLARS	.CTS	DOLLARS	.CTS
831	2,000	LINEAR FEET OF ----- PUSH CAMERA INSPECTION FROM CLEANOUT TO MAINLINES OR MANHOLES AT INDIVIDUAL OR SCATTERED LOCATIONS FOR 4" THROUGH 12" DIAMETER SEWER LATERALS AT _____ PER LIN. FT.	_____	_____	_____	_____
832	2,000	LINEAR FEET OF ----- LIGHT LATERAL CLEANING FROM MAINLINE OR MANHOLES TO PROPERTY LINE AT INDIVIDUAL OR SCATTERED LOCATIONS FOR 4" THROUGH 12" DIAMETER SEWER LATERALS AT _____ PER LIN. FT.	_____	_____	_____	_____
833	500	LINEAR FEET OF ----- HEAVY LATERAL CLEANING FROM MAINLINE OR MANHOLES TO PROPERTY LINE AT INDIVIDUAL OR SCATTERED LOCATIONS FOR 4" THROUGH 12" DIAMETER SEWER LATERALS AT _____ PER LIN. FT.	_____	_____	_____	_____
834	200	LINEAR FEET OF ----- SPECIALTY LATERAL CLEANING FROM MAINLINE OR MANHOLES TO PROPERTY LINE AT INDIVIDUAL OR SCATTERED LOCATIONS FOR 4" THROUGH 12" DIAMETER SEWER LATERALS AT _____ PER LIN. FT.	_____	_____	_____	_____
835	2,000	LINEAR FEET OF ----- CCTV LATERAL LAUNCH INSPECTION FROM MAINLINE OR MANHOLES TO PROPERTY LINE AT INDIVIDUAL OR SCATTERED LOCATIONS FOR 4" THROUGH 12" DIAMETER SEWER LATERALS AT _____ PER LIN. FT.	_____	_____	_____	_____

SCHEDULE OF PRICES

NOTE: THIS SHALL BE FILLED IN BY THE BIDDER WITH THE PRICES WRITTEN IN WORDS AND NUMERALS, AND THE EXTENSIONS SHALL BE MADE BY HIM, FOR COMPLETE INFORMATION CONCERNING THESE ITEMS SEE SPECIFICATIONS SPECIAL PROVISION, AND CONTRACT FORM

ITEM NOS.	APPROXIMATE QUANTITIES	DESCRIPTION OF ITEMS AND PRICES BID (IN WRITTEN WORDS)	UNIT PRICE		AMOUNTS	
			DOLLARS	.CTS	DOLLARS	.CTS
836	10,000	LINEAR FEET OF ----- LIGHT LATERAL CLEANING FROM MAINLINE OR MANHOLES TO PROPERTY LINE AT ALL LATERALS ALONG MAINLINE FOR 4" THROUGH 12" DIAMETER SEWER LATERALS AT _____ PER LIN. FT.	_____	_____	_____	_____
837	2,500	LINEAR FEET OF ----- HEAVY LATERAL CLEANING FROM MAINLINE OR MANHOLES TO PROPERTY LINE AT ALL LATERALS ALONG MAINLINE FOR 4" THROUGH 12" DIAMETER SEWER LATERALS AT _____ PER LIN. FT.	_____	_____	_____	_____
838	1,000	LINEAR FEET OF ----- SPECIALTY LATERAL CLEANING FROM MAINLINE OR MANHOLES TO PROPERTY LINE AT ALL LATERALS ALONG MAINLINE FOR 4" THROUGH 12" DIAMETER SEWER LATERALS AT _____ PER LIN. FT.	_____	_____	_____	_____
839	10,000	LINEAR FEET OF ----- CCTV LATERAL LAUNCH INSPECTION FROM MAINLINE OR MANHOLES TO PROPERTY LINE AT ALL LATERALS ALONG MAINLINE FOR 4" THROUGH 12" DIAMETER SEWER LATERALS AT _____ PER LIN. FT	_____	_____	_____	_____
840	1,300	EACH OF ----- MANHOLE CLEANING AT _____ PER EACH	_____	_____	_____	_____

SCHEDULE OF PRICES

NOTE: THIS SHALL BE FILLED IN BY THE BIDDER WITH THE PRICES WRITTEN IN WORDS AND NUMERALS, AND THE EXTENSIONS SHALL BE MADE BY HIM, FOR COMPLETE INFORMATION CONCERNING THESE ITEMS SEE SPECIFICATION'S SPECIAL PROVISION, AND CONTRACT

ITEM NOS.	APPROXIMATE QUANTITIES	DESCRIPTION OF ITEMS AND PRICES BID (IN WRITTEN WORDS)	UNIT PRICE		AMOUNTS	
			DOLLARS	.CTS	DOLLARS	.CTS
841	1,300	EACH OF ----- MANHOLE INSPECTION AT _____ PER EACH	_____	_____	_____	_____
842	1	ALLOWANCE ----- FOR DIFFICULT TO ACCESS MANHOLES AT _____ ALLOWANCE	<u>\$25.000</u>	<u>00</u>	<u>\$25.000</u>	<u>00</u>
843	200	GALLONS OF ----- FOG ABATEMENT CHEMICAL AT _____ PER GAL.	_____	_____	_____	_____
844		NOT USED	_____	_____	_____	_____
845		NOT USED	_____	_____	_____	_____

SCHEDULE OF PRICES

NOTE: THIS SHALL BE FILLED IN BY THE BIDDER WITH THE PRICES WRITTEN IN WORDS AND NUMERALS, AND THE EXTENSIONS SHALL BE MADE BY HIM, FOR COMPLETE INFORMATION CONCERNING THESE ITEMS SEE SPECIFICATIONS, SPECIAL PROVISION, AND CONTRACT FORM

ITEM NOS.	APPROXIMATE QUANTITIES	DESCRIPTION OF ITEMS AND PRICES BID (IN WRITTEN WORDS)	UNIT PRICE		AMOUNTS	
			DOLLARS	.CTS	DOLLARS	.CTS
846		NOT USED				
847		NOT USED				
848		NOT USED				
849		NOT USED				
850		NOT USED				

SCHEDULE OF PRICES

NOTE: THIS SHALL BE FILLED IN BY THE BIDDER WITH THE PRICES WRITTEN IN WORDS AND NUMERALS, AND THE EXTENSIONS SHALL BE MADE BY HIM, FOR COMPLETE INFORMATION CONCERNING THESE ITEMS SEE SPECIFICATIONS SPECIAL PROVISION, AND CONTRACT FORM.

ITEM NOS.	APPROXIMATE QUANTITIES	DESCRIPTION OF ITEMS AND PRICES BID (IN WRITTEN WORDS)	UNIT PRICE		AMOUNTS	
			DOLLARS	.CTS	DOLLARS	.CTS
851		NOT USED				
852		NOT USED				
853		NOT USED				
854		NOT USED				
855		NOT USED				

SCHEDULE OF PRICES

NOTE: THIS SHALL BE FILLED IN BY THE BIDDER WITH THE PRICES WRITTEN IN WORDS AND NUMERALS, AND THE EXTENSIONS SHALL BE MADE BY HIM FOR COMPLETE INFORMATION CONCERNING THESE ITEMS SEE SPECIFICATIONS SPECIAL PROVISION, AND CONTRACT FORM

ITEM NOS.	APPROXIMATE QUANTITIES	DESCRIPTION OF ITEMS AND PRICES BID (IN WRITTEN WORDS)	UNIT PRICE		AMOUNTS	
			DOLLARS	.CTS	DOLLARS	.CTS
856		NOT USED				
857		NOT USED				
858		NOT USED				
859		NOT USED				
860		NOT USED				

SCHEDULE OF PRICES

NOTE: THIS SHALL BE FILLED IN BY THE BIDDER WITH THE PRICES WRITTEN IN WORDS AND NUMERALS, AND THE EXTENSIONS SHALL BE MADE BY HIM FOR COMPLETE INFORMATION CONCERNING THESE ITEMS SEE SPECIFICATIONS SPECIAL PROVISION, AND CONTRACT FORM

ITEM NOS.	APPROXIMATE QUANTITIES	DESCRIPTION OF ITEMS AND PRICES BID (IN WRITTEN WORDS)	UNIT PRICE		AMOUNTS	
			DOLLARS	.CTS	DOLLARS	.CTS
861		NOT USED				
862		NOT USED				
863		NOT USED				
864		NOT USED				
865		NOT USED				

SCHEDULE OF PRICES

NOTE: THIS SHALL BE FILLED IN BY THE BIDDER WITH THE PRICES WRITTEN IN WORDS AND NUMERALS, AND THE EXTENSIONS SHALL BE MADE BY HIM. FOR COMPLETE INFORMATION CONCERNING THESE ITEMS SEE SPECIFICATIONS, SPECIAL PROVISION, AND CONTRACT FORM

ITEM NOS.	APPROXIMATE QUANTITIES	DESCRIPTION OF ITEMS AND PRICES BID (IN WRITTEN WORDS)	UNIT PRICE		AMOUNTS	
			DOLLARS	.CTS	DOLLARS	.CTS
866		NOT USED				
867		NOT USED				
868		NOT USED				
869		NOT USED				

NOTE: THIS SHALL BE FILLED IN BY THE BIDDER WITH THE PRICES WRITTEN IN WORDS AND NUMERALS, AND THE EXTENSIONS SHALL BE MADE BY HIM, FOR COMPLETE INFORMATION CONCERNING THESE ITEMS SEE SPECIFICATIONS SPECIAL PROVISION, AND CONTRACT FORM

SCHEDULE OF PRICES

ITEM NOS.	APPROXIMATE QUANTITIES	DESCRIPTION OF ITEMS AND PRICES BID (IN WRITTEN WORDS)	UNIT PRICE			
			DOLLARS	.CTS	DOLLARS	.CTS
870		NOT USED				
871		NOT USED				
901	1	ALLOWANCE ----- FOR MISCELLANEOUS AT _____ ALLOWANCE	\$320,000	00	\$320,000	00
END OF LISTED BID ITEMS						
PROPOSED TOTAL AMOUNT FOR PROJECT (REPRESENTED IN WRITTEN WORD)			PROPOSED TOTAL AMOUNT FOR PROJECT (REPRESENTED NUMERICALLY)			
TOTAL BID			\$ _____ . _____			

The foregoing prices are to include and cover the furnishing of all materials and labor requisite and proper, and the providing of all necessary machinery, tools, apparatus and means for performing the work and the doing of all the above mentioned work as set forth and described in the Contract Documents.

Note: Each and every person Bidding and Named above must sign here.

In case of Firms, give the first and last name of each member, in full, with Title.

In case a Bid shall be submitted by or in behalf of any Corporation, it must be signed in the name of such Corporation by some authorized Officer or Agent, thereof, who shall also subscribe his Name and Title. If practicable, the Seal of the Corporation shall be affixed.

In case a Bid shall be submitted by a joint venture ("JV"), the document that established the JV must be submitted with the bid for verification purposes, and Officers or Agents of all of the firms that are part of the Joint Venture must sign below as acknowledgement of their participation in this bid.

WITNESS _____ (SIGNED) _____

(TITLE) _____

WITNESS _____ (SIGNED) _____

(TITLE) _____

WITNESS _____ (SIGNED) _____

(TITLE) _____

A. BID/PROPOSAL AFFIDAVIT

INSTRUCTIONS: The following Bid/Proposal Affidavit is a material and integral part of this Bid. Each Bidder shall read it carefully and enter all information required therein prior to executing it before a Notary Public. Failure to properly complete and execute this Bid/Proposal Affidavit will cause your bid to be found non-responsive and it will be rejected by the Board of Estimates.

1. AUTHORIZED REPRESENTATIVE

I HEREBY AFFIRM THAT:

I am the (title) _____ and the duly authorized representative of (business name) _____ and that I possess the legal authority to make this Affidavit on behalf of myself and the business for which I am acting.

2. AFFIRMATION REGARDING BRIBERY CONVICTIONS

I FURTHER AFFIRM THAT:

Neither I, nor to the best of my knowledge, information, and belief, the above business (as is defined in Section 16-101(b) of the State Finance and Procurement Article of the Annotated Code of Maryland), or any of its officers, directors, partners, controlling stockholders, or any of its employees directly involved in the business's contracting activities including obtaining or performing contracts with public bodies has been convicted of, or has had probation before judgment imposed pursuant to Criminal Procedure Article, §6-220, Annotated Code of Maryland, or has pleaded nolo contendere to a charge of, bribery, attempted bribery, or conspiracy to bribe in violation of Maryland law, or of the law of any other state or federal law, **except** as follows (indicate the reasons why the affirmation cannot be given and list any conviction, plea, or imposition of probation before judgment with the date, court, official or administrative body, the sentence or disposition, the name(s) of person(s) involved, and their current positions and responsibilities with the business):

3. AFFIRMATION REGARDING OTHER CONVICTIONS

I FURTHER AFFIRM THAT:

Neither I, nor to the best of my knowledge, information, and belief, the above business, or any of its officers, directors, partners, controlling stockholders, or any of its employees directly involved in the business's contracting activities including obtaining or performing contracts with public bodies has:

(1) Been convicted under state or federal statute of:

(a) A criminal offense incident to obtaining, attempting to obtain, or performing a public or private contract; or

(b) Fraud, embezzlement, theft, forgery, false pretenses, falsification or destruction of records or receiving stolen property;

(2) Been convicted of any criminal violation of a state or federal antitrust statute;

(3) Been convicted under the provisions of Title 18 of the United States Code for violation of the Racketeer Influenced and Corrupt Organization Act, 18 U.S.C. §1961 et seq., or the Mail Fraud Act, 18 U.S.C. §1341 et seq., for acts in connection with the submission of bids or proposals for a public or private contract;

(4) Been convicted of a violation of the State Minority Business Enterprise law, §14-308 of the State Finance and Procurement Article of the Annotated Code of Maryland;

(5) Been convicted of a violation of the City of Baltimore's Minority and Women's and Business Enterprises Law, Baltimore City Code, Article 5, Subtitle 28;

(6) Been convicted of a conspiracy to commit any act or omission that would constitute grounds for conviction or liability under any law or statute described in subsections (1)-(5) above;

(7) Been found civilly liable under a state or federal antitrust statute for acts or omissions in connection with the submission of bids or proposals for a public or private contract; or

(8) Admitted in writing or under oath, during the course of an official investigation or other proceedings, acts or omissions that would constitute grounds for conviction or liability under any law or statute described in §§B and C(1)-(7) above, **except** as follows (indicate reasons why the affirmations cannot be given, and list any conviction, plea, or imposition of probation before judgment with the date, court, official or administrative body, the sentence or disposition, the name(s) of the person(s) involved and their current positions and responsibilities with the business, and the status of any debarment):

4. AFFIRMATION REGARDING DEBARMENT

I FURTHER AFFIRM THAT:

Neither I, nor to the best of my knowledge, information, and belief, the above business, or any of its officers, directors, partners, controlling stockholders, or any of its employees directly involved in the business's contracting activities, including obtaining or performing contracts with public bodies, has ever been suspended,

or debarred (including being issued a limited denial of participation) by any public entity, **except** as follows (list each debarment or suspension providing the dates of the suspension or debarment, the name of the public entity and the status of the proceedings, the name(s) of the person(s) involved and their current positions and responsibilities with the business, the grounds of the debarment or suspension, and the details of each person's involvement in any activity that formed the grounds of the debarment or suspension).

5. AFFIRMATION REGARDING DEBARMENT OF RELATED ENTITIES

I FURTHER AFFIRM THAT:

(1) The business was not established and it does not operate in a manner designed to evade the application of or defeat the purpose of debarment pursuant to Sections 16-101, et seq., of the State Finance and Procurement Article of the Annotated Code of Maryland and/or Article 5, Subtitle 40, of the Baltimore City Code; and

(2) The business is not a successor, assignee, subsidiary, or affiliate of a suspended or debarred business **except** as follows (you must indicate the reasons why the affirmation cannot be given without qualification):

6. AFFIRMATION REGARDING COLLUSION

I FURTHER AFFIRM THAT:

Neither I, nor to the best of my knowledge, information, and belief, the above business has:

(1) Agreed, conspired connived, or colluded to produce a deceptive show of competition in the compilation of the accompanying bid or offer that is being submitted;

(2) In any manner, directly or indirectly, entered into any agreement of any kind to fix the bid price or price proposal of the bidder or offeror or of any competitor, or otherwise taken any action in restraint of free competitive bidding in connection with the contract for which the accompanying bid or offer is submitted.

7. POLITICAL CONTRIBUTION DISCLOSURE AFFIRMATION

I FURTHER AFFIRM THAT:

I am aware of, and the above business will comply with, Election Law Article, Title 14, Disclosure By Persons Doing Public Business, Annotated Code of Maryland, which requires that every person that enters into contracts, leases, or other agreements with the State of Maryland, including its agencies or a municipal corporation or a political subdivision of the State, during a calendar year in which the person receives in the aggregate \$200,000 or more shall file with the State Board of Elections a statement disclosing contributions in excess of \$500 made during the reporting period to a candidate for elective office in any primary or general election.

8. CERTIFICATION OF CORPORATION REGISTRATION AND TAX PAYMENT

I FURTHER AFFIRM THAT:

(1) The business named above is a (domestic _____) (foreign _____) corporation registered in accordance with the Corporations and Associations Article, Annotated Code of Maryland, and that it is in good standing and has filed all of its annual reports, together with filing fees, with the Maryland State Department of Assessments and Taxation.

(If not applicable, so state). _____

(2) Except as validly contested, the business has paid, or has arranged for payment of, all taxes due the City of Baltimore and the State of Maryland and has filed all required returns and reports with the Comptroller of the Treasury, the State Department of Assessments and Taxation, the Department of Labor, Licensing, and Regulation and the City of Baltimore, as applicable.

(3) If awarded the contract resulting from this Bid/Proposal, the business shall remain in full compliance with all requirements of this §8 during the term, and any extensions thereof, of the said contract.

9. CONTINGENT FEES

I FURTHER AFFIRM THAT:

The business has not employed or retained any person, partnership, corporation, or other entity, other than a bona fide employee, bona fide agent, bona fide salesperson, or commercial selling agency working for the business, to solicit or secure the Contract, and that the business has not paid or agreed to pay any person, partnership, corporation, or other entity, other than a bona fide employee, bona fide agent, bona fide salesperson, or commercial selling agency, any fee or any other consideration contingent on the making of the Contract.

10. CERTIFICATION OF WORK CAPACITY AND PREQUALIFICATION CLASSIFICATIONS

I FURTHER AFFIRM THAT:

We hold Certificate No. _____ which expires on _____.

We have the Work Capacity to perform this contract as provided in the Standard Specifications and in accordance with the rules, regulations and requirements of the Baltimore City Contractors' Qualification Committee.

Furthermore, our current Certificate of Prequalification includes work Classifications covering Contract Items to a total of at least Fifty Percent (50%) of the Aggregate Amount Bid.

11. ACKNOWLEDGEMENT

I ACKNOWLEDGE THAT this Affidavit shall be included in my Bid/Proposal and that my failure to furnish it will be considered cause for my Bid/Proposal to be rejected. I further acknowledge that this Affidavit is subject to applicable laws of the United States, the State of Maryland and the City of Baltimore, both criminal and civil, and that nothing in this Affidavit or any contract resulting from the submission of this Bid/Proposal shall be construed to supersede, amend, modify or waive, on behalf of the City of Baltimore, the exercise of any statutory right or remedy conferred by the Constitution and the laws of Maryland and terms and covenants undertaken by the above business with respect to (1) this Affidavit, (2) the contract, and (3) other Affidavits comprising part of the contract.

I FURTHER ACKNOWLEDGE THAT if the business is awarded the contract resulting from this Bid/Proposal, this Affidavit shall become a material part of the contract and the business agrees that it shall remain in full compliance with all Affirmations contained herein during the term of the contract and any and all extensions thereto.

I DO SOLEMNLY DECLARE AND AFFIRM UNDER THE PENALTIES OF PERJURY THAT THE CONTENTS OF THIS AFFIDAVIT ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF.

By: _____
Signature

Subscribed and sworn to me this _____ day of _____

Notary Public

My commission expires on _____.

B. MINORITY AND WOMEN'S BUSINESS OPPORTUNITY REQUIREMENTS

Article 5, Subtitle 28 of the Baltimore City Code (2000 Edition) is incorporated into the Agreement by reference. The failure of Contractor to comply with this Subtitle is a material breach of contract.

During the term of this Agreement, Contractor agrees to fulfill the MBE and WBE commitments submitted with Contractor's bid. Failure to comply with the levels of MBE and WBE participation identified in the bid is a material breach of contract.

Contractor understands that authorized representatives of the City of Baltimore may examine, from time to time, Contractor's books, records and files to the extent that such material is relevant to a determination of whether Contractor is complying with the MBE and WBE participation requirements of this Agreement.

Contractor agrees to pay all subcontractors within 7 days of receipt of payment from the City. Beginning with the second pay request from Contractor to the City, Contractor agrees to provide the City with written evidence that all subcontractors have been paid out of the proceeds of the prior payment, unless a bona fide dispute, documented in writing, exists between Contractor and the unpaid subcontractor.

Contractor agrees to submit the following to the Minority and Women's Business Opportunity Office when requested:

- (1) Copies of signed agreements with the business enterprises being utilized to achieve the contract goals;
- (2) Reports and documentation, including canceled checks, verifying payments to the business enterprises being used to achieve the contract goals; and
- (3) Reports and documentation on the extent to which the contractor has awarded subcontracts to minority and women's business enterprises under contracts not affected by Article 5, Subtitle 28.

If Contractor is unable to meet any contract goal by utilizing the certified business enterprises specified at bid opening, Contractor must seek a substitute certified business enterprise to fulfill its commitment. All substitutions must receive prior written approval by the Minority and Women's Business Opportunity Office. If, after good faith efforts, Contractor is unable to find a substitute, the Contractor may request a waiver of the goal.

Before final payment may be made under this Agreement, Contractor must submit a list of all subcontractors utilized on the contract, both MBE/WBE and non-MBE/WBE. The list must include, as to each subcontractor:

- (1) name;
- (2) total amount paid to subcontractor;
- (3) owner's race/ethnicity and sex.

A Contractor who fails to comply with the requirements of Article, 5, Subtitle 28 of the Baltimore City Code is subject to the following penalties: suspension of contract; withholding of funds; rescission of contract based on material breach; disqualification of contractor from eligibility for providing goods or services to the City for a period not to exceed 2 years; and payment of liquidated damages.

**MAYOR AND CITY COUNCIL OF BALTIMORE CITY
BALTIMORE CITY CODE, ARTICLE 5, SUBTITLE 28
MINORITY AND WOMEN'S BUSINESS PROGRAM**

**MBE AND WBE PARTICIPATION
COMMITMENT FORMS**

Name of Bidder (Proposer) _____

Address _____

Contracting Agency: DPW- Office of Asset Management

Contract (Project) Title: CLEANING AND INSPECTION OF SANITARY SEWERS IN
BALTIMORE CITY - CITYWIDE

Contract Number: Sanitary Contract No. 1002R

Bid Due Date: April 20, 2022

The MBE goal is 13% The WBE goal is 7%

If MBE Sub-Goals Apply:

African American	_____ %
Asian American	_____ %
Hispanic American	_____ %
Native American	_____ %

**THIS PACKAGE OF MBE AND WBE PARTICIPATION
COMMITMENT FORMS IS DUE WITH THE BID.**

FOR MORE INFORMATION OR ASSISTANCE WITH THESE FORMS CONTACT:

Minority and Women's Business Opportunity Office (MWBOO)

Baltimore City Department of Law

Room 101, City Hall

100 N. Holliday Street

Baltimore, MD 21202

(410)396-4355

E-Mail: MBWOOCompliance@baltimorecity.gov (Attention: MBE/WBE Bid Packet)

Rev: 2/11/2021

PART A: INSTRUCTIONS

The requirements of Article 5, Subtitle 28 of the Baltimore City Code – Minority and Women’s Business Program are a part of this contract and are incorporated by reference. **THE FAILURE OF ANY BIDDER, CONTRACTOR OR SUBCONTRACTOR TO COMPLY WITH ARTICLE 5, SUBTITLE 28 SHALL BE A BREACH OF CONTRACT.**

A complete copy of Article 5, Subtitle 28 of the Baltimore City Code is available online at: www.baltimorecity.gov/Government/Citychartercodes.aspx or at the Minority and Women’s Business Opportunity Office.

1. BID REQUIREMENTS

Bid must include a commitment to utilize MBEs and WBEs at a percentage that equals or exceeds the contract goals indicated in the contract specifications. **Bidder must submit the following completed documents WITH THE BID:**

- ✓ **Part B: Statement of Intent Form(s)** – to be signed by Bidder and MBE and/or WBE
- ✓ **Part C: Statement of Self-Performance** – to be signed by Bidder
- ✓ **Part D: MBE/WBE Participation Affidavit** – to be completed and signed by Bidder
- ✓ **Part E: MBE/WBE Participation Waiver Request** – to be completed and submitted by Bidder if unable to meet the participation goals (Please note: Substantial documentation must be provided to justify reasons for not being able to meet goals)

VERY IMPORTANT NOTIFICATION

Any bid that does not include signed Statement of Intent Form(s) and the MBE/WBE Participation Affidavit is non-responsive and will be rejected.

Any Statement of Intent Form(s) and the MBE/WBE Participation Affidavit that are not properly executed will result in non-responsive and will be rejected.

2. VERIFYING CERTIFICATION

- Bidder is responsible for verifying that each MBE and WBE to be used on a contract is certified by the Minority and Women’s Business Opportunity Office (MWBOO) at bid opening.
- The MBEs and WBEs named must be certified for the services they are listed to perform, and the services must be required as part of the Detailed Specifications of the contract.

A directory of certified MBEs and WBEs is available online at <http://cityservices.baltimorecity.gov/law/mwboo> (Art. 5, §28-48(d))

3. COUNTING MBE AND WBE PARTICIPATION

a) Participation of M/WBEs

A business enterprise that is certified as both an MBE and WBE (M/WBE) may not be counted toward both the MBE and WBE goals for the same project. The bidder must select the goal to which the business enterprise is to be counted. (Art. 5, §28-31(b) and §28-35)

b) Credit for Self-Performance

A bidder that is an MBE or WBE may count up to 50% of the dollar value of the work it intends to perform with its own forces toward the applicable MBE or WBE goal. The amount of credit may not exceed the MBE's or WBE's available work capacity as calculated with the Contractor Prequalification rules. **Intentions to count self-performance toward the MBE or WBE goal must be indicated on Part C: Statement of Intent to Self-Perform.** (Art 5, §28-31(d)).

c) Commercially Useful Function

The bidder may count toward the contract goals only expenditures to MBEs and WBEs that perform a commercially useful function in the execution of the contract. Commercially useful function means the performance of real and distinct work for which the business enterprise has the skill, expertise, and actual responsibility to perform, manage and supervise. (Art. 5, §28-32)

d) Joint Ventures

A bidder may count toward the contract goal the portion of its expenditure to a joint venture that is equal to the percentage of the MBE or WBE participation in the joint venture. The MBE or WBE member of the joint venture must have an interest in the control, management, risks and operation of the joint venture commensurate with the member's percentage of ownership. The MBE or WBE member of the joint venture must be responsible for a clearly defined portion of the work to be performed, equal to its share in the ownership, control and management of the joint venture. (Art. 5, §28-33)

e) Subcontracting by MBE or WBE

A bidder may not count toward its contract goal any agreement with a certified MBE or WBE subcontractor who intends to subcontract more than 10% of the dollar amount of the services to be performed under its agreement with the bidder. This restriction does not apply to an MBE's or WBE's contracts for the purchase of materials, equipment or supplies that are incidental to the performance of services under its agreement with the bidder. (Art. 5, §28-34)

f) Manufacturers and Suppliers

Manufacturers – A bidder may count toward the contract goal its entire expenditure to a certified MBE or WBE that manufactures the goods supplied. (Art. 5, §28-36)

Non-Manufacturers – **Only 25% of each contract goal may be attained by expenditures to MBEs and WBEs that are non-manufacturing suppliers.**

(Art. 5, §28-37)

Example: If the bid amount is \$100,000 and the MBE or WBE goal is 15% or \$15,000; then the limit for the MBE or WBE suppliers that are non-manufacturers is \$3,750 or 25% of the 15% goal.

g) Insurance Companies and Travel Agents

A bidder may count toward the contract goals only the fees or commissions charged by an MBE or WBE insurance company or travel agent (Art. 5, §28-38)

h) Financial Institutions

A bidder may count toward the contract goals only the fees charged and earned by an MBE or WBE financial institution. (Art. 5, §28-39)

i) Non-Affiliation

A bidder may not use an MBE or WBE to meet a contract goal if the bidder has a financial interest in, has an interest in the ownership or control of, or is significantly involved in the operation of the MBE or WBE. (Art. 5, §28-41).

4. WAIVER REQUESTS

If a bidder is unable to comply with a contract goal, the bidder may submit a waiver request with the bid. The waiver request must be made on the MBE/WBE Participation Waiver Request Form. A waiver will not be granted unless the waiver request includes documentation that demonstrates good faith efforts to meet the goals. (Art. 5, §28-62).

5. SUBSTITUTION OF MBE OR WBE

The Minority and Women's Business Opportunity Office must approve substitution of an MBE or WBE specified at bid opening. Any unjustified failure to comply with this requirement is a material breach of contract. (Art. 5, §28-63(a)).

6. CONTRACT REQUIREMENTS

During the term of the contract, any unjustified failure to comply with the levels of MBE and WBE participation identified in the bid is a material breach of contract. (Art. 5, §28-48 (e)).

Before final payment, the contractor must submit the Subcontractor Utilization Form with its final payment request. The Subcontractor Utilization Form will include a list of the names of all subcontractors utilized on the contract, both MBE/WBE and non-MBE/WBE, the total amount paid to each subcontractor, and the owner's race/ethnicity and gender.

Important Notice about the MBE/WBE Forms

PLEASE READ CAREFULLY:

All bidders are advised to read each line item of this section. Please follow the instructions for each question and make certain responses are applied correctly. Failure to respond or properly execute the forms can result in disqualification and possible rejection.

If additional clarity is needed when completing this section, please contact the Minority and Women's Business Opportunity Office at the details below before submitting MBE/WBE forms with bid documents:

Phone: (410) 396-4355

E-mail: MWBOOCompliance@baltimorecity.gov

**PART B:
MBE/WBE AND PRIME CONTRACTOR'S STATEMENT OF INTENT**

COMPLETE A SEPARATE FORM FOR EACH MBE and WBE NAMED IN THIS BID.
(Make additional copies of this form as needed)

PART A: INSTRUCTIONS MUST BE REVIEWED BEFORE COMPLETING THIS FORM, WITH PARTICULAR ATTENTION PAID TO SECTIONS 2, 3A and 3F

Name of Prime Contractor: _____

(CIRCLE ONE) Name of MBE or WBE: _____
(Failure to CIRCLE a selection may result in disqualification or nonresponsive submission)

Brief Description of the Work/Service to be performed by MBE or WBE:
(The selected MBE and/or WBE above must be certified for the work/service being performed)

Materials/Supplies to be furnished by MBE or WBE:

Percentage of work to be performed by MBE or WBE: _____ %
(This is not considered material information for lump sum contracts.)

Dollar Amount to be paid to MBE or WBE for work: \$ _____
(If this is a requirement contract, the subcontract dollar amount may be omitted; however, the subcontract percentage must be included.)

(If MBE sub-goals apply, please list the percentage for this Statement of Intent.)

African American: _____ % Asian American: _____ %
Hispanic American: _____ % Native American: _____ %

The undersigned Prime Contractor and Subcontractor agree to enter a contract for the work/service indicated above for the percentage or dollar amount listed to meet the MBE/WBE participation goals. This form is subject to the Prime Contractor's execution of a contract with the City of Baltimore. The Subcontractor is currently certified as an MBE or WBE with the City of Baltimore Minority and Women's Business Opportunity Office to perform the work described above.

Signature of Prime Contractor **(REQUIRED)**

Date

Signature of MBE or WBE **(REQUIRED)**

Date

CHANGES TO INFORMATION ON THIS FORM THAT ARE MATERIAL TO THE AGREEMENT BETWEEN THE PRIME CONTRACTOR AND MBE OR WBE MUST BE INITIALED BY BOTH PARTIES.

**PART C:
STATEMENT OF INTENT TO SELF-PERFORM**

PART A: INSTRUCTIONS MUST BE REVIEWED BEFORE COMPLETING THIS FORM, WITH PARTICULAR ATTENTION PAID TO SECTION 2, 3a, 3b and 3f.

Name of Prime Contractor: _____

(CHECK ONE) Self-Performance to be counted toward the MBE _____ or WBE _____ goal.
(Failure to CIRCLE a selection may result in disqualification or nonresponsive submission)

Brief Description of the Work/Service to be Self-Performed by the Prime Contractor:
(The selected MBE and/or WBE above must be certified for the work/service being performed)

Materials/Supplies to be furnished by the Prime Contractor:

Total Percentage of Self-Performed Work toward the MBE or WBE Goal:
(May count to 50% of the total dollar amount of self-performed work): _____% The percentage must be listed.

Total Dollar Amount of Work/Services to be Self-Performed by the Prime Contractor on this Contract: \$ _____
If this is a Requirements Contract, you may omit the Dollar Amount

(If MBE sub-goals apply, please indicate the sub-goal covered by this Statement of Intent.)

African American: _____% Asian American: _____%
Hispanic American: _____% Native American: _____%

The undersigned Prime Contractor agrees to Self-Perform the Work/Service indicated above for the Dollar Amount and/or Percentage indicated to meet the MBE/WBE participation goals, subject to the Prime Contractor's execution of a contract with the City of Baltimore. The Prime Contractor is currently certified as an MBE or WBE with the City of Baltimore Minority and Women's Business Opportunity Office to perform the work described above.

Signature of Prime Contractor (**REQUIRED**)

Date

PART D: MBE/WBE PARTICIPATION AFFIDAVIT

The Undersigned authorized representative of Contractor does hereby make the following Affidavit: Contractor has read the Bidder Information and Instructions regarding the MBE/WBE Program. Contractor acknowledges the MBE goal of **13%** and the WBE goal of **7%** for this contract. Contractor has achieved the following participation:

MBE- _____ % or \$ _____

WBE- _____ % or \$ _____

of the total contract amount which is \$ _____.

My firm has made good faith efforts to achieve the MBE and WBE participation goals for this contract. I understand that, if awarded the contract, my firm must submit to the Minority and Women's Business Opportunity Office (MWBOO) copies of all executed agreements with the MBE and WBE firms being utilized to achieve the participation goals and other requirements of Article 5, Subtitle 28 of the Baltimore City Code (2014 Edition). I understand that these documents must be submitted prior to the issuance of a notice to proceed.

I understand that, if awarded the contract, my firm must submit to the MWBOO canceled checks and any other documentation and reports required by MWBOO verifying payments to the MBE and WBE firms utilized on the contract.

I understand that, if awarded this contract and I find that I am unable to utilize the MBEs or WBEs identified in my Statements of Intent, I must substitute other certified MBE and WBE firms to meet the participation goals. I understand that I may not make a substitution until I have obtained the written approval of MWBOO.

I understand that, if awarded this contract, authorized representatives of the City of Baltimore may examine, from time to time, the books, records and files of my firm to the extent that such material is relevant to a determination of whether my firm is complying with the MBE and WBE participation requirements of this contract.

I do solemnly declare and affirm under the penalty of perjury that the contents of the foregoing Affidavit are true and correct to the best of my knowledge, information, and belief.

Contractor Company Name

Signature

Address

Print Name and Title

Sworn and subscribed before me this ____ day of _____, in the year _____.

Notary Public

PART E: MBE/WBE PARTICIPATION WAIVER REQUEST FORM

Name of Bidder (Proposer) _____
 Address _____
 Contracting Agency: _____
 Contract (Project) Number and Title: _____
 Bid Due Date: _____

Goals on this contract..... MBE: _____% and WBE: _____%

If MBE Sub-Goals Apply:

African American: _____% Asian American: _____%

Hispanic American: _____% Native American: _____%

I have achieved.....MBE: _____% and WBE: _____%

If MBE Sub-Goals Apply:

African American: _____% Asian American: _____%

Hispanic American: _____% Native American: _____%

I am requesting a waiver of.....MBE: _____% and WBE: _____%

If MBE Sub-Goals Apply:

African American: _____% Asian American: _____%

Hispanic American: _____% Native American: _____%

I have contacted MWBOO for assistance: _____Yes _____No (Check One)

Number of MBE firms contacted: _____ (Attach a list of names.)

Number of WBE firms contacted: _____ (Attach a list of names.)

Explain why waiver is being requested:

Attach documentation of your good faith efforts to secure, contact and negotiate with MBEs and WBEs, including:

- (1) The reasons your company is unable to secure sufficient MBE/WBE participation to meet the stated goals
- (2) The efforts made by your company to select portions of the contract to be performed by MBEs and WBEs
- (3) For each MBE or WBE that placed a bid that you consider to be unacceptable, a statement that explains the basis for that conclusion

 Signature of Authorized Company Representative

 Date

PART F: SUBCONTRACTOR UTILIZATION FORM

THIS FORM MUST BE INCLUDED WITH REQUEST FOR FINAL PAYMENT

Prime Contractor's Name: _____

Contract Number and Title: _____

Total Contract Dollar Amount: _____

Provide the following information for EACH and EVERY subcontractor, both MBE/WBE and NON-MBE/WBE used on this contract. (Make additional copies of this form as needed).

Name of Subcontractor	Goods or services provided on subcontract
Race/ethnicity AND gender of subcontractor's owner	Dollar amount of subcontract
Dollar amount paid to date	If amount paid to date is less than subcontract dollar amount, explain why.

Name of Subcontractor	Goods or services provided on subcontract
Race/ethnicity AND gender of subcontractor's owner	Dollar amount of subcontract
Dollar amount paid to date	If amount paid to date is less than subcontract dollar amount, explain why.

Name of Subcontractor	Goods or services provided on subcontract
Race/ethnicity AND gender of subcontractor's owner	Dollar amount of subcontract
Dollar amount paid to date	If amount paid to date is less than subcontract dollar amount, explain why.

Prime Contractor's Signature

Date

A. "An overall MBE subcontract participation goal of ____ percent of the total contract dollar amount, including all renewal option terms, if any, has been established for this procurement. By submitting a response to this solicitation, the bidder or offeror [agrees that this dollar amount of the contract will be performed] acknowledges the overall MBE subcontractor participation goal, and commits to achieving the goal by utilizing certified minority business enterprises[,";] or requests a full or partial waiver of the goal."; or

B. "An overall MBE subcontract participation goal of ____ percent of the total contract dollar amount, including all renewal option terms, if any, has been established for this procurement. [This dollar amount includes sub-goals of ____ percent of the total contract dollar amount to be allocated to certified minority business enterprises classified by the certification agency as women owned businesses and ____ percent of the total contract dollar amount to be allocated to certified minority business enterprises classified by the certification agency as African American-owned businesses]. The overall MBE subcontract participation goal includes the following subgoals, which have been established for this procurement: ____%for African-American MBEs, ____%for Asian-American MBEs, ____%for Hispanic-American MBEs, and ____%for Woman-Owned MBEs. By submitting a response to this solicitation, the bidder or offeror [agrees that these dollar amounts of the contract shall be performed] acknowledges the overall MBE subcontractor participation goal and subgoals, and commits to achieving the overall goal and subgoals by utilizing certified minority business enterprises, [including the MBE classifications specified herein] or requests a full or partial waiver of the overall goal and subgoals."

B. CERTIFICATION REGARDING COMMERCIAL NONDISCRIMINATION:

The undersigned bidder hereby certifies and agrees that the following information is correct: In preparing its bid on this project, the bidder has considered all proposals submitted from qualified, potential subcontractors and suppliers, and has not engaged in "discrimination" as defined in §19-103 of the State Finance and Procurement Article of the Annotated Code of Maryland. "Discrimination" means any disadvantage, difference, distinction, or preference in the solicitation, selection, hiring, or commercial treatment of a vendor, subcontractor, or commercial customer on the basis of race, color, religion, ancestry, or national origin, sex, age, marital status, sexual orientation, sexual identity, genetic information or an individual's refusal to submit to a genetic test or make available the results of a genetic test, [or on the basis of] disability, or any otherwise unlawful use of characteristics regarding the vendor's, supplier's, or commercial customer's employees or owners. "Discrimination" also includes retaliating against any person or other entity for reporting any incident of "discrimination". Without limiting any other provision of the solicitation on this project, it is understood that, if the certification is false, such false certification constitutes grounds for the State to reject the bid submitted by the bidder on this project, and terminate any contract awarded based on the bid. As part of its bid or proposal, the bidder herewith submits a list of all instances within the past 4 years where there has been a final adjudicated determination in a legal or administrative proceeding in the State of Maryland that the bidder discriminated against subcontractors, vendors, suppliers, or commercial customers, and a description of the status or resolution of that determination, including any remedial action taken. Bidder agrees to comply in all respects with the State's Commercial Nondiscrimination Policy as described under Title 19 of the State Finance and Procurement Article of the Annotated Code of Maryland. C. – N.

C. BALTIMORE APPRENTICESHIP TRAINING PROGRAM

MAYOR AND CITY COUNCIL OF BALTIMORE, MARYLAND

THE BALTIMORE APPRENTICE TRAINEE PROGRAM (BATP)

BID FORM

Contracting Agency: **DEPARTMENT OF PUBLIC WORKS, OFFICE OF ASSET MANAGEMENT**

Contract (Project Title): **SANITARY CONTRACT NO. 1002R: CLEANING AND INSPECTION OF
SANITARY SEWERS IN BALTIMORE CITY - CITYWIDE**

Scheduled Bid Due Date: **April 20, 2022**

THIS APPRENTICE TRAINEE FORM IS DUE WITH THE BID.

FOR MORE INFORMATION ABOUT THIS FORM OR ASSISTANCE, CONTACT:

Minority and Women's Business Opportunity Office (MWBOO)
100 N. Holliday Street, Rm. 101
Baltimore, MD 21202
(410) 396-4355

MAYOR AND CITY COUNCIL OF BALTIMORE, MARYLAND

THE BALTIMORE APPRENTICE TRAINEE PROGRAM (BATP)

PART I.

The City of Baltimore has established an Apprenticeship Trainee Program which requires all bidders on City Construction Projects costing \$1,000,000.00 dollars or more to participate in an Apprenticeship/OJT Training Program certified by the State of Maryland.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Provision. The purpose for this objective is to ensure a pool of qualified minorities and women to replace those journeymen who, in the natural course of events will leave the workforce.

The bidder shall commit to use its best efforts to meet the BATP requirements set forth in these contract documents. If awarded this contract, the bidder shall notify each firm with which the bidder proposes to contract, of the BATP requirements and make these requirements a material part of the subcontract where appropriate.

The bidder hereby designates:

NAME _____

TITLE _____

PHONE # _____

as the person who has been charged by the bidder with the responsibility for carrying out and reporting the bidders compliance with this program.

Page 2

1. The Bidder shall use its best efforts to comply with the BAT Program requirements set forth in these contract documents. Failure to implement and carry out the BAT Program requirements set forth in these contract documents shall be a material breach of this contract and grounds for termination of the contract.
2. The contractor shall prepare and submit to the contracting agency a plan for apprentice participation together with the construction schedule. The agency engineer shall designate the number of trainees and hours to be utilized and the area in which the trainees are to be required.
 - A. The draft construction schedule submitted to the contracting agency shall include a copy of the state certified apprentice/ojt program in which the bidder is participating, required labor resources by trade in order to determine the availability of apprentice opportunities, and a trade breakdown of anticipated participation by apprentices. The construction schedule and any updates shall include the apprentice participation by trade.
 - B. Apprentice participation shall be distributed throughout each technical discipline or trade designated by the engineer.
 - C. The contracting agency will review and approve the apprenticeship participation plan and forward a copy of the approved plan to MWBOO.
 - D. Goals for trainees will be based on the contractor's current utilization (Exhibit I in the contract document) and the availability of minorities and females in specified trade areas as indicated in the publication of the Maryland Department of Labor, Licensing and Regulation, Office of Labor Market Analysis and Information.
 - E. The specific efforts proposed to be undertaken by the contractor or its subcontractors if additional efforts are required to implement the BAT Program.
 - F. With each progress payment request, the contractor shall submit a BAT Program Report (AA2A) and a written projection for the following month of Apprentice hourly participation by trade.
 - G. The BAT Program participation plans shall apply to all change orders and extra work orders.
 - H. Requests for modifications or amendments of the contractors must be submitted to the contracting agency with copies to MWBOO.

The contractor will receive a written response to the request.

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PART II. AFFIDAVIT

The undersigned, being first duly sworn, on oath states to the City of Baltimore on behalf of the bidder as follows:

1. The bidder gives assurance that it will provide opportunity for training and employment for minorities and women in apprenticeship positions, and other positions whether with the bidder or subcontractors, employed on the project.
2. The bidder gives assurance that it will use its best efforts to comply with the BAT Program.
3. The bidder will maintain records in an easily retrievable and understandable form that will document any and all openings and opportunities for apprentice/trainee and, where appropriate, will make these requirements a part of all subcontract agreements on this project.
4. Bidder acknowledges that any and all bids which fail to include this form duly executed and notarized with the M/WBE portion of the bid documents may be declared as non-responsive by the Baltimore City Board of Estimates.
5. The bidder agrees to submit all forms as required in Part I& III of this document.

Name of Bidder

Name of Project Contract

By _____

Title _____

Date _____

Page 4

I hereby certify that on this _____ day of _____, 20____, before me the subscriber, a Notary Public of the State of _____, in and for _____ City or County, personally appeared _____ who acknowledged himself-herself to be the (title)

_____ of (company) _____

and being duly authorized, executed the foregoing affidavit for the purposes and uses therein contained.

Signature of Notary Public

_____ (SEAL)
My Appointment Expires

THE BALTIMORE APPRENTICE TRAINEE PROGRAM (BATP)

INSTRUCTIONS

Part III

I. Advertisement for Construction Bids (Contracting Agency)

All bid advertisements for construction projects where the cost is estimated to be \$1,000,000.00 or more shall include the following language:

"The City of Baltimore has established an apprentice participation program requirement for this contract."

II. Bid Documents

All bid documents where the cost of the bid is estimated to be \$1,000,000.00 or more shall include the BATP BID FORM unless otherwise determined by the agency engineer.

The BATP Bid Form Must Be Submitted With The Bid.

III. Pre-Bid Conference

If there is a pre-bid conference, an MWBOO Compliance Representative shall be present to discuss the BAT Program.

IV. The following forms must be submitted as indicated.

- A. The Plan for the Apprenticeship Participation must be completed and submitted for each area of training as designated by the agency engineer before the notice to proceed is issued.
- B. The Maryland Apprenticeship Agreement forms must be submitted with each Progress Payment request to the contracting agency or as new trainees are hired.
- C. With each progress payment request, the prime contractor must submit the MWBOO AA2 and AA2A to the contracting agency.
- D. If an apprentice is terminated, the contracting agency shall be informed within 10 working days. A new Apprentice Agreement form on the replacement trainee should be attached.
- E. MWBOO forms AA1 and 1A shall be submitted semi-annually on June 30th and December 31st of each year to the contracting agency.

ATTACHMENT

V. Penalties and Sanctions

A. A determination by the Board of Estimates after recommendation by the Minority and Women's Business Opportunity Office (MWBOO) that the contractor has failed to comply with any portion of the BATP rules as herein provided and described, or its approved apprenticeship plan, shall subject the offending party to any or all of the following:

1. suspension of contract;
2. withholding of funds;
3. rescission of contract based upon a material breach of contract;
4. disqualification of a bidder, contractor for a period of not to exceed two years;
5. payment of liquidated damages.

B. Violation; disqualification. It is a violation of this program to:

1. Willfully falsify, conceal or cover up by a trick, scheme or device a material fact, or make any false, fictitious or fraudulent statements or representations or make use of any false, fictitious or fraudulent statement or entry.
2. Willfully obstruct, impede, or attempt to obstruct or impede any authorized official or employee who is investigating the validity of any activity under the BATP.

**BALTIMORE APPRENTICE TRAINEE PROGRAM
TRAINEE REVIEW**

PROJECT NUMBER: SANITARY CONTRACT NO. 1002R DATE: _____

PROJECT NAME: CLEANING AND INSPECTION OF SANITARY SEWERS IN BALTIMORE CITY - CITYWIDE

CONTRACTOR: _____

TRAINEE'S SUPERVISOR: _____

CONTRACTOR'S EEO OFFICER: _____

Name	Race	Classification	Rqd. Prog. Hrs.	Actual Training for the Month	Actual Training Hours to Date	Min. Rate	Pres.	Jrnymn.
1. _____	_____	_____	_____	_____	_____	_____	_____	_____
2. _____	_____	_____	_____	_____	_____	_____	_____	_____
3. _____	_____	_____	_____	_____	_____	_____	_____	_____
4. _____	_____	_____	_____	_____	_____	_____	_____	_____
5. _____	_____	_____	_____	_____	_____	_____	_____	_____
7. _____	_____	_____	_____	_____	_____	_____	_____	_____
8. _____	_____	_____	_____	_____	_____	_____	_____	_____
9. _____	_____	_____	_____	_____	_____	_____	_____	_____

Signed: _____ Date: _____

To Be Submitted With Each Payout Request by the Subcontractor to the Prime Contractor

CITY OF BALTIMORE

SEMI ANNUAL TRAINEE REPORT

ADMINISTRATION CENTER		PERIOD ENDING							LEGEND BA - BLACK AMERICAN AA - ASIAN AMERICAN													AI - AMERICAN INDIAN HA - HISPANIC AMERICAN				
LINE NO	TRAINING CLASSIFICATION A	NUMBER RECEIVING TRAINING DURING REPORT PERIOD B							NUMBER STARTING TRAINING DURING REPORT PERIOD C							NUMBER COMPLETING TRAINING DURING REPORT PERIOD D							TOTAL HRS OF TRAINING DURING PERIOD			
		TOTAL	BA	AA	AI	HA	O	TOTAL	BA	AA	AI	HA	O	TOTAL	BA	AA	AI	HA	O	TOTAL						
03	EQUIPMENT OPERATOR																									
04	MECHANICS																									
05	TRUCK DRIVERS																									
06	IRON WORKERS																									
07	CARPENTERS																									
08	CEMENT MASONS																									
09	ELECTRICIANS																									
10	PIPEFITTERS																									
11	PAINTERS																									
12	OTHER SKILLS																									
13	TOTAL																									
14	NUMBER OF FEMALES RECEIVING TRAINING							NUMBER OF FEMALES STARTING TRAINING							NUMBER OF FEMALES COMPLETING TRAINING											
NUMBER OF NEW HIRES RECEIVING TRAINING							NUMBER IN APPRENTICESHIP TRAINING							NUMBER OF TERMINATIONS PRIOR TO COMPLETION OF TRAINING												
NUMBER OF UPGRADES RECEIVING TRAINING							NUMBER IN OTHER JOB TRAINING							NUMBER OF PROJECTS UNDER WAY DURING REPORTING PERIOD AND CONTAINING TRAINING SPECIAL PROVISIONS												
COMMENTS:																										
REPORT PREPARED BY (SIGNATURE) AND TITLE OF CITY OFFICIAL																			DATE AA1							

BALTIMORE APPRENTICE TRAINEE PROGRAM CONTRACTOR'S SEMIANNUAL TRAINEE REPORT	PROJECT NO SANITARY CONTRACT NO. 1002R <hr/> PROJECT NAME: <u>CLEANING AND INSPECTION OF SANITARY SEWERS IN BALTIMORE CITY - CITYWIDE</u>
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INSTRUCTIONS - This report is to be completed by the contractor semiannually for each individual employed on this contract (including any subcontractor under it) who has received training during the reporting period under the training special provisions (a part of the contract proposal). The report is to be submitted by the 10th of the month following the reporting period (July 10, and January 10). The original of this report is to be furnished to the trainer and two copies submitted to the City of Baltimore

1. NAME OF CONTRACTOR NAME OF SUBCONTRACTOR (IF APPLICABLE)		1.A. ADDRESS
2. NAME OF TRAINEE	2A. SEX (check one) _____ M _____ F	2.B. ADDRESS
3. AGE OF TRAINEE	4. SOCIAL SECURITY NO.	5. EMPLOYEE STATUS (check one) _____ NEW HIRE _____ UP-GRADE

6. ETHNIC GROUP DESIGNATION (check one)
 Black Hispanic American Asian
 _____ American _____ American _____ Indian _____ American _____ White

7. SUMMARY OF PREVIOUS TRAINING (ENTER AMOUNT AND TYPE OF TRAINING RECEIVED BY TRAINEE ON OTHER CONTRACTS UNDER APPROVED TRAINING PROGRAMS)

8. JOB CLASSIFICATION OF TRAINEE	9. DATE TRAINING STARTED ON THIS CONTRACT	10. TYPE OF ON THE JOB TRAINING (Check one) _____ Apprenticeship _____ other
----------------------------------	---	---

REPORTING PERIODS

INSTRUCTIONS: One vertical column is to be completed for each succeeding reporting period and the form submitted. Enter June 30, Dec. 30, as applicable in

HOURS OF TRAINING DATA								
11. PROVIDED DURING REPORT PERIOD								
12. PROVIDED TO DATE								
13. REMAINING TO COMPLETE THE APPROVED PROGRAM								
14. TERMINATION (IF TRAINING WAS TERMINATED PRIOR TO COMPLETION OF APPROVED PROGRAM EXPLAIN REASON FOR TERMINATION)								
15 REPORT PREPARED BY (SIGNATURE AND TITLE OF CONTRACTOR'S REPRESENTATIVE)							16 DATE	
17 REPORT REVIEWED BY (SIGNATURE AND TITLE OF CITY OF BALTIMORE OFFICIAL)							18 DATE	

MWBOO (1A)

D. BALTIMORE CITY'S YOUTHWORKS

TO: Mayor's Office of Employment Development ("MOED")

FROM: _____
(Legal name of Bidder)

Pursuant to Executive Order, the aforesaid Bidder hereby presents MOED with the following information to assist its outreach efforts for the Baltimore City Youth Works Program:

Contact Person: _____

Address: _____

Telephone Number: _____

Facsimile Number: _____

E-mail address: _____

E. LOCAL HIRING LAW ORDINANCE

**CITY OF BALTIMORE
ORDINANCE _____
Council Bill 12-0159**

Introduced by: President Young, Councilmembers Henry, Branch, Middleton, Curran, Kraft,
Spector, Welch, Clarke, Stokes, Mosby, Scott, Cole, Reisinger
Introduced and read first time: November 19, 2012
Assigned to: Taxation, Finance and Economic Development Committee
Committee Report: Favorable, and amended by a Floor Amendment
Council action: Adopted
Read second time: May 13, 2013

AN ORDINANCE CONCERNING**Finance and Procurement – Local Hiring**

FOR the purpose of requiring employers benefitted by City contracts and subsidies to take measures to hire Baltimore City residents; making certain exceptions; defining certain terms; requiring employment reports; establishing certain penalties; and generally relating to employment in furtherance of City contracts and City-subsidized projects.

BY adding

Article 5 - Finance, Property, and Procurement
Section(s) 27-1 to 27-10 to be under the new subtitle,
“Subtitle 27. Local Hiring”
Baltimore City Code
(Edition 2000)

SECTION 1. BE IT ORDAINED BY THE MAYOR AND CITY COUNCIL OF BALTIMORE, That the Laws of Baltimore City read as follows:

Baltimore City Code**Article 5. Finance, Property, and Procurement****Subtitle 27. Local Hiring****§ 27-1. DEFINITIONS.****(A) *IN GENERAL.***

IN THIS SUBTITLE, THE FOLLOWING TERMS HAVE THE MEANINGS INDICATED.

(B) *BENEFICIARY.*

“BENEFICIARY” MEANS ANY PERSON WHO:

EXPLANATION: CAPITALS indicate matter added to existing law.
[Brackets] indicate matter deleted from existing law.
Underlining indicates matter added to the bill by amendment.
Strike-out indicates matter stricken from the bill by amendment or deleted from existing law by amendment.

Council Bill 12-0159

(1) HAS A CONTRACT WITH THE CITY FOR MORE THAN \$300,000; OR

(2) WILL BENEFIT FROM MORE THAN \$5,000,000 IN ASSISTANCE FOR A CITY-SUBSIDIZED PROJECT.

(C) *CITY-SUBSIDIZED PROJECT.*

"CITY-SUBSIDIZED PROJECT" MEANS ANY PROJECT FOR WHICH THE CITY OR ANY OF ITS AGENTS OR CONTRACTORS PROVIDES FUNDS, RESOURCES, OR FINANCIAL ASSISTANCE, INCLUDING:

(1) THE SALE OR TRANSFER OF LAND SUBSTANTIALLY BELOW ITS APPRAISED VALUE;

(2) PAYMENT IN LIEU OF TAXES;

(3) TAX INCREMENT FINANCING;

(4) GRANTS OR LOANS THAT EQUAL OR EXCEED 15% OF TOTAL PROJECTED PROJECT COSTS; OR

(5) INSTALLATION OR REPAIR OF PHYSICAL INFRASTRUCTURE DIRECTLY RELATED TO THE PROJECT AND WITH VALUE EQUAL TO OR EXCEEDING 5% OF TOTAL PROJECTED PROJECT COSTS.

(D) *MOED.*

"MOED" MEANS THE MAYOR'S OFFICE OF EMPLOYMENT DEVELOPMENT.

(E) *PERSON.*

"PERSON" MEANS:

(1) AN INDIVIDUAL;

(2) A PARTNERSHIP, FIRM, ASSOCIATION, CORPORATION, OR OTHER ENTITY OF ANY KIND; OR

(3) A RECEIVER, TRUSTEE, GUARDIAN, PERSONAL REPRESENTATIVE, FIDUCIARY, OR REPRESENTATIVE OF ANY KIND.

§ 27-2. SCOPE OF SUBTITLE.

(A) *CITY CONTRACTS OVER \$300,000.*

THIS SUBTITLE APPLIES TO EVERY CONTRACT FOR MORE THAN \$300,000 MADE BY THE CITY, OR ON ITS BEHALF, WITH ANY PERSON.

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- 2 -

Council Bill 12-0159

1 **(B) CITY-SUBSIDIZED PROJECTS RECEIVING ASSISTANCE OVER \$5,000,000.**

2 THIS SUBTITLE APPLIES TO EVERY AGREEMENT AUTHORIZING ASSISTANCE VALUED AT
3 MORE THAN \$5,000,000 TO A CITY-SUBSIDIZED PROJECT.

4 **§ 27-3. {RESERVED}**

5 **§ 27-4. EMPLOYMENT ANALYSIS.**

6 BEFORE THE DISBURSEMENT OF ANY CITY FUNDS, THE BENEFICIARY MUST PERFORM AN
7 EMPLOYMENT ANALYSIS WITH MOED TO DETERMINE HOW MANY JOBS WILL BE REQUIRED TO
8 COMPLETE THE CONTRACT OR PROJECT AND HOW MANY OF THOSE JOBS WILL REQUIRE NEW
9 HIRING.

10 **§ 27-5. INITIAL HIRING TO BE THROUGH MOED.**

11 ALL NEW JOBS NEEDED FOR THE CONTRACT OR PROJECT MUST BE POSTED THROUGH MOED
12 FOR A PERIOD OF 7 DAYS BEFORE BEING PUBLICALLY ADVERTISED.

13 **§ 27-6. NEW EMPLOYEES TO BE BALTIMORE CITY RESIDENTS.**

14 **(A) IN GENERAL.**

15 AT LEAST 51% OF THE NEW JOBS REQUIRED TO COMPLETE THE CONTRACT OR PROJECT
16 MUST BE FILLED BY BALTIMORE CITY RESIDENTS.

17 **(B) EXCEPTIONS.**

18 MOED MAY WAIVE OR LOWER THE REQUIREMENT OF SUBSECTION (A) OF THIS SECTION IF
19 IT FINDS THAT:

20 (1) A GOOD FAITH EFFORT TO COMPLY HAS BEEN MADE BY THE BENEFICIARY;

21 (2) THE BENEFICIARY IS LOCATED OUTSIDE THE BALTIMORE STANDARD
22 METROPOLITAN STATISTICAL AREA AND NONE OF THE CONTRACT WORK IS
23 PERFORMED INSIDE THE BALTIMORE STANDARD METROPOLITAN STATISTICAL
24 AREA;

25 (3) THE BENEFICIARY HAS ENTERED INTO A SATISFACTORY SPECIAL WORKFORCE
26 DEVELOPMENT TRAINING OR PLACEMENT ARRANGEMENT WITH MOED; OR

27 (4) THERE ARE INSUFFICIENT NUMBERS OF BALTIMORE CITY RESIDENTS IN THE LABOR
28 MARKET WHO POSSESS THE SKILLS REQUIRED BY THE NEW JOBS NEEDED TO BE
29 FILLED FOR THE CONTRACT OR PROJECT.

LHL-3

Council Bill 12-0159**1 § 27-7. RULES AND REGULATIONS.****2 (A) *MOED TO ADOPT.***

3 MOED MAY ADOPT RULES AND REGULATIONS TO CARRY OUT THIS SUBTITLE OR TO
4 CLARIFY ANY TERMS OR PHRASES IN THIS SUBTITLE.

5 (B) *FILING.*

6 A COPY OF ALL RULES AND REGULATIONS ADOPTED UNDER THIS SUBTITLE MUST BE FILED
7 WITH THE DEPARTMENT OF LEGISLATIVE REFERENCE BEFORE THEY BECOME EFFECTIVE.

8 § 27-8. REQUIRED REPORTS.

9 IN EACH MONTH OF THE CONTRACT OR PROJECT THE BENEFICIARY MUST SUBMIT A REPORT TO
10 MOED, ON THE FORM DESIGNATED BY MOED, THAT INCLUDES THE FOLLOWING:

- 11 (1) THE NUMBER OF EMPLOYEES NEEDED FOR THE CONTRACT OR PROJECT;**
- 12 (2) THE NUMBER OF CURRENT EMPLOYEES TRANSFERRED;**
- 13 (3) THE NUMBER OF NEW JOB OPENINGS CREATED;**
- 14 (4) THE NUMBER OF JOB OPENINGS LISTED WITH MOED;**
- 15 (5) THE TOTAL NUMBER OF BALTIMORE CITY RESIDENTS HIRED FOR THE REPORTING**
16 PERIOD AND THE CUMULATIVE TOTAL NUMBER OF BALTIMORE CITY RESIDENTS HIRED;
- 17 (6) TOTAL NUMBER OF ALL EMPLOYEES HIRED FOR THE REPORTING PERIOD AND THE**
18 CUMULATIVE TOTAL OF EMPLOYEES HIRED; AND
- 19 (7) FOR EACH NEW HIRE DURING THE REPORTING PERIOD, THE NEW HIRE'S:**
 - 20 (1) NAME;**
 - 21 (2) SOCIAL SECURITY NUMBER;**
 - 22 (3) JOB TITLE;**
 - 23 (4) HIRE DATE;**
 - 24 (5) RESIDENCE; AND**
 - 25 (6) REFERRAL SOURCE.**

26 § 27-9. {RESERVED}

LHL-4

Council Bill 12-01591 **§ 27-10. PENALTIES.**2 **(A) DEBARMENT FOR 1 YEAR.**

3 IF THE BOARD OF ESTIMATES, ON RECOMMENDATION FROM MOED, AND AFTER NOTICE
 4 AND HEARING, DETERMINES THAT ANY BENEFICIARY HAS VIOLATED THE PROVISIONS OF
 5 THIS SUBTITLE AND THAT THE FAILURE WAS INTENTIONAL, NO CONTRACT MAY BE
 6 AWARDED TO THAT BENEFICIARY, OR TO ANY FIRM, CORPORATION, OR PARTNERSHIP IN
 7 WHICH THAT BENEFICIARY HAS AN INTEREST, UNTIL 1 YEAR HAS ELAPSED FROM THE DATE
 8 OF THE DETERMINATION.

9 **(B) CRIMINAL PENALTIES.**

10 AN INTENTIONAL VIOLATION OF ANY PROVISION OF THIS SUBTITLE IS A MISDEMEANOR,
 11 AND, ON CONVICTION, IS SUBJECT TO A FINE OF NOT MORE THAN \$500 FOR EACH OFFENSE.

12 **SECTION 2. AND BE IT FURTHER ORDAINED,** That the catchlines contained in this Ordinance
 13 are not law and may not be considered to have been enacted as a part of this or any prior
 14 Ordinance.

15 **SECTION 3. AND BE IT FURTHER ORDAINED,** That this Ordinance takes effect on the 30th
 16 180th day after the date it is enacted.

Certified as duly passed this ____ day of _____, 20__

 President, Baltimore City Council

Certified as duly delivered to Her Honor, the Mayor,

this ____ day of _____, 20__

 Chief Clerk

Approved this ____ day of _____, 20__

 Mayor, Baltimore City

LOCAL HIRING LAW

Rules and Regulations

1. The Local Hiring Law (Council Bill 12-0159) (the "Law") is applicable to all City contracts that are greater than \$ 300,000.00 , or agreements authorizing assistance that are within the terms of §27-2 of the Law executed by the City on or after the Law's effective date, December 23, 2013. The Law requires compliance by vendors/contractors and their subcontractors regardless of the subcontractor award amount and by all persons benefitting from an agreement involving more than \$5, 000,000.00 in assistance for a City subsidized project.
2. The Law only applies to the original term of contract awards greater than \$ 300,000.00. Extra Work Orders and contract modifications do not affect the applicability of the Law. Whether a City subsidized project is subject to the Law shall be finally determined when an agreement authorizing assistance valued at more than \$5,000,000.00 is executed by the City.
3. All City bids, RFP's and requests for bid packages and final contracts must include reference to the requirements of the Law. All bid documents and contracts subject to the Law will include a section referencing the requirements of the Law. The bidder's signature will verify a commitment to abide by the Law.
4. Upon contract award or approval of an agreement for subsidy covered by the Law, the contracting city agencies or agencies entering into an agreement for the City subsidized project must immediately complete the Mayor's Office of Employment Development (MOED) Vendor Contact form, providing contact information for each vendor/contract awarded and each beneficiary of a qualifying City subsidized project. MOED will contact the vendor or beneficiary upon receipt of the completed form from the city agency.
5. Within two weeks of the contract award or agreement for a City subsidized project covered by the Law, the awardee must work with a representative of the Mayor's Office of Employment Development (MOED) to complete an Employment Analysis that will project the total workforce and the "new hires" in the Baltimore area needed to fulfill the contract/agreement. That Analysis shall include all information reasonably required by MOED showing at a minimum general locations (Baltimore area or not) of all workforce positions required to complete the contract/agreement.
6. A Local Hiring Review Committee ("LHRC") will be established. The LHRC will be comprised of representatives/designees from the following:
 - Office of the City Council President
 - Office of the Deputy Chief of Economic Development and Neighborhoods
 - Mayor's Office of Employment Development
 - Office of the Director of Finance
 - Baltimore City's Procurement Office

- Baltimore Development Corporation
- Baltimore City Law Department
- Community Resident to be appointed by the President of the City Council

The LHRC will appoint a chair and meet no less than quarterly and as frequently as needed. Its primary role will be to review the monthly Employment Reports and to make recommendations to MOED regarding the approval or denial of any waiver requests made. The LHRC will also recommend to the Board of Estimates potential penalties and debarment for persons and others subject to the Law that has not complied with the Law. MOED will coordinate the materials to be presented to the LHRC and provide it with administrative staff support.

7. Vendors and others subject to the Law must submit Monthly Employment Reports by the fifth business day of the month for the preceding month beginning no later than 90 days after the Board of Estimates has awarded the contract or approved the agreement. City agency directors will be notified of persons or others subject to the Law that do not submit reports by the due date; continued delinquent persons or others subject to the Law will be reported to the LHRC.

8. Vendors and others subject to the Law that have binding collective bargaining agreements with unions will be granted a waiver from only utilizing MOED recruitment services, since they are bound by union regulations to utilize union halls. However, the persons or others subject to the Law must still meet the 51% residency requirement on new hires and must submit the monthly Employment Reports as required by the Law.

9. If MOED cannot fill a job posting provided by a vendor or others subject to the Law within the seven day period, the person or others subject to the Law must still meet the 51% residency requirement on new hires. This requirement will only be waived if : 1) the person or others subject to the Law requests a waiver in writing and can provide documentation that they made good faith efforts in the form of job posting and other recruitment methods and that there were insufficient qualified applicants to fill the available new positions or ; 2) the bidder is able to confirm in the bid process that the contract will be only for services that will be performed or for products that will be manufactured outside the Baltimore Metropolitan Area and as such, no new positions will be called for in Baltimore area.

10. The Law is not applicable to a contract or an agreement that is made by the City, or on its behalf with any person in the event of an emergency pursuant to Article VI, § 11 (e)(ii) of the Baltimore City Charter.

11. Definitions:

a. *Good Faith Effort* is defined as a set of activities conducted by the contractor/vendor or other person which demonstrate multiple types of outreach efforts have been made to City residents including, but not limited to: ads in local papers, paid local job boards, information to local educational and workforce organizations, as well as an objective review and rating of resumes of city residents.
(§ 27-6 (B) (1))

- b. ***Substantially below appraised value*** is the sale or transfer of land applicable to property that has been approved and sold for an amount below 30% of the appraised value. (§ 27-1 (C) (1))
- c. ***"Satisfactory Special Workforce Development Training or Placement Arrangement"*** is defined as a written agreement with MOED or a recognized workforce partner for a customized training or On-The-Job-Training opportunity leading to unsubsidized employment. (§27-6(B) (3))



City of Baltimore Local Hiring Certification and Compliance Statement

CERTIFICATION STATEMENT (Complete and submit this certification statement with your bid package.
Your bid may be considered non-responsive if you fail to include this signed document.

For the purpose of requiring employers (contractors and their subcontractors) benefitted by City contracts and subsidies to take measures to hire Baltimore City residents, all businesses awarded a contract with the City for more than \$300,000 or will benefit from more than \$5,000,000 in assistance for a subsidized project, shall agree to comply with the terms of the Local Hiring Law Section 27-1 as described in the bid specification.

By signing below as a representative of _____ (Company Name), I certify that if awarded this contract, a company representative will meet with the Mayor's Office of Employment Development (MOED) within two weeks of the contract award to complete an employment analysis review the workforce plan required for this contract. If there is a need for new hires, I agree to post the new job openings with MOED's One Stop Career Center Network for a period of seven (7) days prior to publicly advertising these openings. I agree to interview qualified Baltimore City residents referred from MOED and to fill at least 51% of the new jobs required with Baltimore City residents. I also agree to submit an Employment Report by the 5th day of each month throughout the duration of contract.

Signature: _____ Title: _____ Phone: _____

Company Address: _____ Email: _____

CONTRACT AWARD INFORMATION (To be completed by the responsible Baltimore City agency representative and submitted to MOED within two (2) business days of the contract award.)

Baltimore City Agency: _____

Contract No./Description: _____

Award Amount: _____ Award Date: _____

Contractor's Rep for Local Hiring compliance: _____

Telephone #: _____ Email: _____

City Agency Staff Name/Title Date

COMPLIANCE VERIFICATION (To be completed by MOED and returned to the City agency.)

As required by the Law, "before the disbursement of any funds", the beneficiary must meet with and complete an employment analysis with MOED. This is to certify that the information below is accurate as verified by MOED:

- ☐ Complied with the requirements of the Local Hiring Law Section 27-1 and met with MOED on _____ to assess their employment needs, complete the workforce plan and identify new jobs. We have been informed that an estimate of _____ jobs will be created as a result of the contract award.
- ☐ NOT complied with the Local Hiring Law. In accordance with the Law, the City Agency is required to withhold payments associated with this award until the meeting has occurred.

MOED Staff Name/Title Date

If there are any questions, please call John Ford at 410-396-9974



Local Hiring Certification and Compliance Statement

CERTIFICATION STATEMENT (Complete and submit this certification statement with your bid package. Your bid may be considered non-responsive if you fail to include this signed document.)

For the purpose of requiring employers (contractors and their subcontractors) benefitted by City contracts and subsidies to take measures to hire Baltimore City residents, all businesses awarded a contract with the City for more than \$300,000 or will benefit from more than \$5,000,000 in assistance for a subsidized project, shall agree to comply with the terms of the Local Hiring Law 12-0159 as described in the bid specification.

By signing below as a representative of _____ (Company Name), I certify that if awarded this contract, a company representative will meet with the Mayor's Office of Employment Development (MOED) within two weeks of the contract award to complete an employment analysis review the workforce plan required for this contract. If there is a need for new hires, I agree to post the new job openings with MOED's One Stop Career Center Network for a period of seven (7) days prior to publicly advertising these openings. I agree to interview qualified Baltimore City residents referred from MOED and to fill at least 51% of the new jobs required with Baltimore City residents. I also agree to submit an Employment Report by the 5th day of each month throughout the duration of contract.

Signature: _____ Title: _____ Phone: _____

Company Address: _____ Email: _____

CONTRACT AWARD INFORMATION (To be completed by the responsible Baltimore City agency representative and submitted to MOED within two (2) business days of the contract award.)

Baltimore City Agency: _____

Contract No./Description: _____

Award Amount: _____ Award Date: _____

Contractor's Rep for Local Hiring compliance: _____

Telephone #: _____ Email: _____

City Agency Staff Name/Title Date

COMPLIANCE VERIFICATION (To be completed by MOED and returned to the City agency.)

As required by the Law, "before the disbursement of any funds", the beneficiary must meet with and complete an employment analysis with MOED. This is to certify that the information below is accurate as verified by MOED:

☐ Complied with the requirements of the Local Hiring Law 12-0159 and met with MOED on _____
to assess their employment needs, complete the workforce plan and identify new jobs. We have been informed that an estimate of _____ jobs will be created as a result of the contract award.

☐ NOT complied with the Local Hiring Law. In accordance with the Law, the City Agency is required to withhold payments associated with this award until the meeting has occurred.

MOED Staff Name/Title Date
If there are any questions, please call Rosalind Howard or Susan Tagliaferro at 410-396-9045

F. BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned _____

as Principal, and _____

as Surety, are hereby held and firmly bound unto the Mayor and City Council of Baltimore as Owner, in the amount of at least Two Percent (2%) of the Total Bid submitted for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, personal representatives, successors and assigns. Signed this _____ day of _____, 20____ .

The condition of the above obligation is such that WHEREAS the Principal has submitted to the Board of Estimates of the Mayor and City Council of Baltimore a certain Bid, attached hereto, and hereby made a part hereof to enter into a Contract, in writing, for **SANITARY CONTRACT NO. 1002R: CLEANING AND INSPECTION OF SANITARY SEWERS IN BALTIMORE CITY - CITYWIDE**

NOW, THEREFORE,

- (a) If said Bid shall be rejected or in the alternate.
- (b) If said Bid shall be accepted and the Principal shall execute and deliver a Contract in the form of Contract attached here to (properly completed in accordance with said Bid), and shall furnish a bond for his faithful performance of said Contract, and for the payment of all persons performing labor or furnishing materials in connection therewith and shall in all other respects perform the Agreement created by the acceptance of said bid.

Then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event, exceed the penal amount of this obligation, as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by an extension of the time within which the Owner may accept such Bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their Hand and Seals, and such of them as are Corporation have caused their Corporate Seals to be hereto affixed and these presents to be signed by their proper Officers, the day and year first set forth above.

ATTEST:

PRINCIPAL

(SEAL)

ATTEST:

SURETY

(SEAL)

IV. AGREEMENT

THIS AGREEMENT, made this _____ Day of _____

in the year 20____, by and between _____

hereinafter called the "Contractor", and the Mayor and City Council of Baltimore, a Municipal Corporation, hereinafter called the "City".

WHEREAS, the Contract designated as **SANITARY CONTRACT NO. 1002R: CLEANING AND INSPECTION OF SANITARY SEWERS IN BALTIMORE CITY – CITYWIDE** to be performed in strict accordance with the Contract Documents, which Standard Specifications, Plans and other Contract Documents are in all respects made a part hereof, has recently been awarded to the Contractor by the City, through the Agency of its Board of Estimates, at and for a sum equal to the aggregate cost of the work, labor, materials and supplies done or furnished at the prices and rates respectively named therefore in the Proposal attached hereto; and

WHEREAS, it was one of the conditions of said award that a formal Contract should be executed by and between the Contractor and the City evidencing the terms of said award.

NOW, THEREFORE, THIS AGREEMENT WITNESSETH, That the Contractor doth hereby covenant and agree with the City that it will well and faithfully construct, and complete the said Work in accordance with each and every one of the conditions, covenants, stipulations, terms and provisions contained in the Contract Documents, at and for a sum equal to the aggregate cost of the work, labor, materials and supplies done or furnished at the prices and rates respectively named therefore in the Proposal attached hereto, and will well and faithfully comply with and conform to each and every obligation imposed upon it by the Contract Documents, or by the terms of said award. Time is of the essence of this Agreement.

And the City doth hereby covenant and agree with the Contractor that it will pay the Contractor, when due and payable under the terms of the Contract Documents and of said award, the above mentioned sum; and that it will well and faithfully comply with and perform each and every obligation imposed upon it by the Contract Documents or by the terms of said award.

In WITNESS WHEREOF, the parties hereby evidence their agreement to the above terms and conditions by having caused this Agreement to be executed, sealed and deliver the day and year first above written.

WITNESS:

Title:

Title:

SEAL

ATTEST:

Mayor and City Council of Baltimore

Custodian of the City

SEAL

Brandon M. Scott, Mayor

APPROVAL OF AGREEMENT
FOR
OFFICE OF ENGINEERING AND CONSTRUCTION
SANITARY CONTRACT NO. 1002R

APPROVED:

APPROVED AS TO FORM AND LEGAL
SUFFICIENCY:

Jason W. Mitchell .
Director
Department of Public Works

W. Michael Mullen
Chief Solicitor
City Hall

APPROVED:

APPROVED: BY THE BOARD OF ESTIMATES

Brian Ball, PE
Chief
Office of Asset Management

Clerk Date

V. BONDS**A. PERFORMANCE BOND**

Principal	Business Address of Principal
Surety a Corporation of the State of and authorized to do business in the State of Maryland	Obligee Mayor and City Council of Baltimore
Sum of Bond (Equal to Contract Price) SUM OF _____ Dollars (\$ _____)	
Contract Number and Identification City of Baltimore Department of Public Works Office of Asset Management <u>SANITARY CONTRACT NO. 1002R:</u> <u>CLEANING AND INSPECTION OF SANITARY</u> <u>SEWERS IN BALTIMORE CITY - CITYWIDE</u>	Date of Contract _____, 20 Date Bond Executed _____, 20

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL above named and SURETY above named, are held and firmly bound unto the OBLIGEE above named in the full and just sum of the amount stated above, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, personal representatives, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the PRINCIPAL is entering into a certain Contract with the OBLIGEE described and dated, as shown above and attached hereto, and is required under the Provisions of the Public General Laws of Maryland to give a bond conditioned as hereinafter set forth.

NOW THEREFORE, if the PRINCIPAL shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of said Contract during the original term of said Contract and any extensions thereof that may be granted by the OBLIGEE, with or without notice to the SURETY, and during the term or terms of any maintenance, repair, guaranty and warranty required under the Contract, and

A. PERFORMANCE BOND

shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said Contract that may hereafter be made, notice of which modifications to the SURETY being hereby waived, and shall indemnify and save harmless the Mayor and City Council of Baltimore, its agents and employees against and from all costs, expenses, damages, injury or loss to which the said Mayor and City Council of Baltimore, its agents and employees, may be subjected by reason of any wrongdoing, misconduct, want of care or skill, negligence or default on the part of said PRINCIPAL, its agents or employees, or in any manner arising directly or indirectly from any and all causes whatsoever, in or about the execution or performance of the Contract, during the Original term of said Contract and/or any authorized extension or modification thereof and/or during the term or terms of any maintenance, repair, guaranty and warranty required under the Contract, then this obligation shall be null and void; otherwise to remain in full force and effect.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the OBLIGEE, or the successors or assigns of OBLIGEE.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their several Seals on the date indicated above, the Name and corporation seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

ATTEST: as to principal

SIGNATURE

SIGNATURE

PRINT NAME

PRINT NAME AND TITLE

(SEAL)

ATTEST: as to surety

SIGNATURE

SIGNATURE

PRINT NAME

PRINT NAME AND TITLE

(SEAL)

AGENT (COMPANY): _____

AUTHORIZED BY: _____
NAME AND TITLE

B. PAYMENT BOND

Principal	Business Address of Principal
Surety a Corporation of the State of and authorized to do business in the State of Maryland	Obligee Mayor and City Council of Baltimore
Sum of Bond (Equal to Contract Price) SUM OF _____ Dollars (\$ _____)	
Contract Number and Identification City of Baltimore Department of Public Works Office of Asset Management <u>SANITARY CONTRACT NO. 1002R: CLEANING AND INSPECTION OF SANITARY SEWERS IN BALTIMORE CITY - CITYWIDE</u>	Date of Contract _____, 20 Date Bond Executed _____, 20

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL above named and SURETY above named, are held and firmly bound unto the OBLIGEE above named in the full and just sum of the amount stated above, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, personal representatives, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the PRINCIPAL is entering into a certain Contract with the OBLIGEE described and dated, as shown above and attached hereto, and is required under the Provisions of the Public General Laws of Maryland to give a bond conditioned as hereinafter set forth.

NOW THEREFORE, the condition of this obligation is such that if the PRINCIPAL shall promptly make payments to all persons supplying labor and/or material in the prosecution of the work provided for in said Contract and any and all duly authorized extensions and/or modifications of said contract that may hereafter be made, notice of such extensions and/or modifications to the SURETY being hereby waived, and any maintenance, repair, guaranty and warranty required under the Contract, then this obligation to be null and void; otherwise they remain in full force and effect.

PAYMENT BOND

A suit or action commenced hereunder shall comply with applicable Provisions of the Public General Laws of Maryland. No suit or action shall be commenced hereunder against the OBLIGEE, its successors or assigns, nor shall OBLIGEE be liable for any costs or expenses of such suit.

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their several Seals on the date indicated above, the Name and corporation seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

ATTEST: as to principal

SIGNATURE

SIGNATURE

PRINT NAME

PRINT NAME AND TITLE (SEAL)

ATTEST: as to surety

SIGNATURE

SIGNATURE

PRINT NAME

PRINT NAME AND TITLE (SEAL)

AGENT (COMPANY):_____

AUTHORIZED BY:_____
NAME AND TITLE

PAYMENT BOND

APPROVED:

APPROVED:

Brandon M. Scott
Mayor
City of Baltimore

Jason W. Mitchell
Director
Department of Public Works

Bill Henry
Comptroller
City of Baltimore

Brian Ball, PE
Chief
Office of Asset Management

APPROVED AS TO FORM AND
LEGAL SUFFICIENCY:

APPROVED BY BOARD OF ESTIMATES:

W. Michael Mullen
Chief Solicitor
City Hall

Secretary _____ Date _____

Appendices

Appendix A

Supplemental Technical Specifications

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Section 33 01 30.10 - Small Diameter Sanitary Sewer Pipeline Inspection
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SECTION 33 01 30.10

SMALL DIAMETER SANITARY SEWER PIPELINE INSPECTION

PART 1. GENERAL

1.01. DESCRIPTION OF WORK

- A. This specification covers inspection of sewers using closed circuit television (CCTV) video for the purposes of assessing thoroughness of cleaning, observing and recording structural mainline and lateral defects, construction, operational and miscellaneous features of existing sewer assets and to verify rehabilitated or new sewer construction prior to acceptance for pipes 6" to 18" in height.
- B. The Contractor shall be responsible for providing all equipment, tools, labor, materials, and incidental services necessary to perform all work for CCTV inspections of sewer lines as indicated and in compliance with the Contract Documents.
- C. Types of cleaning for pipes of height of 34" or less shall be performed in accordance with 33 01 30.41 Sanitary Sewer Pipeline Cleaning specification in order to conduct a NASSCO-compliant inspection. This includes specifications for Standard Sewer Cleaning, Excessive Grease and/or Root Removal, Fats, Oils and Grease Abatement, Physically Attached Solid Debris Cutting and Removing Intruding Sewer Taps for all sewer height ranges identified on the bid form.
- D. For pipes of height of 18" or less, the final pass of standard cleaning shall be undertaken in conjunction with the CCTV camera inspection that is to be provided as the final inspection deliverable. During the final cleaning pass, the CCTV inspection camera shall be mobilized to inspect the sewer segment while the jet nozzle pulls water away from the camera, drawing the water level down as necessary to maximize the exposure of the sewer pipe circumference. The use of the cleaning equipment in conjunction with the CCTV camera inspection shall not be considered an additional pass but shall be incidental to the Contract.
- E. Inspections may be witnessed by the Engineer.

1.02. RELATED REQUIREMENTS:

- A. Section 33 01 30.11 - Large Diameter Sanitary Sewer Pipeline Inspection
- B. Section 33 01 30.41 - Sanitary Sewer Pipeline Cleaning
- C. Section 33 01 30.50 - Manhole Panoramic Inspection
- D. Section 33 01 30.53 - Manhole Cleaning
- E. Section 33 01 30.15 - Lateral Sewer Pipeline Inspection
- F. Section 33 01 30.44 - Lateral Sewer Pipeline Cleaning
- G. Section 33 01 30.65 - Sanitary Sewer Acoustic Inspection

H. Section 33 01 30.87 - Temporary Sewer Bypass Pumping

1.03. REFERENCES

- A. National Association of Sewer Service Companies (NASSCO):
 - 1. Pipeline Assessment and Certification Program (PACP) Reference Manual.
 - 2. Manhole Assessment and Certification Program (MACP) Reference Manual.

1.04. DEFINITIONS

- A. CCTV Inspection: Closed circuit television inspection - Operation necessary to complete a high-definition, true-color audio-visual inspection for verification of existing internal sewer line conditions.
- B. AVI: Audio Video Interleave, developed by Microsoft© is the acronym given to a family of multimedia container formats as part of its video for Windows© software.
- C. MPEG: Moving Pictures Expert Group, is the acronym given to a family of international standards used for coding audio-visual information in a digital compressed format.
- D. MOV: Common multimedia container file format developed by Apple© for use and compatible with both Macintosh© QuickTime and Windows© platforms. MOV files commonly use the MPEG-4 codec for compression.
- E. HDD: Portable Hard Disk Drive. For the purposes of this specification, HDD shall be written in accordance with the ISO-9660 Level 2 specifications.
- F. Engineer: City of Baltimore Engineer / Owner's Representative / Owner / Field Inspector.

1.05. SUBMITTALS

- A. Submit all contract submittals and/or drawings in accordance with Section 01 33 00 SUBMITTAL PROCEDURES from the City of Baltimore DPW (DPW) Specifications (The Green Book, 2006) and also with specific requirements stipulated in this Contract.
- B. Sample Inspection Report: Prior to initiating the Work, the Contractor shall submit to the Engineer the following documentation for approval to ensure quality and conformity requirements of this contract:
 - 1. Provide a sample report of a sewer inspection including digital data files, of an actual sewer performed by each device to be used on this Contract for review at least one month before beginning the inspection work. The Sample Report shall include:
 - a. Two (2) copies of visual recording to the Engineer. The Engineer will review the inspections for completeness and accuracy of content, to ensure that the required information is provided, and the recording quality is acceptable. If the Engineer determines that the recording is defective or not

- of adequate quality, the Contractor shall re-perform the CCTV inspection at the Contractor's expense.
- b. One (1) PACP (version 7.0.0 or newer) compliant Microsoft Access, CCTV inspection Databases containing inspection and defect information. Sewer condition coding shall be submitted as a PACP.mdb file accordingly. Name the PACP database according to the following file specification: [Contractor Name]_[Contract Number]_PACP_Submittal ##.mdb.
 - c. One (1) PDF copy of the CCTV inspection logs to the Engineer. Logs shall record defects according to NASSCO's PACP standards.
 - d. Sample observation photos.
 - e. Submittal Tracking Spreadsheet utilizing the template provided in the Appendix of this specification.
- 2. Clearly identify the equipment make, model and serial number for the sample and all submittals.
 - 3. Demonstrate the resolution of each camera using the recording resolution specified herein.
 - 4. If the Engineer determines that the recording is defective or not of adequate quality, the Contractor shall correct deficiencies or, if necessary, re-perform the sewer inspection at the Contractor's expense.
 - 5. Use the report submission accepted by the Engineer as a benchmark for subsequent inspection report submissions.
 - 6. No inspection work is to be performed until the sample inspection reports have been accepted by the Engineer.
- C. Submit copies of current NASSCO PACP certifications for all Inspectors and Reviewers who shall perform the Contracted Work in accordance with NASSCO requirements having attained and retained their PACP certifications.
 - D. Submit a written description of procedures to be used to the Engineer, including product literature for all digital video equipment including, but not limited to cabling, camera, monitor, footage counter, digital video titling device, and recorder.
 - E. Bi-weekly data submittals:
 - 1. Bi-weekly data submittals shall be completed within two (2) weeks of the completion of a work area or intermittent submittals as approved by the Engineer.
 - 2. For the bi-weekly data submittals, submit two (2) copies of visual recording to the Engineer. The Engineer will review the inspections for completeness and accuracy of content, to ensure that the required information is provided, and the recording quality is acceptable. If the Engineer determines that the recording is defective or not of adequate quality, the Contractor shall re-perform the CCTV

inspection at the Contractor's expense.

3. For the bi-weekly data submittals, submit one (1) PACP (version 7.0.0 or newer) compliant Microsoft Access CCTV inspection Database containing inspection and defect information. Sewer condition coding shall be submitted as a PACP.mdb file accordingly. Name the PACP database according to the following file specification: [Contractor Name]_[Contract Number]_PACP_Submittal ##.mdb.
 4. For the bi-weekly data submittals, submit a PDF copy of the CCTV inspection logs to the Engineer. Logs shall record defects according to NASSCO's PACP.
 5. For the bi-weekly data submittals, submit a submittal tracking spreadsheet to the Engineer.
- F. Prior to initiating cleaning or inspection efforts, the Contractor shall submit an Emergency Plan that outlines proposed methods for recovering their cleaning or inspection equipment that has become lodged, lost or uncontrollable within the manhole or sewer, including confined space entry procedures.
- G. Contractor is to provide a daily schedule to DPW with planned inspection locations and Asset IDs.

1.06. QUALITY ASSURANCE

- A. Comply with the requirements of Section 01 45 00 QUALITY CONTROL and 01 74 00 CLEANING AND WASTE MANAGEMENT from the Green Book and also with specific requirements stipulated in this Contract.
- B. Comply with all codes, laws, ordinances, and regulations of governmental authorities having jurisdiction over this part of the work.
- C. Inspection shall be performed in accordance with most current NASSCO's Pipeline Assessment and Certification Program (PACP).
- D. The inspections shall be performed one pipe segment at a time based on DPW-assigned Asset IDs and per NASSCO requirements.
- E. Inspection shall be performed by certified operators in accordance with NASSCO having attained and retained their PACP certification. The Contractor shall ensure each operator is fully trained and certified in all aspects of sewer inspection and capable of making accurate observations and coding / recording all conditions that may be encountered in the sewers.
- F. Coding accuracy will be a function of the number of defects or construction features not recorded or omitted as well as of the correctness of the coding and classifications recorded. Coding accuracy is to satisfy the following requirements:
 1. Header accuracy: 95%.
 2. Detail / defect coding accuracy: 85%.

Inspections failing to meet these criteria will be rejected, re-inspected if required, recorded, and resubmitted at no additional cost to the Owner.

- G. Contractor shall implement a formal coding accuracy verification system before starting the Work.
 - 1. Submit coding accuracy checks with the corresponding video recording. The Contractor shall complete the CCTV Contractor Data Submittal and a Quality Assurance (QA) Review Report documenting the results of the coding accuracy verification, attached separately, and include it with each respective data submission. Where QA has been undertaken by the Contractor, PACP Section Header Fields 3 and 4 must be populated by the Contractor.
 - 2. Re-code inspections not satisfying the accuracy requirements and verify the accuracy of the inspection immediately preceding and immediately following the non-compliant inspection. Repeat the process until the preceding and subsequent inspections meet the accuracy requirements.
- H. The Contractor shall provide the Engineer with a complete list of Subcontractors whom the Contractor proposes to engage at least two (2) business days prior to the commencement of Work.
- I. The Contractor shall maintain an up to date Progress Log that tracks the progress of the work and status of inspections. The Engineer shall be provided with this information upon request. The log should document the following information at a minimum:
 - 1. Work Package ID
 - 2. Pipe Asset ID
 - 3. Upstream and Downstream Manhole Asset IDs
 - 4. Date of inspection
 - 5. Date of data submission
 - 6. Status of data acceptance / rejection
 - 7. Date of data acceptance / rejection
 - 8. Date of segment re-inspection (as required)
 - 9. Date of data resubmittal (as required)
 - 10. Date of resubmitted data acceptance (as required)
- J. The Contractor shall complete an internal audit to determine accuracy of video and associated NASSCO defect coding by a NASSCO certified supervisor, applying their name and reviewed by timestamp to the inspection prior to issuance.
- K. The Engineer shall be entitled to an audit of the control system and be present when assessments of the sewer integrity are being determined. When requested by the Engineer in writing, forward to the Engineer sufficient details and information for such audit assessment. Should any report fail to achieve a margin that the Engineer

deems satisfactory, the Contractor, without any additional compensation, shall recode and resubmit any data or reports that the Engineer deems necessary.

- L. All submittals will be subjected to a Quality Control/Quality Assurance (QA/QC) audit by the Engineer. Where inconsistencies are noted, the Contractor shall be responsible, where necessary and at no additional cost to the Engineer, for corrections including, re-inspection, recoding and entering additional information.

1.07. NOT USED

1.08. EXPERIENCE

- A. The Contractor shall submit documentation for Engineer approval to demonstrate the following experience as a business engaged in the CCTV inspection of sewer lines per the contract documents.
 - 1. The Contractor shall be in good standing under local contracting requirements or otherwise properly registered, licensed or permitted by law to carry on business within the State of Maryland, throughout the term of the Contract, and shall provide the Engineer with evidence thereof per the contract documents.
 - 2. At any time during the term of the Contract, the Engineer may, at their sole discretion and acting reasonably, request updated evidence of good standing. A Contractor, who fails to provide satisfactory evidence, will not be permitted to continue to perform any Work.
- B. The Contractor and/or any proposed Subcontractor, for the portion of the Work proposed to be contracted to them, shall:
 - 1. Have a minimum of three (3) years of experience in the field of sewer pipeline inspection by means of CCTV and have the required capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract Documents.
 - 2. Have successfully carried out work similar in nature, scope and value to the Work and demonstrate that within the past three (3) consecutive years prior to the bid, as a prime Contractor, the Contractor has successfully completed over 10,000 feet of previous CCTV on sewers 18" and smaller for condition assessment purposes. Inspection of new and rehabilitated infrastructure for acceptance purposes shall not be deemed as representative experience. For each project submitted to meet the experience requirements, indicate the following:
 - a. Name and location of project.
 - b. Name, address, and telephone number of Owner or Engineer.
 - c. Brief description of work to include length and diameter of pipelines inspected.
 - d. Amount of contract.

- e. Date of completion – state if project was completed on time.
- 3. Provide the Engineer with a complete list of Subcontractors whom the Contractor proposes to use prior to the commencement of Work.
- 4. Be fully capable of performing the Work required in strict accordance with the terms and provisions of the Contract Documents.
- C. The Contractor shall submit, for Engineer's approval, documentation to demonstrate the following experience of the staff proposed for this project:
 - 1. Operator certification documentation of each CCTV operator's NASSCO PACP certificate. The PACP certificate for all Operators performing work on this project shall be current on the day of the Contractor's submission and shall remain current throughout the performance of this work.
 - 2. Documentation of supervisors' and operators' training certifications, listing of completed projects, and a minimum of three (3) years of experience in the internal CCTV inspection of sewers.

PART 2. PRODUCTS

2.01. GENERAL

- A. Furnish the CCTV inspection studio, CCTV camera, audio-visual digital encoding equipment/software, and other necessary equipment, materials, electricity, labor, technicians, as may be needed to perform the CCTV inspection.

2.02. EQUIPMENT

- A. The Contractor shall submit a list describing all equipment to be used for review and approval by the Engineer.
- B. Sewer inspection units are to consist of a self-contained vehicle with separate areas for viewing and storage complete with the following equipment as a minimum.
 - 1. Cellular telephone and / or suitable communication systems linking all crew members.
 - 2. Fans and blowers capable of removing fog that may be present in sewers at the time of the inspection.
 - 3. Video cameras, lighting, cables, easement reels and power source.
 - 4. Video monitor and digital video recorder.
 - 5. Computer system with video capture card or dedicated unit and other related equipment.
 - 6. Temporary manhole covers to provide fall-in protection while performing work.
- C. Sewer CCTV Video Inspection Equipment:
 - 1. A complete CCTV system, including a camera, lighting, electronic footage counter, computer and monitor, mobile television studio, and digital video

recorder/player used for the televising operations shall be specifically designed for sewer inspections. Video inspection is to consist of the following:

- a. Video camera capable of panning 360° and tilting 270° with optimum picture quality provided by focus and iris adjustment. Focal range to be adjustable from 3 inches to infinity.
- b. The inspection equipment shall be capable of inspecting a minimum 600 linear feet of sewer line without access to a manhole in between.
- c. The inspection equipment shall be capable of clearly televising the interior of 6-inch to 18-inch height sewer sizes.
- d. The camera should be specifically designed and constructed for such sewer inspections and shall have above ground control for forward and backward movement in the sewer.
- e. CCTV camera unit will be equipped with a locating sonde as required to locate deep utilities and sewers, 10 feet deep or greater or buried structures and junctions that cannot be located or accessed from the ground surface.
- f. Capture the inspections in digital format in color from the live video source on archival grade HDD to the following minimum requirements.
 - i. MPEG-2 or MPEG-4 format (MPEG-4 preferred).
 - ii. Picture Size: 720 x 480 @ 29.97 frames per second.
 - iii. Data/Bit Rate: 6.0 Mbit/sec.
- g. Lighting for the camera shall be waterproof and suitable to allow a clear picture of the entire periphery of the pipe. The camera shall be operative and provide a clear picture in 100 percent humidity conditions. Lighting shall be adjustable to allow an even distribution of light around the sewer perimeter without loss of contrast, flare out of picture, or shadowing. Lighting shall illuminate the sewer or manhole ahead of the camera to be able to determine general condition, features and upcoming defects.
 - i. An unclear picture due to excessive lighting (image flare), the lack of lighting or the presence of fog, steam, or excessive humidity will be considered unsatisfactory. The Contractor is responsible for identifying and implementing corrective actions to obtain suitable video quality, such as using fans or ventilation systems to dissipate the fog or by the heating of incoming air to mitigate fog.
 - ii. A blurred picture due to fats, oil or grease will be considered unsatisfactory. The Contractor is responsible for identifying and implementing corrective actions to obtain suitable video quality, such as cleaning the sewer mainline, having the camera lens cleaned prior to reinspection of the mainline.
 - iii. The Contractor is responsible for presenting issues regarding

questionable video quality immediately to the attention of the Engineer.

- iv. Light heads shall be changed upon the request of the Engineer.
- h. Picture quality and definition shall be to the satisfaction of the Engineer and if unsatisfactory, equipment shall be removed from the sewer and no payment shall be made.
- i. Video overlay equipment capable of superimposing a minimum of 15 lines with up to 30 characters per line of alphanumeric information onto the video recording.
- j. The focal length is the intersection point between the camera lenses widest horizontal viewing angle and the pipe's side periphery (03 or 09 o'clock) when the camera is level and looking forward. The rear of the camera must be positioned at the start of the pipe where the camera's physical distance is added to the focal length. This total distance is known as the cable calibration distance or cable set point. Record the distance from the manhole to pipe interface to the cable calibration distance at the start of the inspection and adjust the distance reading so that zero is at the manhole to start of pipe interface.
- k. Minimum requirements of in-line inspection technologies for CCTV video inspection equipment shall be:
 - i. Self-propelled rubber tired or crawler tractor capable of passing over minor surface imperfections including but not limited to broken joints and solid debris up to 2 inches in height for pipe heights up to 18 inch.
 - ii. Transport and cable capable of inspecting a minimum of 600 feet of sewer from a single access point and the complete inspection of the sewer from the start manhole to the finish manhole.
 - iii. Equipment shall be capable of continuously capturing digital video with no frame loss, regardless of the progression of the inspection for the entire length being inspected.
 - iv. Transport equipment must be capable of allowing for adjustable camera height to be centered within pipe heights of up to and including 18 inches.
 - v. Incorporate a suitable distance-reading device to measure the location of the equipment in the pipe, to an accuracy of $\pm 0.5\%$ of the length of the inspection.
 - vi. An electronic footage counter shall accurately measure the distance of the CCTV inspection equipment from the centerline of the starting manhole within ± 2 -ft. This measurement shall be displayed on the monitor and recorded on the video at all times. The importance of accurate distance measurements is emphasized.

PART 3. EXECUTION

3.01. HIGH FLOW CONDITIONS

- A. The intent of any flow control is to maximize visual inspection to as great a degree as possible up to and including 34" in height.
 - 1. Flow control shall be incidental to the contract. Bypass pumping to control flow is not required; however, the Contractor must, at a minimum, make reasonable effort to control the flow by using pipe-cleaning equipment to temporarily retain flow or to remove standing water.
 - 2. The Contractor must also consider weather conditions and low diurnal flow patterns to obtain the best video image of the sewer. This may require the Contractor to schedule video work to times that are after major rain events or to overnight shifts when the sewer system attains a lower dry weather flow environment. These inspections need to be coordinated with City to identify opportune times for low flows expected from the hydraulic model.
 - 3. The Contractor is to maximize visual inspection to as great a degree as possible. For pipes of height of 34" or less, regardless of the number and type of cleaning passes performed, the final pass of cleaning shall be undertaken in conjunction with the CCTV camera inspection that is to be provided as the final inspection deliverable. During the final cleaning pass, the CCTV inspection camera shall be mobilized to inspect the sewer segment while the jet nozzle pulls water away from the camera, drawing any water level down to maximize the exposure of the sewer pipe circumference.
 - 4. The Contractor is to maximize visual inspection to as great a degree as possible. For pipes of height of 34" or less where the flow is greater than 50% after the Contractor has attempted to lower the water level by means of hydraulic equipment, the Contractor is to inform the Engineer. The Engineer may direct the Contractor to not clean the pipe and the inspection would be done by CCTV and SONAR.

3.02. CCTV INSPECTION

- A. All open access structures or manholes will be attended at all times, and all access structures or manholes that were sealed or bolted to control odors or entry of extraneous water or for security reasons will be resealed or re-bolted after entry. The Contractor shall liaise with the Engineer to ensure that sealed or bolted chambers have been adequately sealed or bolted, post inspection.
- B. The Contractor understands that Baltimore City shall incur significant and substantial penalties from the state of Maryland in the event that sewage is discharged onto the ground or into any streams as related to the work in this Contract. In the event that sewage is released into the environment as a result of the Contractor's work, the Contractor shall immediately rectify the situation and notify the Engineer.
- C. At the commencement of each CCTV inspection, temporarily insert a survey rod or

steel tape from the manhole surface to the invert of the pipe that is to be surveyed so that the rod or tape vertically crosses the 12 to 6 o'clock positions. The gradations shall be clearly visible in the resultant video footage so the pipe height can be verified by viewing the footage

- D. Ensure camera speed does not exceed 30 feet / minute during sewer and manhole inspections.
- E. Inspect sewer pipelines with pan and tilt conventional television imagery so as to record relevant features and defects of the pipeline under inspection. Inspection of pipelines shall be carried out in accordance with NASSCO PACP standards in conjunction with cleaning operations in accordance with the requirements of the contract documents. A skilled and NASSCO PACP certified technician or supervisor who shall be located at the control panel in the mobile television studio shall control the operation of the television equipment.
- F. Where drop connections are observed, the camera shall pan and zoom into the "Tap" connection to observe defects and provide comment within the remarks column of the Tap entry using NASSCO's order of severity rules.
- G. If television inspection of an entire section cannot be successfully performed from one manhole, perform a reverse setup to obtain a complete television inspection.
 - a. Perform a reverse set-up inspection when a blockage in the sewer prevents completion of the inspection from the upstream manhole. Move the equipment to the downstream manhole and attempt to complete the inspection of the entire sewer to the upstream manhole.
 - b. Immediately advise the Engineer when a complete sewer inspection cannot be completed.
 - c. In the event the Contractor is unable to completely perform CCTV inspection or cleaning from both directions due to obstructions (with the exception of a cross bore or collapse), the Contractor must inform the Engineer of this immediately. Upon approval by the Engineer, the Contractor shall within two weeks have the obstructions removed using specialty cleaning equipment capable of removing the obstruction and simultaneously viewing the cleaning activity from the same vantage point in order to view the cleaning operation and not cause any damage to the host pipe. The Contractor will then televise the pipe segment in its entirety.
 - d. If the Contractor cannot complete the inspection after attempting to use specialty cleaning equipment, the Contractor and Engineer shall jointly decide one of the following alternatives regarding the obstruction:
 - i. Abandon the inspection, or;
 - ii. Re-perform the inspection subsequent to one of the following actions:

- Modifying the camera set-up position or method of transport; and
 - Completion of external or emergency repair.
- iii. Note in a log the Asset ID and Manhole IDs, surface distance or calibrated footage counter measurement, upstream and downstream length from associated manhole, length of missing video and the reason the inspection could not be completed and review with the Engineer for approval on a weekly basis.
- H. The sewer inspected distance shall represent the distance as per NASSCO guidelines:
1. From the start manhole, access or control structure and pipe interface 0.0ft of the sewer segment to finish manhole, access or control structure interface unless incomplete as per 3.02.G.
- I. Whenever prevailing conditions allow, position the camera head to reduce the risk of picture distortion. In circular sewers, position the camera lens centrally (i.e., in prime position) within the sewer. In noncircular sewers, picture orientation shall be taken at mid-height, unless otherwise agreed, and centered horizontally. Direct the camera lens along the longitudinal axis of the sewer when in prime position. A positioning tolerance of +/- 10 percent of the vertical sewer dimension shall be allowed when the camera is in prime position.
- J. Indicate on the monitor screen accurate automatic distance measurement that begins to move immediately as the camera moves. Ensure measurement is accurate from the cable calibration point to the pipe to finish manhole interface.
- K. All defects and observations are to be circumferentially located based on the side periphery only.
- L. Stop the camera and position to provide a steady perpendicular view of connections, junctions, major branches and major defects including deformed sewers, displaced bricks, holes, large displaced joints, missing bricks, missing mortar, obstructions, and large open joints for a period of time adequate to review the defect or observation for condition assessment purposes.
- M. Tap observation distances must occur at the center of the tap and the side periphery. To determine use and deficiencies of the tap, the camera must continue to travel, camera centered in the perspective view (to capture other observations), to stop perpendicular to the tap and pan so that the camera can view directly into the barrel of the lateral, to enable the inspector to apply modification and descriptor codes to the tap as per NASSCO PACP standards as necessary.
- N. Further to coding Taps, the Contractor shall conform to NASSCO requirements however, where defective Taps are identified, the most significant observed defect seen within the lateral shall be communicated within the "Remarks" field as per PACP requirements but also providing the associated property address of the Tap. The Contractor shall identify the affected property by completing a surface distance or calibrated footage counter measurement on the surface to confirm property number and note this within the "Remarks" field with an associated photograph taken of the

offending defective tap.

- O. Perform television inspections during low flow conditions. The Engineer will reject any television inspection that, because of high flow conditions or for any other reason, does not produce an effective survey of the sewer pipe. In addition, if it is determined that effective conventional television inspection cannot be performed, notify the Engineer in writing.
- P. Observations that are critical to public safety or pose imminent threat to the public or environment shall be reported within 24-hours.
- Q. Re-perform sewer inspections where the Engineer has determined the tolerance requirements for camera position and speed and internal distance measurement requirements per these specifications have not been satisfied.

3.03. DIGITAL AUDIO/VISUAL RECORDING:

- A. Take continuous digital video recordings of the inspection view as it appears on the television monitor. The recording shall be used as a permanent record of defects. The recording shall be in MPEG file format. The digital video encoding shall include both sound and video information that can be reproduced with a video image equal or very close to the quality of the original picture on the television monitor. The replay of the recorded video information, when reviewed by the appropriate MPEG 2/4 viewing software, shall be free of electrical interference and shall produce a clear, stable image.
- B. Audio recording will not be required as a deliverable on this Contract.
- C. Create separate MPEG files for each sewer line segment. In case of a reverse setup, store such inspection in a separate MPEG file. MPEG files shall be written to 2.5-inch portable hard disk drives (HDD) for delivery to the Engineer. Multiple MPEGs may exist on each HDD. Each HDD folder shall be labeled, at a minimum, with the following information: Project Name, Date and time of inspection, pipe segment referenced Asset ID, Sewer Line Sections with manhole IDs, Direction of survey, Current distance along reach (counter footage), and TV Inspection Contractor's firm name.
- D. For sewers, provide file names containing up to a maximum of 64 characters for each digital video file in accordance with the following.
 - 1. Contract No_E<entity no>_F<from entity no>_T<to entity no>_StreetName_M<measured len>_I<inspected len>_DS or US<inspection dir>_<Letter designating inspection sequence>_<YYYYMMDD>.MPG
 - a. Eg. 910-2000_ ES31Q1_014G1_FS31Q1_014MH_TS33Q1_014MH_BERRY_M100.0_I39.2_US_B_20200325.MPG
 - i. B (indicates that this is the second or "B" partial inspection of this entity, 39.2 ft long)
- E. Digital video still frame captures of minimum 720 x 480 x 24 bit JPEG shall be logged

for every observation. Photographs shall be clear and accurately show the observation. Photographs shall have the following annotation: Upstream and downstream manhole ID, survey direction, footage, time and date, description. Name photos as follows: **[Asset ID]_[Upstream Manhole ID-Downstream Manhole ID]_[HHMM_YYYYMMDD]_[Code]_[Footage].jpg**. When multiple taps are found at the same distance at different clock positions, use an underscore and the clock position in the file name after the footage to differentiate them. For example, **[Asset ID]_[Upstream Manhole ID-Downstream Manhole ID]_[HHMM_YYYYMMDD]_[Code]_[Footage]_[Clock Position].jpg** .

F. CCTV video header information will be recorded for each pipe segment video and will be displayed for a minimum of 30 seconds at the start of all inspections. Inspection of the sewer shall not proceed while the information screen is being displayed. The data must be presented in a format with white text on a black background. The following information will be provided in the video header:

1. **Contract Number:**
2. **Date:** Date inspection was completed. Format: YYYYMMDD.
3. **Time:** Time survey was initiated. Format: 24-hr military, HH:MM.
4. **Surveyed By:** Name of PACP certified inspection operator conducting the inspection.
5. **Certificate Number:** NASSCO certificate number of the operator conducting the inspection.
6. **Company:** Name of company completing the inspection.
7. **Pipeline Reference:** Asset ID
8. **Start MH ID:** ID of the MH where the inspection is initiated.
9. **Finish MH ID:** ID of the MH where the inspection is ended.
10. **Street:** Street in which a majority of the sewer being inspected is located. Enter “ROW, (Street Name)” if sewer is not in the road but is in close proximity to a readily identifiable street. Enter “ROW” if sewer is not in close proximity to a readily identifiable street.
11. **Start Location:** Physical address, intersection or nearest landmark that can be used to readily identify the location of the start MH.
12. **Survey Direction:** Direction of inspection in relation to flow in the sewer; Upstream or Downstream
13. **Material:** Material composition of sewer being inspected. Format: NASSCO PACP code.
14. **Height:** Nominal sewer dimensions. Pipe diameter if circular, height if non-circular.
15. **Width:** Nominal sewer dimensions. Maximum width if non-circular.

- G. The Engineer reserves the right to refuse an MPEG on the basis of poor image quality, excessive bit rates, inconsistent frame rates, or any other characteristics that may affect usability by the Engineer.
- H. The Contractor shall provide at least three (3), 2.5-inch portable hard disk drives (HDD), complete with all associated drivers and software, power adaptors and USB cables, delivered on a bi-weekly rotation exchange that contains completed sewer inspection video with viewing software and sewer condition coding data to the Engineer. Sewer condition coding shall be submitted as PACP.mdb files accordingly. Retained HDDs will be returned at an agreed frequency.
- I. All HDDs shall be sized appropriately to accommodate all above-mentioned files and have dual USB 3.0 (preferable) and (a minimum) USB 2.0 compatibility with a minimum data transfer rate of 480 MB/s.

3.04. INSPECTION REPORTS:

- A. Prepare a television inspection report covering the television inspection work and the information acquired. Inspection forms shall be completed and submitted for all pipe sections requiring inspection, including those for which an actual inspection cannot be performed per these specifications.
- B. Name the report files according to the following file specification: [Asset ID]_[Start Manhole Number]_[End Manhole Number]_[YYMMDD]_[HH:MM – 24 hour format].pdf
- C. Report sewer defects in accordance with NASSCOs Pipeline Assessment and Certification Program (PACP). The Engineer reserves the right to refuse any inspection report that does not comply with the PACP program. The Engineer, at their discretion, may modify this form to meet their condition assessment needs. Alternate inspection forms shall be used only if approved by the Engineer.
- D. In addition to completing all mandatory PACP inspection required fields, the Contractor shall complete the following fields in the PACP Header Section:

Pipe Header Section	Field No.	Field Name	NASSCO Mandatory	REQUIRED (Yes / No)?
General Information	1	Surveyed By (<i>Operator / PACP User Name</i>)	Yes	Yes
	2	Certificate Number	Yes	Yes
	3	Reviewed By	No	No
	4	Reviewer Certificate Number	No	No
	5	Owner	No	Yes
	6	Customer	No	Yes
	7	P/O Number (Contract No.)	No	Yes
	8	Work Order	No	Yes

Pipe Header Section	Field No.	Field Name	NASSCO Mandatory	REQUIRED (Yes / No)?
	9	Media Label	No	Yes
	10	Project	No	Yes
	11	Date	Yes	Yes
	12	Time	No	Yes
	13	Sheet Number	Yes	Yes
	14	Weather	No	Yes
	15	Pre-Cleaning	Yes	Yes
	16	Date Cleaned	No	Yes
	17	Flow Control	No	Yes
	18	Purpose of Survey	No	Yes
	19	Direction of Survey	Yes	Yes
	20	Inspection Technology Used	No	Yes
	21	Inspection Status	Yes	Yes
	22	Consequence of Failure	No	No
	23	Pressure Value	No	No

Location	24	Drainage Area	No	Yes
	25	Pipe Segment Reference (<i>Asset ID</i>)	No	Yes
	26	Street (<i>Name and Number</i>)	Yes	Yes
	27	City	Yes	Yes
	28	Location Code	No	Yes
	29	Location Details	No	Yes

Pipe	30	Pipe Use	Yes	Yes
	31	Height (<i>Diameter</i>)	Yes	Yes
	32	Width	Yes	Yes
	33	Shape	Yes	Yes
	34	Material	Yes	Yes
	35	Lining Method	No	Yes

Pipe Header Section	Field No.	Field Name	NASSCO Mandatory	REQUIRED (Yes / No)?
	36	Coating Method	No	No
	37	Pipe Joint Length	No	Yes
	38	Total Length (Surface Distance)	No	Yes
	39	Length Surveyed	No	Yes
	40	Year Constructed	No	No
	41	Year Renewed	No	No

Measurements	42	Upstream MH No.	Yes	Yes
	43	Upstream MH Rim to Invert	No	Yes
	44	Upstream MH Rim to Grade	No	No
	45	Upstream MH Grade to Invert	No	No
	46	Upstream MH Northing	No	No
	47	Upstream MH Easting	No	No
	48	Upstream MH Elevation	No	No
	49	Downstream MH No.	Yes	Yes
	50	Downstream MH Rim to Invert	No	Yes
	51	Downstream MH Rim to Grade	No	No
	52	Downstream MH Grade to Invert	No	No
	53	Downstream MH Northing	No	No
	54	Downstream MH Easting	No	No
	55	Downstream MH Elevation	No	No
	56	MH Coordinate System	No	No
	57	MH Vertical Datum	No	No
	58	GPS Accuracy	No	No
	59	Additional Information	No	Yes*

Yes* - when required.

- E. An “empty header” or “0-ft MSA” inspection shall be completed for a sewer segment that cannot be inspected for reasons such as high flow, depths or velocities, inaccessibility to the sewer due to inaccessible or unlocated access structures, heavy debris, and at the Engineer’s direction, etc. The inspection form header and detail

sections shall comply with NASSCO PACP guidelines populating all required header fields. The contractor will abandon the survey at a distance of 0-ft inspected and provide a general comment that describes the reason that the inspection cannot be conducted in the Additional Information field. An “empty header” inspection shall also be created for reversal inspections that cannot be completed noting reasons for non-completion. The Contractor shall record at least one photo documenting conditions preventing the inspection of the pipe segment. Empty header records, and image references for the photos, shall be included in the PACP database as submitted by the contractor with adjoining segments.

3.05. TRAFFIC CONTROL

- A. The Contractor shall comply with Section 34 71 00 ROADWAY CONSTRUCTION from the Green Book and also with specific requirements stipulated in this Contract.

3.06. ACCEPTANCE OF WORK

- A. The contractor shall submit required CCTV video inspections of each sewer segment to the Engineer for review and determination if the work performed is acceptable.
- B. The sewer inspection shall also be used by the Engineer to determine acceptance of sewer cleaning, physically attached solid debris cutting, Fats, Oils and Grease Abatement, removal of excessive grease and roots and intruding sewer tap removals where undertaken for mainline pipes less than 36” in height.
- C. The Engineer shall review the pipe inspection videos within fifteen (15) working days of submission and determine if work performed is acceptable.
- D. The contractor shall re-perform sewer inspections where the Engineer has determined the requirements of the specification have not been satisfied.
- E. The contractor shall correct non-compliant inspection submissions and resubmit the corrected inspections to the Engineer within ten (10) working days.
- F. The contractor shall repeat the process until the inspection submissions are accepted by the Engineer. Work to perform remedial work will not be eligible for additional payment.

3.07. PROJECT DELIVERABLES

- A. CCTV Sewer Inspections shall include the following information:
 - 1. The Contractor shall submit formal NASSCO PACP compliant Sewer Inspection Reports respectively, in digital (PDF and PACP.mdb) formats, that summarizes all inspection activities and includes all inspection video and data in their raw format, along with any software viewing packages required, at no cost to the Owner, to view or utilize the video and raw data.
 - 2. The Contractor shall supply separately two (2) duplicated, 2.5-inch portable HDD's, complete with all associated drivers and software, power adaptors and

USB cables, containing all video inspections and coding data to the Engineer and Owner upon completion of the project.

3. Diagrams and sketches relating to mapping discrepancies as per 3.01.C.5.

3.08. MEASUREMENT AND PAYMENT

A. Sewer Inspection

1. Digital video recordings, Inspection coding and Inspection Reports will be included with the sewer inspection.
2. Correction and re-submission of non-compliant submissions will be at Contractor's own expense.
3. Sewer inspections will be measured on a length basis for each size and type of sewer and paid for at the Contract Unit Price for "Sewer Inspection". Length to be paid for will be the total length of sewer inspected in accordance with this specification, accepted and measured by the Engineer.
4. The height of non-circular sewers will be taken as the largest dimension.
5. Payment will not be made until the required report submissions are accepted by the Engineer.
6. Payment will not be made for inspections re-performed where the Engineer has determined the requirements of the specification have not been satisfied.
7. Sewer cleaning shall be paid upon review and acceptance of the corresponding video inspection by the Engineer.
8. The "Miscellaneous Allowance" shall relate to approved completed work that is deemed outside of all other measurement and payment items, accepted and measured by the Engineer.
9. Reverse setups performed to obtain a complete television inspection or cleaning will be incidental to the Contract.
10. The provision of "empty header" or "0-ft MSA" inspection data will be incidental to the Contract.

3.09. CLOSEOUT ACTIVITIES

- A. The Contractor shall comply with Section 01 77 00 CLOSEOUT PROCEDURES from the Green Book and also with specific requirements stipulated in this Contract.
- B. Acceptance of delivery to include revisions based on QA/QC Audit.

SECTION 30 01 30.11

LARGE DIAMETER SANITARY SEWER PIPELINE INSPECTION

PART 1. GENERAL

1.01. DESCRIPTION OF WORK

- A. This specification covers the internal inspection of gravity sewers 20" in height and greater.
- B. This specification covers inspection of gravity sewers using closed circuit television (CCTV) video and other multi-sensor inspection technologies (MSI) such as LASER and SONAR for the purposes of assessing thoroughness of cleaning, observing and/or recording structural mainline and lateral defects, construction, operational and miscellaneous features of existing sewer assets and to verify rehabilitated or new sewer construction prior to acceptance.
- C. The Contractor shall be responsible for providing all equipment, tools, labor, materials, and incidental services necessary to perform all work for CCTV inspections of sewer lines as indicated and in compliance with the Contract Documents.
- D. Types of cleaning for pipes of height of 34" or less shall be performed in accordance with 33 01 30.41 Sanitary Sewer Pipeline Cleaning specification in order to conduct a NASSCO-compliant inspection. This includes specifications for Standard Sewer Cleaning, Excessive Grease and Root Removal, Fats, Oils and Grease Abatement, Physically Attached Solid Debris Cutting and Removing Intruding Sewer Taps.
- E. For pipes of height of 34" or less, regardless of the number and type of cleaning passes performed, the final pass of cleaning shall be undertaken in conjunction with the CCTV camera inspection that is to be provided as the final inspection deliverable. During the final cleaning pass, the CCTV inspection camera shall be mobilized to inspect the sewer segment while the jet nozzle pulls water away from the camera, drawing the water level down as necessary to maximize the exposure of the sewer pipe circumference. The use of the cleaning equipment in conjunction with the CCTV camera inspection shall not be considered an additional pass but shall be incidental to the Contract.
- F. Inspections may be witnessed by the Engineer.

1.02. RELATED REQUIREMENTS:

- A. Section 33 01 30.10 - Small Diameter Sanitary Sewer Pipeline Inspection
- B. Section 33 01 30.41 - Sanitary Sewer Pipeline Cleaning
- C. Section 33 01 30.50 - Manhole Panoramic Inspection
- D. Section 33 01 30.53 - Manhole Cleaning
- E. Section 33 01 30.15 - Lateral Sewer Pipeline Inspection
- F. Section 33 01 30.44 - Lateral Sewer Pipeline Cleaning

Supplemental Technical Specifications

G. Section 33 01 30.65 - Sanitary Sewer Acoustic Inspection

H. Section 33 01 30.87 - Temporary Sewer Bypass Pumping

1.03. REFERENCES

A. National Association of Sewer Service Companies (NASSCO):

1. Pipeline Assessment and Certification Program (PACP) Reference Manual.
2. Manhole Assessment and Certification Program (MACP) Reference Manual.

1.04. DEFINITIONS

- A. CCTV Inspection: Closed circuit television inspection - Operation necessary to complete a high-definition, true-color visual inspection for verification of existing internal sewer line conditions.
- B. AVI: Audio Video Interleave, developed by Microsoft© is the acronym given to a family of multimedia container formats as part of its video for Windows© software.
- C. MPEG: Moving Pictures Expert Group, is the acronym given to a family of international standards fused for coding visual information in a digital compressed format.
- D. MOV: Common multimedia container file format developed by Apple© for use and compatible with both Macintosh© QuickTime and Windows© platforms. MOV files commonly use the MPEG-4 codec for compression.
- E. HDD: Portable Hard Disk Drive. For the purposes of this specification, HDD shall be written in accordance with the ISO-9660 Level 2 specifications.
- F. Engineer: City of Baltimore Engineer / Owner's Representative / Owner / Field Inspector.

1.05. SUBMITTALS

- A. Submit all contract submittals and/or drawings in accordance with Section 01 33 00 SUBMITTAL PROCEDURES from the City of Baltimore DPW (DPW) Specifications (The Green Book, 2006) and also with specific requirements stipulated in this Contract.
- B. Sample Inspection Report: Prior to initiating the Work, the Contractor shall submit to the Engineer the following documentation for approval to ensure quality and conformity requirements of this contract:
1. Provide a sample report of a sewer inspection including digital data files, of an actual sewer performed by each device to be used on this Contract for review at least one month before beginning the inspection work. The Sample Report shall include:
 - a. Two (2) copies of visual recording to the Engineer. The Engineer will review the inspections for completeness and accuracy of content, to ensure

- that the required information is provided, and the recording quality is acceptable. If the Engineer determines that the recording is defective or not of adequate quality, the Contractor shall re-perform the CCTV inspection at the Contractor's expense.
- b. One (1) PACP (version 7.0.0 or newer) compliant Microsoft Access, CCTV inspection Databases containing inspection and defect information. Sewer condition coding shall be submitted as a PACP.mdb file accordingly. Name the PACP database according to the following file specification: [Contractor Name]_[Contract Number]_PACP_Submittal ##.mdb.
 - c. One (1) PDF copy of the CCTV inspection logs to the Engineer. Logs shall record defects according to NASSCO's PACP standards.
 - d. Sample observation photos.
 - e. Submittal Tracking Spreadsheet utilizing the template provided in the Appendix of this specification.
 - f. If Side Wall Scanning technologies are to be used by the Contractor, the Contractor shall provide a sample report of a sewer inspection, including all digital files representative of the deliverables detailed in 3.11 performed by each device to be used on this Contract for review at least two (2) weeks before the beginning of the inspection work.
 - g. Provide a sample report of a LASER and SONAR sewer inspection, including all digital files representative of the deliverables detailed in 3.11.C.1 and 3.11.C.2 performed by each device to be used on this Contract for review at least one month before the beginning of the inspection work.
- 2. Clearly identify the equipment make, model and serial number for the sample and all submittals.
 - 3. Demonstrate the resolution of each camera using the recording resolution specified herein.
 - 4. If the Engineer determines that the recording is defective or not of adequate quality, the Contractor shall correct deficiencies or, if necessary, re-perform the sewer inspection at the Contractor's expense.
 - 5. Use the report submission accepted by the Engineer as a benchmark for subsequent inspection report submissions.
 - 6. No inspection work is to be performed until the sample inspection reports have been accepted by the Engineer.
- C. Submit copies of current NASSCO PACP certifications for all Inspectors and Reviewers who shall perform the Contracted Work in accordance with NASSCO requirements having attained and retained their PACP certifications.

- D. Submit a written description of procedures to be used to the Engineer, including product literature for all digital video equipment including, but not limited to cabling, camera, monitor, footage counter, digital video titling device, and recorder.
 - E. Bi-weekly data submittals:
 - 1. Bi-weekly data submittals shall be completed within two (2) weeks of the completion of a work area or intermittent submittals as approved by the Engineer.
 - 2. For the bi-weekly data submittals, submit two (2) copies of visual recording to the Engineer. The Engineer will review the inspections for completeness and accuracy of content, to ensure that the required information is provided, and the recording quality is acceptable. If the Engineer determines that the recording is defective or not of adequate quality, the Contractor shall re-perform the CCTV / LASER or SONAR inspection at the Contractor's expense.
 - 3. For the bi-weekly data submittals, submit one (1) PACP (version 7.0.0 or newer) compliant Microsoft Access CCTV inspection Database containing inspection and defect information. Sewer condition coding shall be submitted as a PACP.mdb file accordingly. Name the PACP database according to the following file specification: [Contractor Name]_[Contract Number]_PACP_Submittal ##.mdb.
 - 4. For the bi-weekly data submittals, submit a PDF copy of the CCTV inspection logs to the Engineer. Logs shall record defects according to NASSCO's PACP.
 - 5. For the bi-weekly data submittals, submit a submittal tracking spreadsheet to the Engineer.
 - F. Prior to initiating cleaning or inspection efforts, the Contractor shall submit an Emergency Plan that outlines proposed methods for recovering their cleaning or inspection equipment that has become lodged, lost or uncontrollable within the manhole or sewer, including confined space entry procedures.
 - G. Contractor is to provide a daily schedule to Baltimore DPW with planned inspection locations and Asset IDs.
- 1.06. QUALITY ASSURANCE
- A. Comply with the requirements of Section 01 45 00 QUALITY CONTROL and 01 74 00 CLEANING AND WASTE MANAGEMENT from the Green Book and also with specific requirements stipulated in this Contract.
 - B. Comply with all codes, laws, ordinances, and regulations of governmental authorities having jurisdiction over this part of the work.
 - C. Inspection shall be performed in accordance with most current NASSCO's Pipeline Assessment and Certification Program (PACP).
 - D. The inspections shall be performed one pipe segment at a time based on DPW-assigned Asset IDs and per NASSCO requirements

- E. Inspection shall be performed by certified operators in accordance with NASSCO having attained and retained their PACP certification. The Contractor shall ensure each operator is fully trained and certified in all aspects of sewer inspection and capable of making accurate observations and coding / recording all conditions that may be encountered in the sewers.
- F. Coding accuracy will be a function of the number of defects or construction features not recorded or omitted as well as of the correctness of the coding and classifications recorded. Coding accuracy is to satisfy the following requirements:
 - 1. Header accuracy: 95%.
 - 2. Detail / defect coding accuracy: 85%.Inspections failing to meet these criteria will be rejected, re-inspected if required, recoded, and resubmitted at no additional cost to the Owner.
- G. Contractor shall implement a formal coding accuracy verification system before starting the Work.
 - 1. Submit coding accuracy checks with the corresponding video recording. The Contractor shall complete the CCTV Contractor Data Submittal and a Quality Assurance (QA) Review Report documenting the results of the coding accuracy verification, attached separately, and include it with each respective data submission. Where QA has been undertaken by the Contractor, PACP Section Header Fields 3 and 4 must be populated by the Contractor.
 - 2. Re-code inspections not satisfying the accuracy requirements and verify the accuracy of the inspection immediately preceding and immediately following the non-compliant inspection. Repeat the process until the preceding and subsequent inspections meet the accuracy requirements.
- H. The Contractor shall provide the Engineer with a complete list of Subcontractors whom the Contractor proposes to engage at least two (2) business days prior to the commencement of Work.
- I. The Contractor shall maintain an up to date Progress Log that tracks the progress of the work and status of inspections. The Engineer shall be provided with this information upon request. The log should document the following information at a minimum:
 - 1. Work Package ID
 - 2. Pipe Asset ID
 - 3. Upstream and Downstream Manhole Asset IDs
 - 4. Date of inspection
 - 5. Date of data submission
 - 6. Status of data acceptance / rejection
 - 7. Date of data acceptance / rejection

8. Date of segment re-inspection (as required)
 9. Date of data resubmittal (as required)
 10. Date of resubmitted data acceptance (as required)
 - J. The Contractor shall complete an internal audit to determine accuracy of video and associated NASSCO defect coding by a NASSCO certified supervisor, applying their name and reviewed by timestamp to the inspection prior to issuance.
 - K. The Engineer shall be entitled to an audit of the control system and be present when assessments of the sewer integrity are being determined. When requested by the Engineer in writing, forward to the Engineer sufficient details and information for such audit assessment. Should any report fail to achieve a margin that the Engineer deems satisfactory, the Contractor, without any additional compensation, shall recode and resubmit any data or reports that the Engineer deems necessary.
 - L. All submittals will be subjected to a Quality Control/Quality Assurance (QA/QC) audit by the Engineer. Where inconsistencies are noted, the Contractor shall be responsible, where necessary and at no additional cost to the Engineer, for corrections including, re-inspection, recoding and entering additional information.
- 1.07. NOT USED
- 1.08. EXPERIENCE
- A. The Contractor shall submit documentation for Engineer approval to demonstrate the following experience as a business engaged in the CCTV inspection of sewer lines per the contract documents:
 1. The Contractor shall be in good standing under local contracting requirements or otherwise properly registered, licensed or permitted by law to carry on business within the State of Maryland, throughout the term of the Contract, and shall provide the Engineer with evidence thereof per the contract documents.
 2. At any time during the term of the Contract, the Engineer may, at their sole discretion and acting reasonably, request updated evidence of good standing. A Contractor, who fails to provide satisfactory evidence, will not be permitted to continue to perform any Work.
 - B. The Contractor and/or any proposed Subcontractor, for the portion of the Work proposed to be contracted to them, shall:
 1. Have a minimum of three (3) years of experience in the field of sewer pipeline inspection by means of CCTV, LASER and SONAR inspection technologies and have the required capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract Documents.
 2. Have successfully carried out work similar in nature, scope and value to the Work and demonstrate that within the past three (3) consecutive years prior to the bid, as a prime Contractor, the Contractor has successfully completed over 10,000 feet of previous CCTV and 5,000 feet of previous LASER and SONAR

inspections on sewers 36" and larger for condition assessment purposes. Inspection of new infrastructure for acceptance purposes shall not be deemed as representative experience. For each project submitted to meet the experience requirements, indicate the following:

- a. Name and location of project.
 - b. Name, address, and telephone number of Owner or Engineer.
 - c. Brief description of work to include length and diameter of pipelines inspected.
 - d. Amount of contract.
 - e. Date of completion – state if project was completed on time.
3. Provide the Engineer with a complete list of Subcontractors whom the Contractor proposes to use prior to the commencement of Work.
 4. Be fully capable of performing the Work required in strict accordance with the terms and provisions of the Contract Documents.
- C. The Contractor shall submit, for Engineer's approval, documentation to demonstrate the following experience of the staff proposed for this project:
1. Operator certification documentation of each CCTV operator's NASSCO PACP certificate. The PACP certificate for all Operators performing work on this project shall be current on the day of the Contractor's submission and shall remain current throughout the performance of this work.
 2. Documentation of supervisors' and operators' training certifications, listing of completed projects, and a minimum of five (5) years of experience in the internal inspection of sewers using CCTV, LASER and SONAR inspection technologies.

PART 2. PRODUCTS

2.01. GENERAL

- A. Furnish the CCTV and MSI inspection studio, CCTV camera, visual digital encoding equipment/software, and other necessary equipment, materials, electricity, labor, technicians, as may be needed to perform the CCTV and MSI inspections.

2.02. EQUIPMENT

- A. The Contractor shall submit a list describing all equipment to be used for review and approval by the Engineer.
- B. Sewer inspection units are to consist of a self-contained vehicle with separate areas for viewing and storage complete with the following equipment as a minimum.
 1. Cellular telephone and / or suitable communication systems linking all crew members.

2. Fans and blowers capable of removing fog that may be present in sewers at the time of the inspection.
3. Video cameras, lighting, cables, easement reels and power source.
4. Video monitor and digital video recorder.
5. Computer system with video capture card or dedicated unit and other related equipment.
6. Temporary manhole covers to provide fall-in protection while performing work.

C. Sewer CCTV Video Inspection Equipment:

1. A complete CCTV system, including a camera, lighting, electronic footage counter, computer and monitor, mobile television studio, and digital video recorder/player used for the televising operations shall be specifically designed for sewer inspections. Video inspection is to consist of the following:
 - a. Video camera capable of panning 360° and tilting 270° with optimum picture quality provided by focus and iris adjustment. Focal range to be adjustable from 3 inches to infinity.
 - b. The inspection equipment shall be capable of inspecting a minimum 1,500 linear feet of sewer line without access to a manhole in between.
 - c. The inspection equipment shall be capable of clearly televising the interior of 20-inch to 180-inch height sewer sizes.
 - d. The camera should be specifically designed and constructed for such sewer inspections and shall have above ground control for forward and backward movement in the sewer using tracked, wheeled, or tethered skid or floatation devices.
 - e. CCTV camera unit will be equipped with a locating sonde as required to locate deep utilities and sewers, 10 feet deep or greater or buried structures and junctions that cannot be located or accessed from the ground surface.
 - f. Capture the inspections in digital format in color from the live video source on archival grade HDD to the following minimum requirements.
 - i. MPEG-2 or MPEG-4 format (MPEG-4 preferred).
 - ii. Picture Size: 1024x768 (or greater) @ 29.97 (minimum) frames per second.
 - iii. Data/Bit Rate: 6.0 Mbit/sec.
 - g. Lighting for the camera shall be waterproof and suitable to allow a clear picture of the entire periphery of the pipe. The camera shall be operative and provide a clear picture in 100 percent humidity conditions. Lighting shall be adjustable to allow an even distribution of light around the sewer perimeter without loss of contrast, flare out of picture, or shadowing. Lighting shall illuminate the sewer or manhole ahead of the camera to be

able to determine general condition, features and upcoming defects.

- i. An unclear picture due to excessive lighting (image flare), the lack of lighting or the presence of fog, steam, or excessive humidity will be considered unsatisfactory. The Contractor is responsible for identifying and implementing corrective actions to obtain suitable video quality, such as using fans or ventilation systems to dissipate the fog or by the heating of incoming air to mitigate fog.
- ii. A blurred picture due to fats, oil or grease will be considered unsatisfactory. The Contractor is responsible for identifying and implementing corrective actions to obtain suitable video quality, such as cleaning the sewer mainline, having the camera lens cleaned prior to reinspection of the mainline.
- iii. The Contractor is responsible for presenting issues regarding questionable video quality immediately to the attention of the Engineer.
- iv. Light heads shall be changed upon the request of the Engineer.
- h. Picture quality and definition shall be to the satisfaction of the Engineer and if unsatisfactory, equipment shall be removed from the sewer and no payment shall be made.
- i. Video overlay equipment capable of superimposing a minimum of 15 lines with up to 30 characters per line of alphanumeric information onto the video recording.
- j. The focal length is the intersection point between the camera lenses widest horizontal viewing angle and the pipe's side periphery (03 or 09 o'clock) when the camera is level and looking forward. The rear of the camera must be positioned at the start of the pipe where the camera's physical distance is added to the focal length. This total distance is known as the cable calibration distance or cable set point. Record the distance from the manhole to pipe interface to the cable calibration distance at the start of the inspection and adjust the distance reading so that zero is at the manhole to start of pipe interface.
- k. Smaller height sewers of 34 inches and less shall be inspected with equipment which shall:
 - i. Have self-propelled rubber tired or crawler tractor capable of passing over minor surface imperfections including but not limited to broken joints and solid debris up to four (4) inches in height for pipe heights up to 34 inches.
- l. Larger height sewers of 36 inches and greater shall be inspected using an in-line inspection platform, which shall:
 - i. Be capable of inspecting a minimum 1,500 linear feet of sewer line

- without access to a manhole in between.
- ii. Have independently controlled drive tracks that enable the platform to maneuver around bends and climb over debris up to 12-inches in height.
 - iii. Be operable under partially or fully submerged flow conditions.
 - iv. Be operable in sewers of various cross-sections, and constructed of standard pipe materials including, but not limited to, brick, clay, concrete, PVC, HDPE, and steel.
 - v. Be tethered to facilitate extraction of the platform from the sewer, without causing damage to the sewer infrastructure, in the event the equipment fails or otherwise becomes uncontrollable within the sewer.
 - vi. Be equipped with sufficient high intensity lighting to illuminate the larger diameter sewer for visual inspection.
 - vii. Have capability for simultaneous data collection from multiple inspection sensors/technologies including, but not limited to, CCTV video inspection, LASER and SONAR scanning as necessary.
 - viii. The use of Side Wall Scanning technologies resolution shall be at a level of resolution as per 2.02.C.1.f.ii to ensure pipe wall loss clarity is provided within the imagery. Viewing software shall be provided at no cost to the Owner or the Engineer to ensure the user has full autonomy when viewing the sewer pipe. Pre-recorded video shall also be submitted for Side Wall Scanning technologies in addition to specialty autonomous viewing software and data. No water droplets, debris marks or similar shall exist on the lens that would cause image blur or inhibit the clear and uninterrupted view of the pipe during the inspection. Side Wall Scanning technology platforms shall be used having sufficient illumination within given diameters as per the camera manufacturer's recommendations, such as 48" or less.
- m. Minimum requirements of in-line inspection technologies for CCTV video inspection equipment shall be:
- i. Equipment shall be capable of continuously capturing digital video with no frame loss, regardless of the progression of the inspection for the entire length being inspected.
 - ii. Incorporate a suitable distance-reading device to measure the location of the equipment in the pipe, to an accuracy of $\pm 0.5\%$ of the length of the inspection.
 - iii. An electronic footage counter shall accurately measure the distance of the CCTV inspection equipment from the centerline of the starting manhole within ± 2 -ft. This measurement shall be displayed on the monitor and recorded on the video at all times. The importance of

accurate distance measurements is emphasized.

- n. In areas where a self-propelled track-mounted platform is not possible to use during the inspections, the inspections shall be performed using a tethered or parachuted floated or skid system. The Contractor shall notify the Engineer prior to the use of the floated or skid platform.

D. Sewer Three-Dimensional (3D) LASER Scanning Inspection:

1. "Three-Dimensional (3D) Light Amplification by Stimulated Emission of Radiation Scanning" (LASER) is a technique to determine the surface profile of mainline pipes using a three-dimensional (3D) LASER on the entire circumference above fluid level of the pipe.
2. LASER inspections shall be conducted on identified Sewer pipe entities and be conducted from access point to access point.
3. LASER scanning equipment shall provide an accurate determination of pipe geometry (features and defects) above the fluid level.
4. Minimum equipment requirements are:
 - a. The provision of LASER scanning Internal Diameter and Deflection graphs will be used to quantify internal pipe wall material loss/gain or deformation (ovality and deflection) at a given location. Pipe cross-sections obtained from high resolution scans will be used to provide quantitative information regarding internal pipe diameter, including ovality. Precision Scans are produced with multi-color indication depicting deviations from as built conditions as well as localized material gain and/or loss.
 - b. LASER equipment shall be moved through the pipeline on a transport vehicle capable of supporting the LASER inspection equipment above the water level.
 - c. The LASER shall be Class 1; eye-safe for operator safety.
 - d. Surface corrosion measurements accurate to 13/64 inch at 9 feet in 48 inch pipes and larger.
 - e. Precision ovality / deflection detailed range LASER measurement scans accurate to $\pm 1\%$.
 - f. LASER scans shall produce a point cloud with a maximum distance between points of 3/8 inch in the transverse direction and 1 1/2 inch in the longitudinal direction. The rate of scan shall not exceed 18 feet / minute.

E. Sewer SONAR Scanning Inspection:

1. Sound Navigation and Ranging (SONAR) scanning equipment shall accurately measure the depth to sediment or pipe surface below the fluid level at regular intervals throughout the inspection.
2. SONAR scanning inspections shall be conducted on identified Sewer pipe

entities and be conducted from access point to access point.

3. Minimum equipment requirements:
 - a. SONAR equipment must be programmable multi-frequency profiling SONAR specifically adapted to using sound waves to locate and map subaqueous sewer irregularities by creating continuous SONAR images recorded in "real time" mode.
 - b. SONAR equipment shall be digital and support a range of frequencies from 600 kHz to 2.25 MHz to minimize noise.
 - c. The range resolution measurement error shall be no greater than 5/64 inch from distances of 3 to 12 feet, and no greater than 13/32 inch from distances of beyond 15 feet.
 - d. The minimum detectable range for the SONAR unit shall be 3 inches.

PART 3. EXECUTION

3.01. HIGH FLOW CONDITIONS

- A. The intent of any flow control is to maximize visual inspection to as great a degree as possible up to and including 34" in height.
 1. Flow control shall be incidental to the contract. Bypass pumping to control flow is not required; however, the Contractor must, at a minimum, make reasonable effort to control the flow by using pipe-cleaning equipment to temporarily retain flow or to remove standing water.
 2. The Contractor must also consider weather conditions and low diurnal flow patterns to obtain the best video image of the sewer. This may require the Contractor to schedule video work to times that are after major rain events or to overnight shifts when the sewer system attains a lower dry weather flow environment. These inspections need to be coordinated with City to identify opportune times for low flows expected from the hydraulic model.
 3. The Contractor is to maximize visual inspection to as great a degree as possible. For pipes of height of 34" or less, regardless of the number and type of cleaning passes performed, the final pass of cleaning shall be undertaken in conjunction with the CCTV camera inspection that is to be provided as the final inspection deliverable. During the final cleaning pass, the CCTV inspection camera shall be mobilized to inspect the sewer segment while the jet nozzle pulls water away from the camera, drawing any water level down to maximize the exposure of the sewer pipe circumference.
 4. The Contractor is to maximize visual inspection to as great a degree as possible. For pipes of height of 34" or less where the flow is greater than 50% after the Contractor has attempted to lower the water level by means of hydraulic equipment, the Contractor is to inform the Engineer. The Engineer may direct the Contractor to not clean the pipe and the inspection would be done by CCTV

and SONAR

5. No flow control shall be undertaken for sewer pipe heights of 36" and larger.

3.02. CCTV INSPECTION

- A. All open access structures or manholes will be attended at all times, and all access structures or manholes that were sealed or bolted to control odors or entry of extraneous water or for security reasons will be resealed or re-bolted after entry. The Contractor shall liaise with the Engineer to ensure that sealed or bolted chambers have been adequately sealed or bolted, post inspection.
- B. The Contractor understands that Baltimore City shall incur significant and substantial penalties from the state of Maryland in the event that sewage is discharged onto the ground or into any streams as related to the work in this Contract. In the event that sewage is released into the environment as a result of the Contractor's work, the Contractor shall immediately rectify the situation and notify the Engineer.
- C. At the commencement of each CCTV inspection, temporarily insert a survey rod or steel tape from the manhole surface to the invert of the pipe that is to be surveyed so that the rod or tape vertically crosses the 12 to 6 o'clock positions. The gradations shall be clearly visible in the resultant video footage so the pipe height can be verified by viewing the footage.
- D. Ensure camera speed does not exceed 30 feet / minute during sewer and manhole inspections.
- E. Inspect sewer pipelines with pan and tilt conventional television imagery so as to record relevant features and defects of the pipeline under inspection. Inspection of pipelines shall be carried out in accordance with NASSCO PACP standards in conjunction with cleaning operations in accordance with the requirements of the contract documents. A skilled and NASSCO PACP certified technician or supervisor who shall be located at the control panel in the mobile television studio shall control the operation of the television equipment.
- F. Where drop connections are observed, the camera shall pan and zoom into the "Tap" connection to observe defects and provide comment within the remarks column of the Tap entry using NASSCO's order of severity rules.
- G. If television inspection of an entire section cannot be successfully performed from one manhole, perform a reverse setup to obtain a complete television inspection.
 - a. Perform a reverse set-up inspection when a blockage in the sewer prevents completion of the inspection from the upstream manhole. Move the equipment to the downstream manhole and attempt to complete the inspection of the entire sewer to the upstream manhole.
 - b. Immediately advise the Engineer when a complete sewer inspection cannot be completed.
 - c. In the event the Contractor is unable to completely perform CCTV

inspection or cleaning from both directions due to obstructions (with the exception of a cross bore or collapse), the Contractor must inform the Engineer of this immediately. Upon approval by the Engineer, the Contractor shall within two weeks have the obstructions removed using specialty cleaning equipment capable of removing the obstruction and simultaneously viewing the cleaning activity from the same vantage point in order to view the cleaning operation and not cause any damage to the host pipe. The Contractor will then televise the pipe segment in its entirety.

- d. If the Contractor cannot complete the inspection after attempting to use specialty cleaning equipment, the Contractor and Engineer shall jointly decide one of the following alternatives regarding the obstruction:
 - i. Abandon the inspection, or;
 - ii. Re-perform the inspection subsequent to one of the following actions:
 - Modifying the camera set-up position or method of transport; and
 - Completion of external or emergency repair.
 - iii. Note in a log the Asset ID and Manhole ID's, surface distance or calibrated footage counter measurement, upstream and downstream length from associated manhole, length of missing video and the reason the inspection could not be completed and review with the Engineer for approval on a weekly basis.
- H. The sewer inspected distance shall represent the distance as per NASSCO guidelines:
 1. From the start manhole, access or control structure and pipe interface 0.0ft of the sewer segment to finish manhole, access or control structure interface unless incomplete as per 3.02.G.
- I. Whenever prevailing conditions allow, position the camera head to reduce the risk of picture distortion. In circular sewers, position the camera lens centrally (i.e., in prime position) within the sewer. In noncircular sewers, picture orientation shall be taken at mid-height, unless otherwise agreed, and centered horizontally. Direct the camera lens along the longitudinal axis of the sewer when in prime position. A positioning tolerance of +/- 10 percent of the vertical sewer dimension shall be allowed when the camera is in prime position.
- J. Indicate on the monitor screen accurate automatic distance measurement that begins to move immediately as the camera moves. Ensure measurement is accurate from the cable calibration point to the pipe to finish manhole interface.
- K. All defects and observations are to be circumferentially located based on the side periphery only.
- L. Stop the camera and position to provide a steady perpendicular view of connections, junctions, major branches and major defects including deformed sewers, displaced bricks, holes, large displaced joints, missing bricks, missing mortar, obstructions, and large open joints for a period of time adequate to review the defect or observation for

condition assessment purposes.

- M. Tap observation distances must occur at the center of the tap and the side periphery. To determine use and deficiencies of the tap, the camera must continue to travel, camera centered in the perspective view (to capture other observations), to stop perpendicular to the tap and pan so that the camera can view directly into the barrel of the lateral, to enable the inspector to apply modification and descriptor codes to the tap as per NASSCO PACP standards as necessary.
- N. Further to coding Taps, the Contractor shall conform to NASSCO requirements however, where defective Taps are identified, the most significant observed defect seen within the lateral shall be communicated within the "Remarks" field as per PACP requirements but also providing the associated property address of the Tap. The Contractor shall identify the affected property by completing a surface distance or calibrated footage counter measurement on the surface to confirm property number and note this within the "Remarks" field with an associated photograph taken of the offending defective tap.
- O. Perform television inspections during low flow conditions. The Engineer will reject any television inspection that, because of high flow conditions or for any other reason, does not produce an effective survey of the sewer pipe. In addition, if it is determined that effective conventional television inspection cannot be performed, notify the Engineer in writing.
- P. Observations that are critical to public safety or pose imminent threat to the public or environment shall be reported within 24-hours.
- Q. Re-perform sewer inspections where the Engineer has determined the tolerance requirements for camera position and speed and internal distance measurement requirements per these specifications have not been satisfied.

3.03. MULTI-SENSOR INSPECTION

- A. For inspection of circular brick pipe and non-circular pipe where the pipe is 36 inches in height or greater, the LASER capability on multi-sensor inspection equipment shall be turned on and data shall be collected. Post-processing of the LASER data shall be performed at the direction of the Engineer after initial review of the processed PACP coded inspection data.
- B. SONAR shall be performed on gravity sewers 20" in height and greater, where needed, with the approval of the Engineer.

3.04. DIGITAL VISUAL RECORDING:

- A. Take continuous digital video recordings of the inspection view as it appears on the television monitor. The recording shall be used as a permanent record of defects. The recording shall be in MPEG file format. The digital video encoding shall include both sound and video information that can be reproduced with a video image equal or very close to the quality of the original picture on the television monitor. The replay of the recorded video information, when reviewed by the appropriate MPEG 2/4 viewing

software, shall be free of electrical interference and shall produce a clear, stable image.

- B. Audio recording will not be required as a deliverable on this Contract.
- C. Create separate MPEG files for each sewer line segment. In case of a reverse setup, store such inspection in a separate MPEG file. MPEG files shall be written to 2.5-inch portable hard disk drives (HDD) for delivery to the Engineer. Multiple MPEGs may exist on each HDD. Each HDD folder shall be labeled, at a minimum, with the following information: Project Name, Date and time of inspection, pipe segment referenced Asset ID number, Sewer Line Sections with manhole IDs, Direction of survey, Current distance along reach (counter footage), and TV Inspection Contractor's firm name.
- D. For sewers, provide file names containing up to a maximum of 64 characters for each digital video file in accordance with the following.
 - 1. Contract No_E<entity no>_F<from entity no>_T<to entity no>_StreetName_M<measured len>_I<inspected len>_DS or US<inspection dir>_<Letter designating inspection sequence>_<YYYYMMDD>.MPG
 - a. Eg. 910-2000_ ES31Q1_014G1_FS31Q1_014MH_TS33Q1_014MH_BERRY_M100.0_I39.2_US_B_20200325.MPG
 - i. B (indicates that this is the second or "B" partial inspection of this entity, 39.2 ft long)
- E. Digital video still frame captures of minimum 1024 x 768 x 24 bit JPEG shall be logged for every observation. Photographs shall be clear and accurately show the observation. Photographs shall have the following annotation: Upstream and downstream manhole ID, survey direction, footage, time and date, description. Name photos as follows: [Asset ID]_[Upstream Manhole ID-Downstream Manhole ID]_[HHMM_YYYYMMDD]_[Code]_[Footage].jpg. When multiple taps are found at the same distance at different clock positions, use an underscore and the clock position in the file name after the footage to differentiate them. For example, [Asset ID]_[Upstream Manhole ID-Downstream Manhole ID]_[HHMM_YYYYMMDD]_[Code]_[Footage]_[Clock Position].jpg.
- F. CCTV video header information will be recorded for each pipe segment video and will be displayed for a minimum of 30 seconds at the start of all inspections. Inspection of the sewer shall not proceed while the information screen is being displayed. The data must be presented in a format with white text on a black background. The following information will be provided in the video header:
 - 1. Contract Number:
 - 2. Date: Date inspection was completed. Format: YYYYMMDD.
 - 3. Time: Time survey was initiated. Format: 24-hr military, HH:MM.
 - 4. Surveyed By: Name of PACP certified inspection operator conducting the inspection.

5. Certificate Number: NASSCO certificate number of the operator conducting the inspection.
 6. Company: Name of company completing the inspection.
 7. Pipeline Reference: Asset ID
 8. Start MH ID: ID of the MH where the inspection is initiated.
 9. Finish MH ID: ID of the MH where the inspection is ended.
 10. Street: Street in which a majority of the sewer being inspected is located. Enter "ROW, (Street Name)" if sewer is not in the road but is in close proximity to a readily identifiable street. Enter "ROW" if sewer is not in close proximity to a readily identifiable street.
 11. Start Location: Physical address, intersection or nearest landmark that can be used to readily identify the location of the start MH.
 12. Survey Direction: Direction of inspection in relation to flow in the sewer; Upstream or Downstream
 13. Material: Material composition of sewer being inspected. Format: NASSCO PACP code.
 14. Height: Nominal sewer dimensions. Pipe diameter if circular, height if non-circular.
 15. Width: Nominal sewer dimensions. Maximum width if non-circular.
- G. The Engineer reserves the right to refuse an MPEG on the basis of poor image quality, excessive bit rates, inconsistent frame rates, or any other characteristics that may affect usability by the Engineer.
- H. The Contractor shall provide at least three (3), 2.5-inch portable hard disk drives (HDD), complete with all associated drivers and software, power adaptors and USB cables, delivered on a bi-weekly rotation exchange that contains completed sewer inspection video with viewing software and sewer condition coding data to the Engineer. Sewer condition coding shall be submitted as PACP.mdb files accordingly. Retained HDD's will be returned at an agreed frequency.
- I. All HDD's shall be sized appropriately to accommodate all above-mentioned files and have dual USB 3.0 (preferable) and (a minimum) USB 2.0 compatibility with a minimum data transfer rate of 480 MB/s.
- 3.05. INSPECTION REPORTS:
- A. Prepare a television inspection report covering the television inspection work and the information acquired. Inspection forms shall be completed and submitted for all pipe sections requiring inspection, including those for which an actual inspection cannot be performed as per Clause 3.05.E.
- B. Name the report files according to the following file specification: [Asset ID]_[Start Manhole Number]_[End Manhole Number]_[YYMMDD]_ [HH:MM – 24 hour

format].pdf

- C. Report sewer defects in accordance with NASSCO's Pipeline Assessment and Certification Program (PACP). The Engineer reserves the right to refuse any inspection report that does not comply with the PACP program. The Engineer, at their discretion, may modify this form to meet their condition assessment needs. Alternate inspection forms shall be used only if approved by the Engineer.
- D. In addition to completing all mandatory PACP inspection required fields, the Contractor shall complete the following fields in the PACP Header Section:

Pipe Header Section	Field No.	Field Name	NASSCO Mandatory	REQUIRED (Yes / No)?
General Information	1	Surveyed By (<i>Operator / PACP User Name</i>)	Yes	Yes
	2	Certificate Number	Yes	Yes
	3	Reviewed By	No	No
	4	Reviewer Certificate Number	No	No
	5	Owner	No	Yes
	6	Customer	No	Yes
	7	P/O Number (Contract No.)	No	Yes
	8	Work Order	No	Yes
	9	Media Label	No	Yes
	10	Project	No	Yes
	11	Date	Yes	Yes
	12	Time	No	Yes
	13	Sheet Number	Yes	Yes
	14	Weather	No	Yes
	15	Pre-Cleaning	Yes	Yes
	16	Date Cleaned	No	Yes
	17	Flow Control	No	Yes
	18	Purpose of Survey	No	Yes
	19	Direction of Survey	Yes	Yes
	20	Inspection Technology Used	No	Yes
	21	Inspection Status	Yes	Yes

Pipe Header Section	Field No.	Field Name	NASSCO Mandatory	REQUIRED (Yes / No)?
	22	Consequence of Failure	No	No
	23	Pressure Value	No	No

Location	24	Drainage Area	No	Yes
	25	Pipe Segment Reference (<i>Asset ID</i>)	No	Yes
	26	Street (<i>Name and Number</i>)	Yes	Yes
	27	City	Yes	Yes
	28	Location Code	No	Yes
	29	Location Details	No	Yes

Pipe	30	Pipe Use	Yes	Yes
	31	Height (<i>Diameter</i>)	Yes	Yes
	32	Width	Yes	Yes
	33	Shape	Yes	Yes
	34	Material	Yes	Yes
	35	Lining Method	No	Yes
	36	Coating Method	No	No
	37	Pipe Joint Length	No	Yes
	38	Total Length (Surface Distance)	No	Yes
	39	Length Surveyed	No	Yes
	40	Year Constructed	No	No
	41	Year Renewed	No	No

Measurements	42	Upstream MH No.	Yes	Yes
	43	Upstream MH Rim to Invert	No	Yes
	44	Upstream MH Rim to Grade	No	No
	45	Upstream MH Grade to Invert	No	No
	46	Upstream MH Northing	No	No
	47	Upstream MH Easting	No	No

Pipe Header Section	Field No.	Field Name	NASSCO Mandatory	REQUIRED (Yes / No)?
	48	Upstream MH Elevation	No	No
	49	Downstream MH No.	Yes	Yes
	50	Downstream MH Rim to Invert	No	Yes
	51	Downstream MH Rim to Grade	No	No
	52	Downstream MH Grade to Invert	No	No
	53	Downstream MH Northing	No	No
	54	Downstream MH Easting	No	No
	55	Downstream MH Elevation	No	No
	56	MH Coordinate System	No	No
	57	MH Vertical Datum	No	No
	58	GPS Accuracy	No	No
	59	Additional Information	No	Yes*

Yes* - when required.

- E. An “empty header” or “0-ft MSA” inspection shall be completed for sewer segment that cannot be inspected for reasons such as high flow, depths or velocities, inaccessibility to the sewer due to inaccessible or unlocated access structures, heavy debris, and at the Engineer’s direction, etc. The inspection form header and detail sections shall comply with NASSCO PACP guidelines populating all required header fields. The contractor will abandon the survey at a distance of 0-ft inspected and provide a general comment that describes the reason that the inspection cannot be conducted in the Additional Information field. An “empty header” inspection shall also be created for reversal inspections that cannot be completed noting reasons for non-completion. The Contractor shall record at least one photo documenting conditions preventing the inspection of the pipe segment. Empty header records, and image references for the photos, shall be included in the PACP database as submitted by the contractor with adjoining segments.

3.06. TRAFFIC CONTROL

- A. The Contractor shall comply with Section 34 71 00 ROADWAY CONSTRUCTION from the Green Book and also with specific requirements stipulated in this Contract.

3.07. ACCEPTANCE OF WORK

- A. The contractor will submit required video, LASER or SONAR inspections of each sewer segment to the Engineer for review and determination if the work performed is acceptable.

- B. The sewer inspection shall also be used by the Engineer to determine acceptance of sewer cleaning, physically attached solid debris cutting, Fats, Oils and Grease Abatement, removal of excessive grease and roots and intruding sewer tap removals where undertaken for mainline pipes less than 36" in height.
- C. The Engineer shall review the pipe inspection videos within fifteen (15) working days of submission and determine if work performed is acceptable.
- D. The contractor will re-perform sewer inspections where the Engineer has determined the requirements of the specification have not been satisfied.
- E. The contractor will correct non-compliant inspection submissions and resubmit the corrected inspections to the Engineer within ten (10) working days.
- F. The contractor will repeat the process until the inspection submissions are accepted by the Engineer. Work to perform remedial work will not be eligible for additional payment.

3.08. PROJECT DELIVERABLES

- A. A Batch number shall be provided for each submittal of CCTV videos and associated inspection reports and MSI to allow the cross reference of data during this Contract.
- B. CCTV Sewer Inspections shall include the following information:
 - 1. The Contractor shall submit formal NASSCO PACP compliant Sewer Inspection Reports respectively, in digital (PDF and PACP.mdb) formats, that summarizes all inspection activities and includes all inspection video and data in their raw format, along with any software viewing packages required to view or utilize the video and raw data.
 - 2. The Contractor shall supply separately two (2) duplicated, 2.5-inch portable HDD's, complete with all associated drivers and software, power adaptors and USB cables, containing all video inspections and coding data to the Engineer and Owner upon completion of the project.
 - 3. Diagrams and sketches relating to mapping discrepancies per these specifications.
- C. The MSI Report shall include the following information:
 - 1. LASER Scanning inspection:
 - a. Summaries of pipe corrosion and debris build-up, presented as unrolled color-coded full-circumference graphical illustrations of pipe condition, over the length of the sewer inspected. Where the presence of fluids in the pipe necessitates interpolation to complete the full circumference view, the method and calculations used to support these assumptions shall be presented.
 - b. Cross-sectional scans, taken at regular intervals along the inspected sewer segment, showing measured pipe cross section superimposed over as-built pipe cross section, and color highlighted to identify all areas of apparent

cross-section loss and gain, construction or defective pipe features in alignment with CCTV payout distances.

- c. Summaries of pipe ovality and deflection, including:
 - i. Vertical AND horizontal diameter plots of individual diameter measurements versus pipe length, for each section of sewer inspected.
 - ii. Ovality plots depicting percent deviation from as-built records.
 - iii. LASER data as VRML (Virtual Reality Modeling Language) 3D computer graphic representations, in WRL format, with software viewer that can be used to display and interpret the LASER data.
 - d. All raw and post processed LASER data shall be submitted with associated and compiled reports that shall determine pipe geometry for features including but not limited to defects, construction features and pipe shape above fluid level.
 - e. LASER deliverables are to be provided in standard Windows software compliant formats. Any proprietary software must be provided to the Owner at no additional cost to the Owner.
2. SONAR Scanning inspection:
- a. Graphical summaries of sediment thickness and cumulative sediment volumes in the trough of the pipe below the water line versus pipe location, and pipe capacity depicting actual versus original theoretical storage capacity.
 - b. Statistical average, minimum, and maximum values of sediment accumulation along the sewer, where appropriate, as determined by calculating the portion of the pipe obstructed by sediment and presented as a percentage of the pipe area.
 - c. Cross-sectional scans, taken at regular intervals along the inspected sewer segment, showing sediment and pipe shape to identify all apparent cross-section loss or gain in alignment with CCTV payout distances.
 - d. Video file of SONAR data in AVI, MOV, MPEG-2 or MPEG-4 file formats.
 - e. All raw and post processed SONAR data shall be submitted with associated and compiled reports that shall determine pipe geometry for features including but not limited to potential defects, debris and water levels and pipe shape below fluid level.
 - f. SONAR deliverables are to be provided in standard Windows software compliant formats. Any proprietary software must be provided to the Owner at no additional cost to the Owner.

3.09. MEASUREMENT AND PAYMENT

A. Sewer Inspection

1. Digital video recordings, Inspection coding and Inspection Reports will be included with the sewer inspection.
2. Correction and re-submission of non-compliant submissions will be at Contractor's own expense.
3. Sewer inspections will be measured on a length basis for each size and type of sewer and paid for at the Contract Unit Price for "Sewer Inspection". Length to be paid for will be the total length of sewer inspected in accordance with this specification, accepted and measured by the Engineer.
4. The height of non-circular sewers will be taken as the largest dimension.
5. Payment will not be made until the required report submissions are accepted by the Engineer.
6. Payment will not be made for inspections re-performed where the Engineer has determined the requirements of the specification have not been satisfied.
7. Sewer cleaning shall be paid upon review and acceptance of the corresponding video inspection by the Engineer.
8. The "Miscellaneous Allowance" shall relate to approved completed work that is deemed outside of all other measurement and payment items, accepted and measured by the Engineer.
9. Reverse setups performed to obtain a complete television inspection or cleaning will be incidental to the Contract.
10. The provision of "empty header" or "0-ft MSA" inspection data will be incidental to the Contract.

3.10. CLOSEOUT ACTIVITIES

- A. The Contractor shall comply with Section 01 77 00 CLOSEOUT PROCEDURES from the Green Book and also with specific requirements stipulated in this Contract.
- B. Acceptance of delivery to include revisions based on QA/QC Audit.

SECTION 33 01 30.15

LATERAL SEWER PIPELINE INSPECTION

PART 1. GENERAL

1.01. DESCRIPTION OF WORK

- A. This specification covers inspection of sewer laterals 4" to 12" in diameter using closed circuit television (CCTV) video for the purposes of assessing thoroughness of cleaning, observing and recording structural lateral defects, construction, operational and miscellaneous features of existing lateral assets and to verify rehabilitated or new lateral construction prior to acceptance.
- B. The Contractor shall be responsible for providing all equipment, tools, labor, materials, and incidental services necessary to perform all work for CCTV inspections of lateral sewer lines as indicated and in compliance with the Contract Documents.
- C. Types of cleaning shall be undertaken in accordance with this specification in order to be able to conduct a NASSCO-compliant inspection, for all lateral diameter ranges and flow types identified within the bid form.
- D. The CCTV inspections and cleaning of the laterals shall be performed from the cleanout or the sanitary sewer main access point (AML), as deemed necessary by the site conditions.
- E. The Owner cannot guarantee that all laterals can be accessed from the cleanout and/or the sewer main. Laterals that cannot be accessed shall be identified by the Contractor and the Contractor shall inform the Engineer.
- F. Inspections may be witnessed by the Engineer.

1.02. RELATED REQUIREMENTS:

- A. Section 33 01 30.10 - Small Diameter Sanitary Sewer Pipeline Inspection
- B. Section 33 01 30.11 - Large Diameter Sanitary Sewer Pipeline Inspection
- C. Section 33 01 30.41 - Sanitary Sewer Pipeline Cleaning
- D. Section 33 01 30.50 - Manhole Panoramic Inspection
- E. Section 33 01 30.53 - Manhole Cleaning
- F. Section 33 01 30.44 - Lateral Sewer Pipeline Cleaning
- G. Section 33 01 30.65 - Sanitary Sewer Acoustic Inspection
- H. Section 33 01 30.87 - Temporary Sewer Bypass Pumping

1.03. REFERENCES

- A. National Association of Sewer Service Companies (NASSCO):
 - 1. Pipeline Assessment and Certification Program (PACP) Reference Manual.

2. Manhole Assessment and Certification Program (MACP) Reference Manual.
3. Lateral Assessment and Certification Program (LACP) Reference Manual.

1.04. DEFINITIONS

- A. CCTV Inspection: Closed circuit television inspection - Operation necessary to complete a high-definition, true-color audio-visual inspection for verification of existing internal sewer line conditions.
- B. MPEG: Moving Pictures Expert Group, is the acronym given to a family of international standards used for coding audio-visual information in a digital compressed format.
- C. HDD: Portable Hard Disk Drive. For the purposes of this specification, HDD shall be written in accordance with the ISO-9660 Level 2 specifications.
- D. AML: Field 39 of the LACP, the Access Point Mainline – the point at which the lateral connects to the mainline.
- E. LSR: Field 25 of the LACP, the Lateral Segment Reference – a unique asset identifier specific to each lateral segment.
- F. APID: Field 39 of the LACP, the Access Point ID Number – An access point adjoined to the lateral segment.
- G. Engineer: City of Baltimore Engineer / Owner’s Representative / Owner / Field Inspector.

1.05. SUBMITTALS

- A. Submit all contract submittals and/or drawings in accordance with Section 01 33 00 Submit shop drawings in accordance with Section 01 33 00 SUBMITTAL PROCEDURES from the City of Baltimore DPW (DPW) Specifications (The Green Book, 2006) and also with specific requirements stipulated in this Contract.
- B. Sample Inspection Report: Prior to initiating the Work, the Contractor shall submit to the Engineer the following documentation for approval to ensure quality and conformity requirements of this contract:
 1. Provide a sample report of a sewer inspection including digital data files, of an actual lateral performed by each device to be used on this Contract for review at least one month before beginning the inspection work. The Sample Report shall include:
 - a. Two (2) copies of visual recording to the Engineer. The Engineer will review the inspections for completeness and accuracy of content, to ensure that the required information is provided, and the recording quality is acceptable. If the Engineer determines that the recording is defective or not of adequate quality, the Contractor shall re-perform CCTV inspection at the Contractor’s expense.
 - b. One (1) LACP (version 7.0.0 or newer) compliant Microsoft Access,

CCTV inspection Databases containing inspection and defect information. Sewer condition coding shall be submitted as a LACP.mdb file accordingly. Name the LACP database according to the following file specification: [Contractor Name]_[Contract Number]_LACP_Submittal ##.mdb.

- c. One (1) PDF copy of the CCTV inspection logs to the Engineer. Logs shall record defects according to NASSCO's LACP.
 - d. Sample observation photos.
 - e. Submittal Tracking Spreadsheet utilizing the template provided in the Appendix of this specification.
- 2. Clearly identify the equipment make, model and serial number for the sample and all submittals.
 - 3. Demonstrate the resolution of each camera using the recording resolution specified herein.
 - 4. If the Engineer determines that the recording is defective or not of adequate quality, the Contractor shall correct deficiencies or, if necessary, re-perform the sewer inspection at the Contractor's expense.
 - 5. Use the report submission accepted by the Engineer as a benchmark for subsequent inspection report submissions.
 - 6. No inspection work is to be performed until the sample inspection reports have been accepted by the Engineer.
- C. Submit copies of current NASSCO LACP certifications for all Inspectors and Reviewers who shall perform the Contracted Work in accordance with NASSCO requirements having attained and retained their LACP certifications.
- D. Submit a written description of procedures to be used to the Engineer, including product literature for all digital video equipment including, but not limited to cabling, camera, monitor, footage counter, digital video titling device, and recorder.
- E. Bi-weekly data submittals:
- 1. Bi-weekly data submittals shall be completed within two (2) weeks of the completion of a work area or intermittent submittals as approved by the Engineer.
 - 2. For the bi-weekly data submittals, submit two (2) copies of visual recording to the Engineer. The Engineer will review the inspections for completeness and accuracy of content, to ensure that the required information is provided, and the recording quality is acceptable. If the Engineer determines that the recording is defective or not of adequate quality, the Contractor shall re-perform the CCTV inspection at the Contractor's expense.
 - 3. For the bi-weekly data submittals, submit one (1) LACP (version 7.0.0 or newer) compliant Microsoft Access, CCTV inspection Database containing inspection

and defect information. Sewer condition coding shall be submitted as an LACP.mdb file accordingly. Name the LACP database according to the following file specification: [Contractor Name]_[Contract Number]_LACP_Submittal ##.mdb.

4. For the bi-weekly data submittals, submit a PDF copy of the CCTV inspection logs to the Engineer. Logs shall record defects according to NASSCO's LACP.
 5. For the bi-weekly data submittals, submit a submittal tracking spreadsheet to the Engineer.
- F. Prior to initiating cleaning or inspection efforts, the Contractor shall submit an Emergency Plan that outlines proposed methods for recovering their cleaning or inspection equipment that has become lodged, lost or uncontrollable within the manhole or sewer, including confined space entry procedures.
- G. Contractor is to provide a daily schedule to Baltimore DPW with planned inspection locations and Asset IDs.
- 1.06. QUALITY ASSURANCE
- A. Comply with the requirements of Section 01 45 00 QUALITY CONTROL and 01 74 00 CLEANING AND WASTE MANAGEMENT from the Green Book and also with specific requirements stipulated in this Contract.
- B. Comply with all codes, laws, ordinances, and regulations of governmental authorities having jurisdiction over this part of the work.
- C. Inspection shall be performed in accordance with most current NASSCO's Lateral Assessment and Certification Program (LACP).
- D. The inspections shall be performed one pipe segment at a time based on DPW-assigned Asset IDs and per NASSCO LACP requirements.
- E. Inspection shall be performed by certified operators in accordance with NASSCO having attained and retained their PACP and LACP certifications. The Contractor shall ensure each operator is fully trained and certified in all aspects of sewer inspection and capable of making accurate observations and coding / recording all conditions that may be encountered in the sewers.
- F. Coding accuracy will be a function of the number of defects or construction features not recorded or omitted as well as of the correctness of the coding and classifications recorded. Coding accuracy is to satisfy the following requirements:
1. Header accuracy: 95%.
 2. Detail / defect coding accuracy: 85%.
 3. Inspections failing to meet these criteria will be rejected, re-inspected if required, recoded, and resubmitted at no additional cost to the Owner.
- G. Contractor shall implement a formal coding accuracy verification system before starting the Work.

1. Submit coding accuracy checks with the corresponding video recording. The Contractor shall complete the CCTV Contractor Data Submittal and a Quality Assurance (QA) Review Report documenting the results of the coding accuracy verification, attached separately, and include it with each respective data submission. Where QA has been undertaken by the Contractor, LACP Section Header Fields 3 and 4 must be populated by the Contractor.
 2. Re-code inspections not satisfying the accuracy requirements and verify the accuracy of the inspection immediately preceding and immediately following the non-compliant inspection. Repeat the process until the preceding and subsequent inspections meet the accuracy requirements.
- H. The Contractor shall provide the Engineer with a complete list of Subcontractors whom the Contractor proposes to engage at least two (2) business days prior to the commencement of Work.
- I. The Contractor shall maintain an up to date Progress Log that tracks the progress of the work and status of inspections. The Engineer shall be provided with this information upon request. The log should document the following information at a minimum:
1. Work Package ID
 2. Lateral Asset ID
 3. Cleanout ID (if accessible)
 4. Mainline Asset ID, along with Upstream and Downstream Manhole Asset IDs on Mainline (Manhole ID only if lateral connects directly to a manhole)
 5. Date of inspection
 6. Date of data submission
 7. Status of data acceptance / rejection
 8. Date of data acceptance / rejection
 9. Date of segment re-inspection (as required)
 10. Date of data resubmittal (as required)
 11. Date of resubmitted data acceptance (as required)
- J. The Contractor shall complete an internal audit to determine accuracy of video and associated NASSCO defect coding by a NASSCO certified supervisor, applying their name and reviewed by timestamp to the inspection prior to issuance.
- K. The Engineer shall be entitled to an audit of the control system and be present when assessments of the sewer integrity are being determined. When requested by the Engineer in writing, forward to the Engineer sufficient details and information for such audit assessment. Should any report fail to achieve a margin that the Engineer deems satisfactory, the Contractor, without any additional compensation, shall recode and resubmit any data or reports that the Engineer deems necessary.

- L. All submittals will be subjected to a Quality Control/Quality Assurance (QA/QC) audit by the Engineer. Where inconsistencies are noted, the Contractor shall be responsible, where necessary and at no additional cost to the Engineer, for corrections including, re-inspection, recoding and entering additional information.

1.07. NOT USED

1.08. EXPERIENCE

- A. The Contractor shall submit documentation for Engineer approval to demonstrate the following experience as a business engaged in the CCTV inspection of sewer mainline and lateral lines as per the Contract documents:
 - 1. The Contractor shall be in good standing under local contracting requirements or otherwise properly registered, licensed or permitted by law to carry on business within the State of Maryland, throughout the term of the Contract, and shall provide the Engineer with evidence thereof per the contract documents.
 - 2. At any time during the term of the Contract, the Engineer may, at their sole discretion and acting reasonably, request updated evidence of good standing. A Contractor, who fails to provide satisfactory evidence, will not be permitted to continue to perform any Work.
- B. The Contractor and/or any proposed Subcontractor, for the portion of the Work proposed to be contracted to them, shall:
 - 1. Have a minimum of three (3) years of experience in the field of sewer pipeline inspection by means of CCTV and have the required capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract Documents.
 - 2. Have successfully carried out work similar in nature, scope and value to the Work and demonstrate that within the past three (3) consecutive years prior to the bid, as a prime Contractor, the Contractor has successfully completed over 5,000 feet of previous CCTV on laterals 12" and smaller for condition assessment purposes. Inspection of new and rehabilitated infrastructure for acceptance purposes shall not be deemed as representative experience. For each project submitted to meet the experience requirements, indicate the following:
 - a. Name and location of project.
 - b. Name, address, and telephone number of Owner or Engineer.
 - c. Brief description of work to include length and diameter of pipelines inspected.
 - d. Amount of contract.
 - e. Date of completion – state if project was completed on time.
 - 3. Provide the Engineer with a complete list of Subcontractors whom the Contractor proposes to use prior to the commencement of Work.

4. Be fully capable of performing the Work required in strict accordance with the terms and provisions of the Contract Documents.
- C. The Contractor shall submit, for Engineer's approval, documentation to demonstrate the following experience of the staff proposed for this project:
1. Operator certification documentation of each CCTV operator's NASSCO PACP and LACP certificate. The PACP and LACP certificates for all Operators performing work on this project shall be current on the day of the Contractor's submission and shall remain current throughout the performance of this work.
 2. Documentation of supervisors' and operators' training certifications, listing of completed projects, and a minimum of three (3) years of experience in the internal CCTV inspection of sewers.

PART 2. PRODUCTS

2.01. GENERAL

- A. Furnish the CCTV inspection studio, CCTV camera, audio-visual digital encoding equipment/software, push-camera, and other necessary equipment, materials, electricity, labor, technicians, as may be needed to perform the CCTV inspection.

2.02. EQUIPMENT

- A. The Contractor shall submit a list describing all equipment to be used for review and approval by the Engineer.
- B. Sewer inspection units are to consist of a self-contained vehicle with separate areas for viewing and storage complete with the following equipment as a minimum.
1. Cellular telephone and / or suitable communication systems linking all crew members.
 2. Fans and blowers capable of removing fog that may be present in sewers at the time of the inspection.
 3. Video cameras including but not limited to lateral launch platforms and push camera units, lighting, cables, easement reels and power source.
 4. Video monitor and digital video recorder.
 5. Computer system with video capture card or dedicated unit and other related equipment.
 6. Temporary manhole covers to provide fall-in protection while performing work.
- C. Sewer and Lateral CCTV Video Inspection Equipment:
1. A complete CCTV system, including a camera, lighting, electronic footage counter, computer and monitor, mobile television studio, and digital video recorder/player used for the televising operations shall be specifically designed for sewer and lateral inspections. Video inspection is to consist of the following:

- a. Video camera capable of panning 360° and tilting 270° with self-righting accelerometers with optimum picture quality provided by focus and iris adjustment. Focal range to be adjustable from 3 inches to infinity.
- b. The inspection equipment shall be capable of inspecting a minimum 150 linear feet of sewer lateral line.
- c. The inspection equipment shall be capable of clearly televising the interior of 3-inch to 12-inch diameter laterals.
- d. The camera should be specifically designed and constructed for such sewer lateral inspections and shall have above ground control for forward and backward movement in the lateral.
- e. CCTV camera unit will be equipped with a locating sonde as required to locate deep utilities and sewers, 10 feet deep or greater or buried structures and junctions that cannot be located or accessed from the ground surface.
- f. Capture the inspections in digital format in color from the live video source on archival grade HDD to the following minimum requirements.
 - i. MPEG-2 or MPEG-4 format (MPEG-4 preferred).
 - ii. Picture Size: NTSC 720 x 480 @ 29.97 frames per second.
 - iii. Data/Bit Rate: 6.0 Mbit/sec.
- g. Lighting for the camera shall be waterproof and suitable to allow a clear picture of the entire periphery of the pipe. The camera shall be operative and provide a clear picture in 100 percent humidity conditions. Lighting shall be adjustable to allow an even distribution of light around the sewer perimeter without loss of contrast, flare out of picture, or shadowing. Lighting shall illuminate the lateral, manhole or inspection chamber ahead of the camera to be able to determine general condition, features and upcoming defects.
 - i. An unclear picture due to excessive lighting (image flare), the lack of lighting or the presence of fog, steam, or excessive humidity will be considered unsatisfactory. The Contractor is responsible for identifying and implementing corrective actions to obtain suitable video quality, such as using fans or ventilation systems to dissipate the fog or by the heating of incoming air to mitigate fog.
 - ii. A blurred picture due to fats, oil or grease will be considered unsatisfactory. The Contractor is responsible for identifying and implementing corrective actions to obtain suitable video quality, such as cleaning the sewer mainline or lateral, having the camera lens cleaned prior to reinspection of the lateral.
 - iii. The Contractor is responsible for presenting issues regarding questionable video quality immediately to the attention of the Engineer.

- iv. Light heads shall be changed upon the request of the Engineer.
- h. Picture quality and definition shall be to the satisfaction of the Engineer and if unsatisfactory, equipment shall be removed from the lateral and no payment shall be made.
- i. Video overlay equipment capable of superimposing a minimum of 15 lines with up to 30 characters per line of alphanumeric information onto the video recording.
- j. The focal length is the intersection point between the camera lenses widest horizontal viewing angle and the pipe's side periphery (03 or 09 o'clock) when the camera is level and looking forward. The rear of the camera must be positioned at the start of the pipe where the camera's physical distance is added to the focal length. This total distance is known as the cable calibration distance or cable set point. Record the distance from the manhole to pipe interface to the cable calibration distance at the start of the inspection and adjust the distance reading so that zero is at the manhole to start of pipe interface.
- k. Minimum requirements of in-line inspection technologies for CCTV video inspection equipment shall be:
 - i. Self-propelled rubber tired, crawler tractor or push camera capable of passing over minor surface imperfections including but not limited to broken joints and solid debris up to one (1) inch in height.
 - ii. Transport and cable capable of inspecting a minimum of 150 feet of sewer from a single access point and the complete inspection of the lateral from the AML to the property line.
 - iii. Equipment shall be capable of continuously capturing digital video with no frame loss, regardless of the progression of the inspection for the entire length being inspected.
 - iv. Transport equipment must be capable of allowing for adjustable camera height to be centered within pipe diameters of up to and including twelve (12) inches.
 - v. Incorporate a suitable distance-reading device to measure the location of the equipment in the pipe, to an accuracy of $\pm 0.5\%$ of the length of the inspection.
 - vi. An electronic footage counter shall accurately measure the distance of the CCTV inspection equipment from the centerline of the starting manhole within ± 2 -ft. This measurement shall be displayed on the monitor and recorded on the video at all times. The importance of accurate distance measurements is emphasized.
- l. In areas where a self-propelled "lateral launch" is not possible to use during the inspections, the inspections can be performed using a push

camera system from a cleanout to the AML with the following general specifications:

- i. The camera shall be self-leveling, push type device, capable of operating in 100% humidity conditions.
- ii. The camera, television monitor, and other components of the video system shall be capable of producing a minimum 700 line resolution color video picture image.
- iii. The camera shall be capable of self-righting itself.
- iv. The CCTV camera shall be attached to a push cable with a fiberglass rod core for cable rigidity.
- v. The camera system shall have mini black and white or color, fixed position, "positioning" camera to observe and place the mini color, push, "inspection" camera at the lateral.
- vi. The inspection camera shall be attached to an 80-foot long push cable with a fiberglass rod core for cable rigidity.
- vii. The camera head shall point forward while traveling through the sanitary lateral towards the sanitary sewer main.
- viii. The camera system shall be able to inspect up to 150 linear feet of 4-inch through 12-inch diameter sanitary sewer laterals
- ix. Lighting for the camera shall be suitable to allow a clear picture of the entire periphery of the pipe.

PART 3. EXECUTION

3.01. FLOW CONTROL

- A. The recorded video must show the entire circumference of the lateral. Any flow control to remove standing water and debris shall be incidental to the contract. Bypass pumping to control flow is not required; however, the Contractor must, at a minimum, make reasonable effort to control the flow by using flushing equipment to temporarily retain flow or to remove standing water.
- B. The Contractor must also consider weather conditions and low diurnal flow patterns to obtain the best video image of the sewer. This may require the Contractor to schedule video work to times that are after major rain events or to overnight shifts when the sewer system attains a lower dry weather flow environment.
- C. Undertake flow control measures during off peak hours by means of sewer cleaning equipment to lower downstream flow levels or blocking / plugging if sewer flows are hampering effective lateral cleaning.
 1. Use sewer plugs to stop or reduce sewer flow that tether to and are removable from the ground surface.

2. Monitor flow levels upstream of a plugged sewer at all times to ensure flooding of public or private property does not occur.
3. Remove plugs placed in sewers and re-establish normal flow when directed to do by the Engineer.

3.02. CCTV LATERAL INSPECTION

- A. All open access structures or manholes will be attended at all times, and all access structures, cleanout caps or manholes that were sealed or bolted to control odors or entry of extraneous water or for security reasons will be resealed or re-bolted after entry. The Contractor shall liaise with the Engineer to ensure that sealed or bolted chambers have been adequately sealed or bolted, post inspection.
- B. The Contractor understands that Baltimore City shall incur significant and substantial penalties from the state of Maryland in the event that sewage is discharged onto the ground or into any streams as related to the work in this Contract. In the event that sewage is released into the environment as a result of the Contractor's work, the Contractor shall immediately rectify the situation and notify the Engineer.
- C. The type of cleaning and inspection of laterals shall be identified on the plans and shall fall under the following categories:
 1. Sewer Lateral Inspections from Cleanouts to Mainlines or Manholes - Individual or Scattered Locations.
 2. Sewer Lateral Inspections from Mainlines or Manholes to Property Line / Cleanout - Individual or Scattered Locations.
 3. Sewer Lateral Inspections from Mainlines or Manholes to Property Line - All laterals along mainline with cleaning from clean-outs if accessible.
- D. For CCTV inspections of the lateral via the lateral cleanout, push-type lateral CCTV systems shall be mounted on a push-cable and inserted through a 4- or 6-inch cleanout located at the property line, or outside the house, if accessible. The camera shall travel the entire distance from the cleanout to the AML. The camera shall extend the entire distance between the cleanout and the AML regardless of the number of intermediate cleanouts.
- E. For CCTV inspections of the lateral using a lateral launcher, the CCTV camera shall be lateral launched from within the sanitary sewer mainline from the AML and shall travel the entire distance from the AML to the property line. The camera shall extend the entire distance between the AML and the property line regardless of the number of intermediate cleanouts.
- F. Inspect sewer pipelines with pan and tilt lateral launch or push camera television imagery so as to record relevant features and defects of the pipeline under inspection. Inspection of pipelines shall be carried out in accordance with NASSCO LACP standards in conjunction with cleaning operations in accordance with the requirements of the contract documents. A skilled and NASSCO PACP and LACP certified technician or supervisor who shall be located at the control panel in the mobile

television studio shall control the operation of the television equipment.

- G. A sonde locating device shall be attached to the camera for locating defects in the lateral. A receiver on the surface follows its movement, documenting the location of the defects. When directed by the Engineer, the location of the pipe and the observed defects shall be marked on the ground.
- H. The Contractor shall maintain camera in clear focus at all times. Picture quality and definition shall be to the satisfaction of the City; and if unsatisfactory, equipment shall be removed and replaced with adequate equipment at no additional cost to the City.
- I. Ensure camera speed does not exceed 30 feet / minute during lateral inspections.
- J. The Contractor shall measure the depth of any cleanouts accessed during the inspection and note it along with the associated address it serves and an Asset ID.
- K. If a lateral inspection cannot be completed from the AML due to obstructions in the lateral or equipment limitations, a reversal inspection shall be attempted from the cleanout, if accessible, with the approval of the Engineer.
- L. If a lateral inspection cannot be completed from the cleanout due to obstructions in the lateral or equipment limitations, a reversal inspection shall be attempted from the AML, if accessible, with the approval of the Engineer.
- M. If television inspection of an entire lateral cannot be successfully performed from one access point, perform a reverse setup to obtain a complete television inspection with the approval of the Engineer.
 - a. Perform a reverse set-up inspection when a blockage in the lateral prevents completion of the inspection from the initial access point. Move the equipment to the alternate access point and attempt to complete the inspection of the entire lateral to the initial access point.
 - b. Immediately advise the Engineer when a complete lateral inspection cannot be completed.
 - c. In the event the Contractor is unable to completely perform CCTV inspection or cleaning due to obstructions from both directions (with the exception of a cross bore or collapse), the Contractor must inform the Engineer of this immediately. Upon approval by the Engineer, the Contractor shall within two weeks have the obstructions removed using specialty cleaning equipment capable of removing the obstruction and simultaneously viewing the cleaning activity from the same vantage point in order to view the cleaning operation and not cause any damage to the host pipe. The Contractor will then televise the lateral in its entirety.
 - d. If the Contractor cannot complete the inspection after attempting to use specialty cleaning equipment, the Contractor and Engineer shall jointly decide one of the following alternatives regarding the obstruction:
 - i. Abandon the inspection, or;

- ii. Re-perform the inspection subsequent to completion of an external or emergency repair.
 - e. Note in a log the LSR and APIDs, surface distance or calibrated footage counter measurement, upstream and downstream length from associated manhole, length of missing video and the reason the inspection could not be completed and review with the Engineer for approval on a weekly basis.
 - N. The lateral segment inspected distance shall represent the distance from the mainline lateral access (AML) typically extending to the property line and / or cleanout to property boundary unless incomplete as per 3.02.G.
 - O. Whenever prevailing conditions allow, position the camera head to reduce the risk of picture distortion. In circular sewers, position the camera lens centrally (i.e., in prime position) within the sewer. In noncircular sewers, picture orientation shall be taken at mid-height, unless otherwise agreed, and centered horizontally. Direct the camera lens along the longitudinal axis of the sewer when in prime position. A positioning tolerance of +/- 10 percent of the vertical sewer dimension shall be allowed when the camera is in prime position.
 - P. Indicate on the monitor screen accurate automatic distance measurement that begins to move immediately as the camera moves. Ensure measurement is accurate from the cable calibration point to the pipe surface to the property line.
 - Q. All defects and observations are to be circumferentially located based on the side periphery only.
 - R. During the Lateral inspection, the Contractor shall stop the camera and position to provide a steady perpendicular view of major defects including deformed sewers, displaced bricks, holes, large displaced joints, missing bricks, missing mortar, obstructions, and large open joints for a period of time adequate to review the defect or observation for condition assessment purposes.
 - ~~S.~~ Inspections of laterals will end at access points as per LACP rules.
 - T. Perform television inspections during low flow conditions. The Engineer will reject any television inspection that, because of high flow conditions or for any other reason, does not produce an effective survey of the sewer lateral. In addition, if it is determined that effective conventional television inspection cannot be performed, notify the Engineer in writing.
 - U. Re-perform sewer inspections where the Engineer has determined the tolerance requirements for camera position and speed and internal distance measurement requirements as per NASSCO LACP rules have not been satisfied.
- 3.03. DIGITAL AUDIO/VISUAL RECORDING:
- A. Take continuous digital video recordings of the inspection view as it appears on the

television monitor. The recording shall be used as a permanent record of defects. The recording shall be in MPEG file format. The digital video encoding shall include both sound and video information that can be reproduced with a video image equal or very close to the quality of the original picture on the television monitor. The replay of the recorded video information, when reviewed by the appropriate MPEG 2/4 viewing software, shall be free of electrical interference and shall produce a clear, stable image.

- B. Audio recording will not be required as a deliverable on this Contract.
- C. Create separate MPEG files for each lateral. In case of a reverse setup, store such inspection in a separate MPEG file. MPEG files shall be written to 2.5-inch portable hard disk drives (HDD) for delivery to the Engineer. Multiple MPEGs may exist on each HDD. Each HDD folder shall be labeled, at a minimum, with the following information: Project Name, Date and time of inspection, pipe segment referenced Asset ID, Lateral Sewer Reference Sections with manhole and access IDs, Direction of survey, Current distance along reach (counter footage), and TV Inspection Contractor's firm name.
- D. For sewers, provide file names containing up to a maximum of 64 characters for each digital video file in accordance with the following.
 - 1. Contract No_E<LSR>_F<from Access Point no>_T<to (Property Line or access point or wye ID no>_StreetName_M<measured len>_I<inspected len>_DS or US<inspection dir>_<Letter designating inspection sequence>_<YYYYMMDD>.MPG
 - a. Eg. 910-2000_E123456_FAML_TPROPERTY
LINE_BERRY_M31.0_I29.2_US_B 20200325.MPG
 - i. A (indicates a full inspection of the lateral)
 - ii. B (indicates that this is the second or "B" partial inspection of this entity, 29.2 ft long)
- E. Digital video still frame captures of minimum 720 x 480 x 24 bit JPEG shall be logged for every observation. Photographs shall be clear and accurately show the observation. Photographs shall have the following annotation: Upstream and downstream access point ID, survey direction, footage, time and date, description. Name photos as follows: [Asset ID]_[Upstream Access Point ID-Downstream Access Point ID]_[HHMM_YYYYMMDD]_[Code]_[Footage].jpg. When multiple taps are found at the same distance at different clock positions, use an underscore and the clock position in the file name after the footage to differentiate them. For example, [Asset ID]_[Upstream Access Point ID-Downstream Access Point ID]_[HHMM_YYYYMMDD]_[Code]_[Footage]_[Clock Position].jpg.
- F. CCTV video header information will be recorded for each LSR segment video and will be displayed for a minimum of 30 seconds at the start of all inspections. Inspection of the sewer shall not proceed while the information screen is being displayed. The data must be presented in a format with white text on a black background. The following information will be provided in the video header:

1. Contract Number:
 2. Date: Date inspection was completed. Format: YYYYMMDD.
 3. Time: Time survey was initiated. Format: 24-hr military, HH:MM.
 4. Surveyed By: Name of LACP certified inspection operator conducting the inspection.
 5. Certificate Number: NASSCO certificate number of the operator conducting the inspection.
 6. Company: Name of company completing the inspection.
 7. Lateral Sewer Reference: LSR ID
 8. Start MH ID: ID of the MH / AML / Cleanout where the inspection is initiated.
 9. Finish MH ID: ID of the MH / AML / Cleanout where the inspection is ended.
 10. Street: Street in which a majority of the sewer being inspected is located. Enter "ROW, (Street Name)" if sewer is not in the road but is in close proximity to a readily identifiable street. Enter "ROW" if sewer is not in close proximity to a readily identifiable street.
 11. Start Location: Physical address, intersection or nearest landmark that can be used to readily identify the location of the access point.
 12. Survey Direction: Direction of inspection in relation to flow in the lateral; Upstream or Downstream
 13. Material: Material composition of sewer being inspected. Format: NASSCO PACP code.
 14. Height: Nominal sewer dimensions. Pipe diameter if circular, height if non-circular.
 15. Width: Nominal sewer dimensions. Maximum width if non-circular.
- G. The Engineer reserves the right to refuse an MPEG on the basis of poor image quality, excessive bit rates, inconsistent frame rates, or any other characteristics that may affect usability by the Engineer.
- H. The Contractor shall provide at least three (3), 2.5-inch portable hard disk drives (HDD), complete with all associated drivers and software, power adaptors and USB cables, delivered on a bi-weekly rotation exchange that contains completed sewer inspection video with viewing software and sewer condition coding data to the Engineer. Lateral condition coding shall be submitted as LACP.mdb files accordingly. Retained HDDs will be returned at an agreed frequency.
- I. All HDDs shall be sized appropriately to accommodate all above-mentioned files and have dual USB 3.0 (preferable) and (a minimum) USB 2.0 compatibility with a minimum data transfer rate of 480 MB/s.

3.04. INSPECTION REPORTS:

Supplemental Technical Specifications

- A. Prepare a television inspection report covering the television inspection work and the information acquired. Inspection forms shall be completed and submitted for all pipe sections requiring inspection, including those for which an actual inspection cannot be performed as per Clause 3.04.E.
- B. Name the report files according to the following file specification: [LSR ID]_[Start Access Point]_[End Access Point]_[YYMMDD]_[HH:MM – 24 hour format].pdf
- C. A legible Sketch Drawing showing the lateral segment alignment for each property to be included with each report.
- D. Report sewer defects in accordance with NASSCO's Lateral Assessment and Certification Program (LACP). The Engineer reserves the right to refuse any inspection report that does not comply with the LACP program. The Engineer, at their discretion, may modify this form to meet their condition assessment needs. Alternate inspection forms shall be used only if approved by the Engineer.
- E. In addition to completing all mandatory LACP inspection required fields, the Contractor shall complete the following fields in the LACP Header Section:

Pipe Header Section	Field No.	Field Name	NASSCO Mandatory	REQUIRED (Yes / No)?
General Information	1	Surveyed By (<i>Operator / PACP User Name</i>)	Yes	Yes
	2	Certificate Number	Yes	Yes
	3	Reviewed By	No	No
	4	Reviewer Certificate Number	No	No
	5	Owner	No	Yes
	6	Customer	No	Yes
	7	P/O Number (<i>Contract No.</i>)	No	Yes
	8	Work Order	No	Yes
	9	Media Label	No	Yes
	10	Project	No	Yes
	11	Date	Yes	Yes
	12	Time	No	Yes
	13	Sheet Number	Yes	Yes
	14	Weather	No	Yes
	15	Pre-Cleaning	Yes	Yes
	16	Date Cleaned	No	Yes
	17	Purpose of Survey	No	Yes

Pipe Header Section	Field No.	Field Name	NASSCO Mandatory	REQUIRED (Yes / No)?
	18	Direction of Survey	Yes	Yes
	19	Inspection Technology Used	No	Yes
	20	Inspection Status	Yes	Yes
	21	Consequence of Failure	No	No
	22	Pressure Value	No	No

Location	23	Drainage Area	No	Yes
	24	Pipe Segment Reference (Asset ID)	No	Yes
	25	Lateral Segment Reference (LSR)	Yes	Yes
	26	Street (Name and Number)	Yes	Yes
	27	City	Yes	Yes
	28	Location Code	No	Yes
	29	Location Details	No	Yes

Pipe	30	Pipe Use	Yes	Yes
	31	Size	Yes	Yes
	32	Material	Yes	Yes
	33	Lining Method	No	No
	34	Total Length (Surface Distance <i>Steel Tape Measurement</i>)	No	No
	35	Length Surveyed	No	Yes
	36	Year Constructed	No	No
	37	Year Renewed	No	No
	38	Property Line	No	Yes

Measurements	39	Access Point ID No.	No	Yes
	40	Tap Location	No	No
	41	Rim to Invert	No	No
	42	Access Point Northing	No	No

Pipe Header Section	Field No.	Field Name	NASSCO Mandatory	REQUIRED (Yes / No)?
	43	Access Point Easting	No	No
	44	Access Point Elevation	No	No
	45	Coordinate System	No	No
	46	Vertical Datum	No	No
	47	GPS Accuracy	No	No
	48	Downstream MH ID No.	No	Yes
	49	Upstream MH ID No.	No	Yes
	50	Start Manhole	No	No
	51	Additional Information	No	Yes*

Yes* - when required.

- F. An “empty header” or “0-ft MSA” inspection shall be completed for a sewer segment that cannot be inspected for reasons such as high flow, depths or velocities, inaccessibility to the sewer due to inaccessible or unlocated access structures, heavy debris, and at the Engineer’s direction, etc. The inspection form header and detail sections shall comply with NASSCO LACP guidelines populating all required header fields. The contractor will abandon the survey at a distance of 0-ft inspected and provide a general comment that describes the reason that the inspection cannot be conducted in the Additional Information field. An “empty header” inspection shall also be created for reversal inspections that cannot be completed noting reasons for non-completion. The Contractor shall record at least one photo documenting conditions preventing the inspection of the pipe segment. Empty header records, and image references for the photos, shall be included in the LACP database as submitted by the contractor with adjoining segments.

3.05. TRAFFIC CONTROL

- A. The Contractor shall comply with Section 34 71 00 ROADWAY CONSTRUCTION from the Green Book and also with specific requirements stipulated in this Contract

3.06. ACCEPTANCE OF WORK

- A. The contractor shall submit required video inspections of each lateral segment to the Engineer for review and determination if the work performed is acceptable.
- B. The lateral inspection shall also be used by the Engineer to determine acceptance of lateral cleaning and specialty cleaning.
- C. The Engineer shall review the inspection videos within fifteen (15) working days of submission.
- D. The contractor shall re-perform lateral inspections where the Engineer has determined

the requirements of the specification have not been satisfied.

- E. The contractor shall correct non-compliant inspection submissions and resubmit the corrected inspections to the Engineer within ten (10) working days.
- F. The contractor shall repeat the process until the inspection submissions are accepted by the Engineer. Work to perform remedial work will not be eligible for additional payment.

3.07. PROJECT DELIVERABLES

- A. CCTV Lateral Inspections shall include the following information:
 - 1. The Contractor shall submit formal NASSCO PACP of the mainline to lateral and sewer lateral LACP compliant Inspection Reports respectively, in digital (PDF and LACP.mdb) formats, that summarizes all inspection activities and includes all inspection video and data in their raw format, along with any software viewing packages required, at no cost to the Owner, to view or utilize the video and raw data.
 - 2. The Contractor shall supply separately two (2) duplicated, 2.5-inch portable HDD's, complete with all associated drivers and software, power adaptors and USB cables, containing all video inspections and coding data to the Engineer and Owner upon completion of the project.
 - 3. The Contractor shall supply diagrams and sketches relating to mapping discrepancies.

3.08. MEASUREMENT AND PAYMENT

- A. Lateral Inspections
 - 1. Digital video recordings, Inspection coding, Inspection Reports and sketch drawings will be included with lateral inspection.
 - 2. Correction and re-submission of non-compliant submissions will be at Contractor's own expense.
 - 3. Lateral inspections will be measured on a length basis for each size and type of lateral and paid for at the Contract Unit Price for "Lateral Inspection". Length to be paid for will be the total length of lateral inspected in accordance with this specification, accepted and measured by the Engineer.
 - 4. Measurement will be made based on the inspected distance.
 - 5. The height of non-circular sewers will be taken as the largest dimension.
 - 6. Payment will not be made until the required report submissions are accepted by the Engineer.
 - 7. Payment will not be made for inspections re-performed where the Engineer has determined the requirements of the specification have not been satisfied.
 - 8. Lateral cleaning shall be paid upon review and acceptance of the corresponding

video inspection by the Engineer.

9. The "Miscellaneous Allowance" shall relate to approved completed work that is deemed outside of all other measurement and payment items, accepted and measured by the Engineer.
10. The provision of "empty header" or "0-ft MSA" inspection data will be incidental to the Contract.

3.09. CLOSEOUT ACTIVITIES

- A. The Contractor shall comply with Section 01 77 00 CLOSEOUT PROCEDURES from the Green Book and also with specific requirements stipulated in this Contract.
- B. Acceptance of delivery to include revisions based on QA/QC Audit.

SECTION 33 01 30.41

SANITARY SEWER PIPELINE CLEANING

PART 1. GENERAL

1.01. DESCRIPTION OF WORK

- A. This specification covers the cleaning of sewers up to 34" in height using varying pressures and cleaning activities to allow closed-circuit television (CCTV) inspection of pipe by observing and recording structural mainline and lateral defects, construction, operational and miscellaneous features of existing sewer assets and to verify rehabilitated or new sewer construction prior to acceptance.
- B. Types of cleaning shall be undertaken in accordance with this specification in order to be able to conduct a NASSCO-compliant inspection, include Standard Sewer Cleaning, Excessive Grease and/or Root Removal, Fats, Oils and Grease Abatement, Physically Attached Solid Debris Cutting, Removing Intruding Sewer Taps, and Debris Removal for all sewer diameter ranges and flow types identified within the bid form.
- C. Provide all equipment, tools, labor, materials and incidental services necessary to perform sewer line cleaning work as indicated and in compliance with the Contract Documents.
- D. For standard cleaning evaluation purposes, sewers shall be considered clean when ninety-five (95) percent of the cross sectional area of the pipe is free of loose or settled debris of any size.
- E. Loose or settled debris includes but is not limited to loose, settled or not physically attached asphalt, concrete, bricks, rocks, broken pipe, broken encrustation, construction debris, sludge, dirt, sand, gravel, grit, solids, roots, grease, and other solid and semi-solid debris per NASSCO standards.
- F. Types of cleaning are described below. The final pass of cleaning shall be undertaken in conjunction with the CCTV camera inspection that is to be provided as the final inspection deliverable. The use of the cleaning equipment in conjunction with the CCTV camera inspection shall not be considered an additional pass but shall be incidental to the contract.
 - 1. Standard (non-specialty) Sewer Cleaning: Cleaning using the step-cleaning method described in this Contract for the entire length of the pipe using a high-pressure water jetter to remove loose or settled debris. The Contractor shall verify the level of cleanliness using a CCTV camera to demonstrate to the Engineer that the pipe is clean and ready for final CCTV inspection.
 - 2. If Contractor demonstrates to the Engineer's satisfaction that they cannot clean the pipe of loose or settled debris after the step cleaning process, then the cleaning effort is to cease and the Contractor shall attempt to perform the CCTV inspection in conjunction with the final cleaning pass.

3. If the remaining loose or settled debris prevents the passage of the camera through the pipe from both directions, then the respective CCTV inspection is to be abandoned to NASSCO standards with the appropriate MSA code and the Contractor shall move on to the next sewer segment.
 4. If the Contractor's equipment cannot pass through the pipe due to a blockage due to excessive grease or roots, physically attached solid debris or intruding taps, the Contractor may request approval from the Engineer to initiate Specialty Cleaning such as Excessive Grease and/or Root Removal, Physically Attached Solid Debris Cutting and / or Removing Intruding Sewer Taps as described herein.
- G. Excessive Grease and Root Removal: Excessive grease and root removal shall include the cutting and removal from the sewer of grease or roots that block the passage of the cleaning or inspection equipment that could not be removed with standard sewer cleaning. Requiring the use of remote controlled hydraulically or mechanically driven saw or blade cutters or grinders, remotely operated robots or other types of equipment capable of removing grease and roots. To be completed only as directed by the Engineer.
- H. Fats, Oils and Grease (FOG) Chemical Abatement: The use of FOG Abatement chemicals shall be to treat sewer lines that have heavy accumulations of grease; the chemical is a grease liquefying agent which is to be applied during cleaning operations only as directed by the Engineer.
- I. Physically Attached Solid Debris Cutting: Physically Attached Solid Debris Cutting shall include the cutting and removal from the sewer of physically attached solid debris that blocks the passage of the cleaning or inspection equipment including but not limited to concrete, asphalt or encrustation that is attached to the pipe surface and could not be removed with standard sewer cleaning. Requiring the use of remote controlled hydraulically or mechanically driven saw or blade cutters or grinders, remotely operated robots or other types of equipment capable of removing solid debris. To be completed only as directed by the Engineer.
- J. Removing Intruding Sewer Taps: This work shall include the cutting and removal from the sewer of intruding taps that block the passage of the cleaning or inspection equipment. Requiring the use of remote controlled hydraulically or mechanically driven saw or blade cutters or grinders, remotely operated robots or other types of equipment capable of removing solid taps to be cut and ground and removed from the sewer. To be completed only as directed by the Engineer.
- K. Debris Removal: The extraction of and proper disposal of foreign material from the sewer that includes but is not limited to loose or settled debris of any size.
- L. Reverse set-up for cleaning: will be incidental to the Contract.
- M. Bypassing in emergency situations such as collapses or manhole surcharging:
1. For all pipes, the Contractor shall notify the Engineer and the Engineer shall coordinate with the Owner to have bypass pumping performed by others.

Engineer will notify the Contractor to return to complete the cleaning and inspection upon completion of the repair or intervention.

- N. Flow Control: The intent of any flow control is to maximize visual inspection to as great a degree as possible up to and including 34" in height.
- a. Flow control shall be incidental to the contract. Bypass pumping to control flow is not required; however, the Contractor must, at a minimum, make reasonable effort to control the flow by using pipe-cleaning equipment to temporarily retain flow or to remove standing water.
 - b. The Contractor must also consider weather conditions and low diurnal flow patterns to obtain the best video image of the sewer. This may require the Contractor to schedule video work to times that are after major rain events or to overnight shifts when the sewer system attains a lower dry weather flow environment. These inspections need to be coordinated with City to identify opportune times for low flows expected from the hydraulic model.
 - c. The Contractor is to maximize visual inspection to as great a degree as possible. For pipes of height of 34" or less where the flow is greater than 50% after the Contractor has attempted to lower the water level by means of hydraulic equipment, the Contractor is to inform the Engineer. The Engineer may direct the Contractor to not clean the pipe and the inspection would be done by CCTV and SONAR.
 - d. No flow control shall be undertaken for sewer pipe heights 36" and larger as per:
 - i. Large Diameter Sanitary Sewer Pipeline Inspection Specification 33 01 30.11.

1.02. RELATED REQUIREMENTS

- A. Section 33 01 30.10 - Small Diameter Sanitary Sewer Pipeline Inspection
- B. Section 33 01 30.11 - Large Diameter Sanitary Sewer Pipeline Inspection
- C. Section 33 01 30.50 - Manhole Panoramic Inspection
- D. Section 33 01 30.53 - Manhole Cleaning
- E. Section 33 01 30.15 - Lateral Sewer Pipeline Inspection
- F. Section 33 01 30.44 - Lateral Sewer Pipeline Cleaning
- G. Section 33 01 30.65 - Sanitary Sewer Acoustic Inspection
- H. Section 33 01 30.87 - Temporary Sewer Bypass Pumping

1.03. REFERENCES

- A. National Association of Sewer Service Companies (NASSCO):

1. Pipeline Assessment and Certification Program (PACP) Reference Manual.
2. Manhole Assessment and Certification Program (MACP) Reference Manual.

1.04. DEFINITIONS

- A. CCTV Inspection: Closed circuit television inspection - Operation necessary to complete a high-definition, true-color visual inspection for verification of existing internal sewer line conditions.
- B. AVI: Audio Video Interleave, developed by Microsoft© is the acronym given to a family of multimedia container formats as part of its video for Windows © software.
- C. MPEG: Moving Pictures Expert Group, is the acronym given to a family of international standards fused for coding visual information in a digital compressed format.
- D. HDD: Portable Hard Disk Drive. For the purposes of this specification, HDD shall be written in accordance with the ISO-9660 Level 2 specifications.
- E. Engineer: City of Baltimore Engineer / Owner's Representative / Owner / Field Inspector.

1.05. SUBMITTALS

- A. Submit all contract submittals and/or drawings in accordance with Section 01 33 00 SUBMITTAL PROCEDURES from the City of Baltimore DPW (DPW) Specifications (The Green Book, 2006) and also with specific requirements stipulated in this Contract.
- B. Submit a written description of procedures to be used to the Owner, including product literature for all high pressure water jetter equipment including, but not limited to hosing, jetter nozzles, water tanks, auxiliary engines, pumps, hydraulically driven hose reels, wash down wands, vacuor units and backflow prevention devices. The Contractor shall submit information on all equipment to be used for review and approval by the Engineer at least one (1) month before beginning the cleaning work.
- C. Provide written procedure for method of dewatering and debris disposal to the Engineer for approval.
- D. Prior to initiating cleaning or inspection efforts, the Contractor shall submit an Emergency Plan that outlines proposed methods for recovering their cleaning or inspection equipment that has become lodged, lost or uncontrollable within the manhole or sewer, including confined space entry procedures.
- E. Contractor is to provide a daily schedule to the Engineer with planned cleaning locations.

1.06. QUALITY ASSURANCE

- A. Comply with the requirements of Section 01 45 00 QUALITY CONTROL and 01 74 00 CLEANING AND WASTE MANAGEMENT from the Green Book and also with

specific requirements stipulated in this Contract.

- B. Comply with all codes, laws, ordinances, and regulations of governmental authorities having jurisdiction over this part of the work.
- C. No discharge of sewage, as a result of the Contractor's operations, shall be allowed. The Contractor will be responsible to pay any and all fines associated with sewage discharges resulting from the Contractor's activities.
- D. The Contractor shall not discharge into the sewer system, any water containing silt, mud or any other concentrated settleable material.

1.07. NOT USED

1.08. EXPERIENCE

- A. The Contractor shall submit documentation for Engineer approval to demonstrate the following experience as a business engaged in the cleaning of sewer lines per the Contract Documents:
 - 1. The Contractor shall be in good standing under local contracting requirements or otherwise properly registered, licensed or permitted by law to carry on business within the State of Maryland throughout the term of the Contract, and shall provide the Owner with evidence thereof per the contract documents.
 - 2. At any time during the term of the Contract, the Owner may, at its sole discretion and acting reasonably, request updated evidence of good standing. A Contractor, who fails to provide satisfactory evidence, will not be permitted to continue to perform any Work.
- B. The Contractor and/or any proposed Subcontractor, for the portion of the Work proposed to be contracted to them, shall:
 - 1. Have a minimum of three (3) years of experience in the field of sewer cleaning by means of high velocity water jetters and pipeline inspection by means of CCTV and have the required capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract Documents.
 - 2. Demonstrate that within the past three (3) consecutive years prior to the bid, as a prime contractor, the Contractor has successfully performed in a timely manner at least five (5) projects similar in scope and type to the required work that totals 10,000 feet of previous sewer cleaning on sewers of 6" to 34" in height for condition assessment purposes. Cleaning for inspection of new or rehabilitated infrastructure for acceptance purposes shall not be deemed as representative experience. For each project submitted to meet the experience requirements, indicate the following:
 - a. Name and location of project.
 - b. Name, address, and telephone number of Owner, Municipality, Authority, or a designated representative.

- c. Brief description of work.
- d. Amount of contract.
- e. Date of completion – state if project was completed on time.
- 3. Provide the Engineer with a complete list of Subcontractors whom the Contractor proposes to use prior to the commencement of Work.
- 4. Be fully capable of performing the Work required in strict accordance with the terms and provisions of the Contract Documents.

PART 2. PRODUCTS

2.01. EQUIPMENT

- A. The Contractor shall submit information on all equipment to be used for review and approval of the Engineer.
- B. The Contractor shall provide documentation of availability of the following equipment (or equivalent) for this project:
 - 1. High Flow Jetting Pump – Cleaning: Minimum requirement is 80 GPM @ pressures up to 2,000 psi with Minimum Spool Capability of 600 feet jetter hose; Maximum requirement is up to 230 GPM @ pressures greater than 1,500 psi up to 2,900 psi; Minimum Spool Capability of 1,500 feet of dual fused jetter hose.
 - 2. 6,000 cfm @ 15 inches hg; articulating boom; 50 feet of 6-in to 10-in vacuum pipe. Vactoring capability of not less than 40 feet vertical.
 - 3. High Velocity Jetting Equipment:
 - a. All high velocity sewer cleaning equipment shall be constructed for ease and safety of operation.
 - b. The equipment shall have a selection of two or more velocity nozzles. The nozzles shall be capable of producing a scouring action from 15 to 45 degrees in all size lines to be cleaned.
 - c. Equipment shall also include a high velocity wand for washing and scouring manhole walls and floor. The wand shall be capable of producing flows from a fine spray to a long distance solid stream.
 - d. The equipment shall carry its own water tank, auxiliary engines, pumps and hydraulically driven hose reel.
 - e. All controls shall be located so the equipment can be operated above ground.
 - 4. Mobile TV Studios in accordance with:
 - a. Section 33 01 30.10: Small Diameter Sanitary Sewer Pipeline Inspection
 - b. Section 33 01 30.11: Large Diameter Sanitary Sewer Pipeline Inspection.
 - 5. Water tank, generators, pumps, and air compressors.

6. Jetting nozzles and floor skids designed specifically for the size ranges specified in the Contract Documents. Demonstrate availability of appropriate heads for the various work requirements.
7. Jetting equipment having the ability to inject FOG abatement chemicals in a controlled and concise manner. The FOG abatement chemical to be used will be:
 - a. Product Name: Jet Power II, Supplier: Duke's Sales and Services Inc. otherwise:
 - i. The FOG abatement product must contain a blend of essential surfactants to liquefy hard sewer grease, and other chemical agents to maintain said grease in a liquid state indefinitely. The chemical/physical characteristics of the product shall be as follows:
 - ii. The Product shall contain NO petroleum solvents and must be completely biodegradable.
 - iii. The product shall NOT be corrosive, and shall contain NO acids, NO alkalis, and/or NO Chlorinated or Quaternary Compounds.
 - iv. The product shall be equally effective in pump stations, wet wells, manholes, as well as sewer pipelines.
 - v. The Product shall be a liquid that is totally miscible in water, in order to form a complete emulsion when mixed with water.
 - vi. When mixed in a 1% solution with water, the product must change the color of the entire water solution from clear to white (or other distinct color) so as to provide evidence that it is evenly distributed in the water tank, and throughout the jet stream (see Manner of Application).
 - vii. The product must have a boiling point higher than 212 degrees and a specific gravity greater than 1.0 and less than 1.05 (water = 1)
 - b. Product Safety:

A letter of approval from the manufacturer of the Injector system must be submitted with this bid to ensure product compatibility with the Injector Systems currently used by the Owner for the application of Jet Power II or other approved products.
 - c. The products Safety Data Sheet (submitted with the Bid) shall confirm the following requirements:
 - i. The Product shall contain NO ingredients considered "hazardous."
 - ii. The Product's FIRE, HEALTH, AND REACTIVITY rating is "0" meaning "insignificant".
 - iii. The product is NOT flammable, nor corrosive, and has no such DOT classification.
 - iv. That hazardous polymerization will NOT occur.

8. Water-tight debris boxes with decant system.
 9. CCTV camera equipment with a locating sonde to locate buried manholes.
 10. Approved backflow prevention device for filling water tanks from a hydrant.
- C. Debris Removal Equipment: Vacuum unit(s) used for removing sewer debris to include the following:
1. Positive displacement pumps or fans producing a minimum 1,500 cubic feet per minute of air movement.
 2. Storage tank.
 3. Minimum 6-inch diameter suction hoses attached to a hydraulic boom.
 4. Configure the storage tank to allow the liquid portion of the debris to be returned to the sewer.
- D. Physically Attached Solid Debris Cutting and Intruding Sewer Tap Removal and Excessive Grease and Root Cutting (Specialty Cleaning) Equipment:
1. Cutting equipment to consist of remote controlled hydraulically driven saw, grinders or blade cutters, remotely operated robots or other types of equipment capable of removing physically attached solid debris and excessive grease and roots.
 2. Intruding sewer tap pipe removal equipment to consist of remote controlled hydraulically driven cutters and reamers and remotely operated robotic routers or grinders capable of cutting back intruding sewer service pipes.
 3. Select the cutting equipment to be used considering debris type, pipe material and sewer pipe condition.
 4. The specialty cleaning equipment shall include a unit that has a cutting nozzle and camera on the same platform, capable of removing an obstruction while simultaneously viewing the cleaning activity from the same vantage point. This unit is to be used where blockages are encountered in both directions that prevent completion of the CCTV inspection for the entire length of the pipe or in cases where the pipe can only be accessed from one access point and a blockage prevents completion of the CCTV inspection.
- E. Flow Control and Bypass pumping Equipment
1. Flow Control
 - a. Undertake flow control measures such as off-peak work, plugging or use of sewer cleaning equipment to lower downstream flow if sewer flows are hampering effective sewer cleaning.
 2. Bypass Pumping
 - a. If the Contractor must use bypass pumping to maintain flow in the event that the Contractor's equipment is stuck in the sewer, the Contractor shall comply with Section 33 01 30.87 - Temporary Sewer Bypass Pumping.

F. Communication Equipment

1. Equipment cleaning crews shall have and utilize a suitable communication system, linking all crewmembers.

PART 3. EXECUTION

3.01. PERFORMANCE

- A. The Contractor understands that Baltimore City shall incur significant and substantial penalties from the state of Maryland in the event that sewage is discharged onto the ground or into any streams as related to the work in this Contract. In the event that sewage is released into the environment as a result of the Contractor's performing the work, the Contractor shall immediately rectify the situation and notify the Engineer.
- B. All open access structures or manholes will be attended at all times, and all access structures or manholes that were sealed or bolted to control odors or entry of extraneous water or for security reasons will be resealed or re-bolted after entry. The Contractor shall liaise with the Engineer to ensure that sealed or bolted chambers have been adequately sealed or bolted, post inspection.
- C. All cleaning shall commence with the most upstream sections of the sewer lines to be cleaned and end with the most downstream sections of the sewer lines to be cleaned. The cleaning process shall be carried out using the step-cleaning method using the appropriate carrying capacity of each jetter nozzle for the respective sewer pipe height and shape. All loose or settled debris shall be evacuated from each successive downstream manhole as the cleaning progresses.
 1. Suitable debris boxes shall be installed as necessary in the downstream manholes in such a manner that solids and debris are trapped. No loose or settled debris shall be allowed to pass these boxes.
 2. Under no circumstances shall sewage or solids removed from the sewer line be dumped onto streets, catch basins, storm drains, or receiving waters.
 3. All materials removed shall be properly disposed at a landfill licensed to receive the applicable wastes.
 4. During the final cleaning pass, the CCTV inspection camera shall be mobilized to inspect the sewer segment while the jet nozzle pulls water away from the camera, drawing any water level down to maximize the exposure of the sewer pipe circumference.
- D. Each designated sewer line section within the diameter ranges indicated within the Bid Form shall be cleaned using a high-pressure water jetter. The equipment selected for cleaning shall be capable of removing loose or settled debris from the sewer lines and manholes using the provided types of cleaning as per 1.01.F to facilitate a full inspection.
 1. If cleaning of an entire sewer segment cannot be successfully performed from one manhole, the equipment shall be set up on the opposite sewer segment

- manhole and a reversal clean again attempted, without additional compensation.
2. In the event the Contractor is unable to completely perform CCTV inspection or cleaning from both directions due to obstructions (with the exception of a cross bore or collapse), the Contractor must inform the Engineer of this immediately. Upon approval by the Engineer, the Contractor shall, within two weeks, have the obstructions removed using specialty cleaning equipment capable of removing the obstruction and simultaneously viewing the cleaning activity from the same vantage point in order to view the cleaning operation and not cause any damage to the host pipe.
 3. The Contractor shall attempt to remove a specific blockage in the pipe using standard cleaning for up to one (1) hour before advising the Engineer the blockage cannot be removed. The Contractor shall provide the Engineer with the following information for blockages that cannot be removed.
 - a. Location of the blockage indicated by a paint mark on the ground surface above the sewer and the distance from the nearest manhole.
 - b. An inspection photograph, video recording or digital file of the blockage.
 - c. The effect the blockage has on completion of the Work and the requirement for action to deal with the blockage such as an emergency sewer repair or scheduled maintenance.
 4. The Contractor shall evaluate if the line is adequately cleaned as per 1.01.D to justify televising inspection work after each cleaning pass. The Contractor is wholly responsible for determining if the line is adequately cleaned to perform the televising inspection.
 5. Standard sewer cleaning shall be considered the use of a step method to work through the pipe in increments that removes debris in a segmented and controlled manner throughout the full length of the pipe to be cleaned. This means that the Contractor shall clean an initial portion of the pipe for a length appropriate to the carrying capacity of each jetter nozzle, sewer pipe height and shape and level of debris encountered, pulling back debris to the manhole. The Contractor shall then clean successive increments of pipe in the same way, each time pulling the displaced debris in solution back over increments of pipe previously cleaned. The Contractor will complete the cleaning using the step method approach through the entire segment of the pipeline with a high-pressure water jetter to ensure the sewer is adequately cleaned to complete the work.
 6. During all sewer cleaning operations, satisfactory precautions shall be taken to protect the sewer lines from damage that might be inflicted by the improper use of cleaning equipment. Whenever hydraulically propelled cleaning tools which depend upon water pressure to provide their cleaning force or any tools which retard the flow of water in the sewer line are used, precautions shall be taken to ensure that the water pressure created does not cause any damage or flooding to public or private property being served by the sewer segment involved.

7. No additional compensation will be provided to remove equipment or repair the sewer in the event the Contractor's equipment becomes stuck in the pipe or is otherwise damaged as a result of conducting work in a pipeline.

- E. The Contractor is responsible for obtaining and maintaining all necessary permits and paying the corresponding fees needed for the Work and the transporting of any equipment or material over private property and public streets. It is further the Contractor's responsibility to obtain and maintain the necessary permits and/or permission from the Owner, Municipality and/or owners of private properties.

3.02. REMOVAL OF EXCESSIVE GREASE AND/OR ROOTS

- A. Excessive grease and/or roots shall be reported to the Engineer.
- B. Excessive grease and roots shall be removed, as approved by the Engineer, where excessive grease and root intrusion prevents passage of the camera or inspection platform. Special precautions should be exercised during the cleaning operation to assure removal of visible roots from the joint area.
 1. Contractor shall cut and remove grease and/or roots that cannot be removed through standard cleaning efforts, as approved where indicated by the Engineer from the sewer inspection.
 2. Contractor may use mechanical devices such as expanding root cutters and hydraulic procedures such as high-pressure jet cleaners.
 3. Contractor may use hydraulically driven saw, grinder or blade cutters to remove grease and/or roots.
 4. Contractor must remove grease and or roots to within one (1) inch of the inside surface of the sewer.
 5. Contractor must monitor the entire removal operation and while the removal equipment is travelling within the pipe to reach the work area by CCTV.
 6. Flushing the sewer or the use of "spin nozzles" to remove grease will not be permitted.
- C. Contractor shall inspect the entire sewer section in accordance with:
 1. Section 33 01 30.10 - Small Diameter Sanitary Sewer Pipeline Inspection; or
 2. Section 33 01 30.11 - Large Diameter Sanitary Sewer Pipeline Inspectionafter completion of excessive grease or root removal.

3.03. FOG ABATEMENT CHEMICAL USE

- A. Work orders will be issued identifying the sewer lines that require chemical grease treatment.
- B. The Product must be designed for application by Sewer Jet Trucks according to the following instructions:

1. Product mixes with water to form a 1% solution in the Jet Truck tank (i.e., 10 gallons of Product, per every 1,000 gallons of water).
 2. The product is sprayed at high pressure up the sewer line, via the Jet Truck. Upon reaching the opposite manhole, the operator powers down equipment, waits 10 minutes then sprays back at high pressure.
 3. One pass through the sewer section is all that should be required. Therefore, 10 gallons of product is sufficient to treat approximately 1,000 feet of sewer pipe up to heights of 18”.
 4. Application of the product requires no specialized equipment, or modification of the Owner's equipment.
- C. Sewer lines that are found to have heavy grease accumulation but are not included in the work orders, therefore, not scheduled to be treated for grease, require approval of the Engineer to receive such treatment.
- D. Acceptance of FOG Abatement Chemical Use shall be determined by the Engineer when acceptance of the following has been achieved:
1. The Product shall leave the sewer line substantially free of grease.
 2. That said grease will not re-coagulate at a downstream location.
 3. The Product, as supplied conforms to this specification.
 4. The Product has a shelf life of not less than 1 year.
- 3.04. REMOVAL OF INTRUDING SEWER TAPS
- A. Removal of intruding sewer taps shall be performed, as approved by the Engineer, where the intruding tap prevents passage of the camera or inspection platform. Special precautions should be exercised during the grinding operation to assure unnecessary damage does not occur to the tap given the conditions of the sewer main and tap. Contractor shall complete the work as follows:
1. Contractor shall cut and remove intruding sewer taps from the sewer at the locations identified by the Engineer from the sewer inspection. The cut tap pieces shall be removed from the sewer.
 2. Contractor shall leave intruding sewer taps finished smooth and within one (1) inch of the inside surface of the sewer.
 3. Contractor shall monitor the entire intruding sewer tap removal process and while the cutting equipment is travelling within the pipe to reach the work area by CCTV.
- B. Contractor shall inspect the entire sewer section in accordance with:
1. Section 33 01 30.10 - Small Diameter Sanitary Sewer Pipeline Inspection or
 2. Section 33 01 30.11 - Large Diameter Sanitary Sewer Pipeline Inspection after completion of intruding sewer tap removal.

3.05. PHYSICALLY ATTACHED SOLID DEBRIS CUTTING

- A. Removal of physically attached solid debris that cannot be removed using standard cleaning methods shall be undertaken, as approved by the Engineer, where the physically attached solid debris prevents passage of the camera or inspection platform. The work shall be done by the use of solid debris cutting equipment that will consist of remote controlled hydraulically driven saw, grinders or blade cutters, remotely operated robots or other types of equipment capable of removing solid debris such as concrete, asphalt and encrustation.
 - 1. Contractor shall complete the work and remove solid debris from the sewers for the limits identified by the Engineer from the sewer inspection.
 - 2. Solid debris removal equipment to consist of remote controlled hydraulically driven cutters and reamers capable of cutting back the solid debris.
 - 3. Contractor shall select the cuttings equipment to be used considering debris type and sewer pipe condition. Remove solid debris to within one (1) inch of the inside surface of the sewer.
 - 4. Contractor shall monitor the entire cutting operation and while the cutting equipment is travelling within the pipe to reach the work area by CCTV.
- B. Contractor shall inspect the entire sewer section in accordance with:
 - a. Section 33 01 30.10- Small Diameter Sanitary Sewer Pipeline Inspection
or
 - b. Section 33 01 30.11 - Large Diameter Sanitary Sewer Pipeline Inspection
after completion of solid debris cutting.

3.06. FLOW CONTROL

- A. Undertake flow control measures during off peak hours by means of sewer cleaning equipment to lower downstream flow levels or blocking/plugging if sewer flows are hampering effective sewer cleaning.
 - 1. Use sewer plugs to stop or reduce sewer flow that tether to and are removable from the ground surface.
 - 2. Monitor flow levels upstream of a plugged sewer at all times to ensure flooding of public or private property does not occur.
 - 3. Remove plugs placed in sewers and re-establish normal flow when directed by the Engineer.

3.07. TRAFFIC CONTROL

- A. The Contractor shall comply with Section 34 71 00 ROADWAY CONSTRUCTION from the Green Book and also with specific requirements stipulated in this Contract.

3.08. ACCEPTANCE OF WORK

- A. The Contractor shall submit required video inspections of the cleaned sewer to the Engineer for review and determination if the work performed is acceptable.
- B. If physically attached solid debris cutting, removal of excessive grease and roots, and intruding sewer tap removal occurs, the Contractor shall submit the survey abandonment videos from the initial survey attempts that show that the passage of the camera or platform was prevented in addition to the final completed survey to the Engineer for review and determination if the work performed is acceptable.
- C. The Engineer will review the inspection videos within fifteen (15) working days of submission and determine if work performed is acceptable.
- D. The Contractor shall perform remedial work for sewer cleaning, cutting of physically attached solid debris, Fats, Oils and Grease Abatement, removal of excessive grease and roots and removal of intruding sewer taps and a re-inspection for the locations where the work was determined by the Engineer as not being acceptable. Work to perform remedial work will not be eligible for additional payment.

3.09. MEASUREMENT AND PAYMENT

- A. Sewer Cleaning
 - 1. Standard sewer cleaning will be measured on a length basis for each size and type of sewer and paid for at the Contract Unit Price for "Standard Sewer Cleaning". Length to be paid for will be the total length of sewer cleaned in accordance with this specification, accepted and measured by the Engineer. The costs of all materials, labor, equipment, and all other incidental materials necessary for standard pipe cleaning of loose and settled debris, obstructions, roots, asphalt, concrete, bricks, grease and settled and ingress deposits shall be included in the cost of this item.
 - 2. The height of non-circular sewers will be taken as the largest dimension.
 - 3. All sewer cleaning activities shall be paid upon review and acceptance of the corresponding video inspection by the Engineer.
- B. Removal of Excessive Grease and/or Roots
 - 1. Excessive grease and/or roots remaining in the pipe after standard sewer cleaning shall be considered separately from physically attached solid debris. Cutting and removal of grease and/or roots from within a single manhole-to-manhole sewer segment and removal from the sewer will be considered as one (1) pay item regardless of the amount of grease and/or roots removed from within that sewer segment. Blockages that prevent the passage of the camera or inspection platform shall be considered for removal of excessive Grease and/or roots. Grease or roots shall be cut to within one (1) inch of the surface of the pipe wall.
 - 2. Measurement will be on a unit basis and paid for at the Contract Unit Price for "Removal of Excessive Grease and/or Roots per Sewer Segment". The number of units to be paid for will be the total amount of manhole-to-manhole sewer

segments in which grease and/or roots have been removed in accordance with this Specification, accepted and measured by the Engineer.

3. The Engineer shall determine if the removal of excessive grease or roots is warranted and approved prior to the work taking place. Measurements will be taken on site at time of cutting and removal and approved by the Engineer.

C. Cyclical Cleaning Only with FOG Abatement Chemical Use - Optional

1. Pipes identified for cyclical cleaning only (without inspection) may or may not require Chemical FOG Abatement. Pipes specifically requiring Chemical FOG Abatement will be identified by the Engineer.
2. Payment shall be made for the linear footage of pipe where cyclical cleaning has occurred through issuance of work orders or by approval by the Engineer and shall be paid for at the Contract Unit Price for "Cyclical Cleaning Only With FOG Abatement Chemical Use - Optional". The quantity in gallons of approved FOG Abatement Chemical applied shall be paid for at the Contract Unit Price for "FOG Abatement Chemical".

D. Physically Attached Solid Debris Cutting

1. Physically Attached Solid Debris Cutting shall include the cutting and removal from the sewer of solid debris including but not limited to concrete, asphalt or encrustation that is physically attached to the pipe surface that could not be removed by standard sewer cleaning. Pipes that have physically attached solid debris that blocks the passage of the camera or inspection platform shall be considered for removal and approved by the Engineer. Debris shall be cut to within one (1) inch of the surface of the pipe wall.
2. The first nine (9) linear feet either truly continuous or cumulative of solid debris cutting per sewer segment will be measured on a unit basis and paid for at the Contract Unit Price for "Physically Attached Solid Debris Cutting – First 9 feet for continuous or cumulative defect". Point location solid debris cutting at pipe joints and services is not included in this item. Continuous solid debris shall be considered a length of three (3) linear feet or more of solid debris. Number of units to be paid for will be the total number of solid debris cutting locations that accumulate to a total length less than or equal to nine (9) feet in accordance with this specification, accepted and measured by the Engineer.
3. Solid debris cutting in excess of the first nine (9) linear feet per sewer segment will be measured on a length basis and paid for at the Contract Unit Price for "Additional Solid Debris Cutting for continuous or cumulative defect". Length to be paid for will be the total length of solid debris cutting longer than the first nine (9) linear feet in accordance with this specification, accepted and measured by the Engineer.
4. Point location solid debris cutting at pipe joints and services will be measured on an EACH basis and paid for at the Contract Unit Price for "Point Location Solid Debris Cutting – At Pipe Joints and Services". The solid debris that occurs at a

point location such as a pipe joint or service will not be paid for per linear foot and will be counted and paid for on a per EACH basis. Point location solid debris shall be considered a length of less than three (3) linear feet of solid debris. Number of units to be paid for will be the total number of locations of solid debris cutting at pipe joints or services in accordance with this specification, accepted and measured by the Engineer.

5. The Engineer shall determine if the removal of solid debris material is warranted and approved prior to the work taking place. Measurements will be taken on site at time of cutting and approved by the Engineer.

E. Removal of Intruding Sewer Taps

1. Removal of intruding sewer taps will be measured on a unit basis and paid for at the Contract unit Price for "Removing Intruding Sewer Taps". Number of units to be paid for will be the total number of intruding sewer taps removed from the sewer in accordance with this specification, accepted and measured by the Engineer. Taps that block the passage of the camera or inspection platform shall be considered for removal. Taps shall be cut to within one (1) inch of the surface of the pipe wall.
2. Measurements will be taken on site at time of removal and approved by the Engineer.
3. The Engineer shall determine if the removal of the intruding sewer taps is warranted and approved prior to the work taking place. Measurements will be taken on site at time of cutting and removal and approved by the Engineer

F. Debris Removal

1. Debris removal will be incidental to the work. Immediately upon completion of work, the Contractor shall ensure that the entire area is cleaned of all debris, and that all debris is disposed of properly.

G. Flow Control

1. Flow control costs will be included within Sewer Cleaning tasks and is incidental to this Contract.

H. Miscellaneous

1. The "Miscellaneous Allowance" shall relate to approved completed work that is deemed outside of all other measurement and payment items, accepted and measured by the Engineer.
2. Reverse setups performed to obtain a complete television inspection or cleaning will be incidental to the Contract.

3.10. CLOSEOUT ACTIVITIES

- A. The Contractor shall comply with Section 01 77 00 CLOSEOUT PROCEDURES

from the Green Book and also with specific requirements stipulated in this Contract.

- B. Acceptance of delivery to include revisions based on QA/QC Audit.

SECTION 33 01 30.44

LATERAL SEWER PIPELINE CLEANING

PART 1. GENERAL

1.01. DESCRIPTION OF WORK

- A. This specification covers the cleaning of sewer laterals 4" to 12" in diameter using varying pressures and cleaning activities to allow closed-circuit television (CCTV) inspection of the pipe through observing and recording structural lateral defects, construction, operational and miscellaneous features of existing lateral assets and to verify rehabilitated or new sewer construction prior to acceptance.
- B. Types of cleaning shall be undertaken in accordance with this specification in order to be able to conduct a NASSCO compliant inspection, for all lateral diameter ranges and flow types identified within the bid form.
- C. The CCTV inspections and cleaning of the laterals shall be performed from the cleanout or the sanitary sewer access mainline (AML), as deemed necessary by the site conditions.
- D. Cleaning of sanitary sewer laterals shall be performed for the complete section typically extending from the sanitary sewer main to the property line and/or cleanout. Cleanout risers shall also be cleaned when accessing from the cleanout.
- E. Loose or settled debris includes but is not limited to loose, settled or not physically attached asphalt, concrete, bricks, rocks, broken pipe, broken encrustation, construction debris, sludge, dirt, sand, gravel, grit, solids, roots, grease, and other solid and semi-solid debris per NASSCO standards.
- F. For light and heavy cleaning evaluation purposes, sewers shall be considered clean when ninety-five (95) percent of the cross sectional area of the pipe is free of loose or settled debris of any size.
- G. Provide all equipment, tools, labor, materials and incidental services necessary to perform lateral cleaning work as indicated and in compliance with the Contract Documents.
- H. Lateral Access:
 - a. The Owner cannot guarantee that all laterals can be accessed from the cleanout and/or the sewer main. Laterals that cannot be accessed shall be identified by the Contractor and the Contractor shall inform the Engineer.
- I. Types of Cleaning and Flow Control
 - 1. Light Lateral Cleaning: Clean laterals of all loose or settled debris and objects of any size with the equipment identified in Clause 2.02 of this specification using up to three (3) passes through the entire lateral segment. The Contractor shall verify the level of cleanliness using a CCTV camera to demonstrate to the Engineer that the pipe is clean and ready for final CCTV inspection. If the

Contractor believes the level of cleanliness has not been achieved after three passes, the Contractor shall request approval from the Engineer to initiate Heavy Lateral Cleaning as described herein. If the Contractor's equipment cannot pass through the pipe due to a blockage, the Contractor may request approval from the Engineer to initiate Specialty Lateral Cleaning as described herein.

2. Heavy Lateral Cleaning: Clean laterals of all loose or settled debris that could not be removed using light cleaning with the equipment identified in Clause 2.02 of this specification using up to nine (9) passes through the entire lateral segment. To be completed only as approved by the Engineer. The Contractor shall verify the level of cleanliness using a CCTV camera to demonstrate to the Engineer that the pipe is clean and ready for final CCTV inspection. If the Contractor believes the level of cleanliness has not been achieved after nine passes, the Contractor shall request approval from the Engineer to initiate Specialty Lateral Cleaning as described herein.
3. Specialty Lateral Cleaning: Clean laterals of items that block the passage of the cleaning or inspection equipment and cannot be removed using light or heavy cleaning such as excessive grease, roots, physically attached solid debris and large objects using remote controlled hydraulically or mechanically driven saw or blade cutters or grinders, remotely operated robots or other types of equipment capable of removing such items. To be completed only as directed by the Engineer.
4. Flow Control in Lateral: The intent of any flow control is to ensure the recorded video shows the entire circumference of the lateral up to and including 12" in diameter.
 - a. Flow control shall be incidental to the contract. Bypass pumping to control flow is not required; however, the Contractor must, at a minimum, make reasonable effort to control the flow by using other means to temporarily retain flow or to remove standing water.
 - b. The Contractor must also consider weather conditions and low diurnal flow patterns to obtain the best video image of the sewer. This may require the Contractor to schedule video work to times that are after major rain events or to overnight shifts when the sewer system attains a lower dry weather flow environment.
 - c. Flow control within the lateral shall be managed in conjunction with the Property Owner and shall be incidental to the Contract.

1.02. RELATED REQUIREMENTS

- A. Section 33 01 30.10 - Small Diameter Sanitary Sewer Pipeline Inspection
- B. Section 33 01 30.11 - Large Diameter Sanitary Sewer Pipeline Inspection
- C. Section 33 01 30.41 - Sanitary Sewer Pipeline Cleaning
- D. Section 33 01 30.50 - Manhole Panoramic Inspection

- E. Section 33 01 30.53 - Manhole Cleaning
- F. Section 33 01 30.15 - Lateral Sewer Pipeline Inspection
- G. Section 33 01 30.65 - Sanitary Sewer Acoustic Inspection
- H. Section 33 01 30.87 - Temporary Sewer Bypass Pumping

1.03. REFERENCES

- A. National Association of Sewer Service Companies (NASSCO):
 - 1. Pipeline Assessment and Certification Program (PACP) Reference Manual.
 - 2. Manhole Assessment and Certification Program (MACP) Reference Manual.
 - 3. Lateral Assessment and Certification Program (LACP) Reference Manual.

1.04. DEFINITIONS

- A. CCTV Inspection: Closed circuit television inspection - Operation necessary to complete a high-definition, true-color audio-visual inspection for verification of existing internal sewer line conditions.
- B. AML: Access Point Mainline – The point at which the lateral connects to the mainline.
- C. Engineer: City of Baltimore Engineer / Owner’s Representative / Owner / Field Inspector.

1.05. SUBMITTALS

- A. Submit all contract submittals and/or drawings in accordance with Section 01 33 00 SUBMITTAL PROCEDURES from the City of Baltimore DPW (DPW) Specifications (The Green Book, 2006) and also with specific requirements stipulated in this Contract.
- B. Submit a written description of procedures to be used to the Engineer, including product literature for all high pressure water jetter equipment including, but not limited to hosing, jetter nozzles, water tanks, auxiliary engines, pumps, hydraulically driven hose reels, wash down wands, vactor units and backflow prevention devices. The Contractor shall submit information on all equipment to be used for review and approval by the Engineer at least one (1) month before beginning the cleaning work.
- C. Provide written procedure for method of dewatering and debris disposal to the Engineer for approval.
- D. Prior to initiating cleaning or inspection efforts, the Contractor shall submit an Emergency Plan that outlines proposed methods for recovering their cleaning or inspection equipment that has become lodged, lost or uncontrollable within the manhole, cleanout, sewer or lateral, including confined space entry procedures.
- E. Contractor is to provide a daily schedule to the Engineer with planned cleaning locations.

1.06. QUALITY ASSURANCE

- A. Comply with the requirements of Section 01 45 00 QUALITY CONTROL and 01 74 00 CLEANING AND WASTE MANAGEMENT from the Green Book and also with specific requirements stipulated in this Contract.
- B. Comply with all codes, laws, ordinances, and regulations of governmental authorities having jurisdiction over this part of the work.
- C. No discharge of sewage, as a result of the Contractor's operations, shall be allowed. The Contractor will be responsible to pay any and all fines associated with sewage discharges resulting from the Contractor's activities.
- D. The Contractor shall not discharge into the sewer system, any water containing silt, mud or any other concentrated settleable material.

1.07. NOT USED

1.08. EXPERIENCE

- A. The Contractor shall submit documentation for Engineer approval to demonstrate the following experience as a business engaged in the cleaning of sewer mainline and lateral lines per the Contract documents:
 - 1. The Contractor shall be in good standing under local contracting requirements or otherwise properly registered, licensed or permitted by law to carry on business within the State of Maryland throughout the term of the Contract, and shall provide the Engineer with evidence thereof per the contract documents.
 - 2. At any time during the term of the Contract, the Engineer may, at their sole discretion and acting reasonably, request updated evidence of good standing. A Contractor, who fails to provide satisfactory evidence, will not be permitted to continue to perform any Work.
- B. The Contractor and/or any proposed Subcontractor, for the portion of the Work proposed to be contracted to them, shall:
 - 1. Have a minimum of three (3) years of experience in the field of sewer cleaning by means of high velocity water jetters and pipeline inspection by means of CCTV and have the required capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract Documents.
 - 2. Have successfully carried out work similar in nature, scope and value to the Work and demonstrate that within the past three (3) consecutive years prior to the bid, as a prime contractor, the Contractor has successfully performed in a timely manner at least five (5) projects similar in scope and type to the required work that totals 5,000 feet of previous lateral cleaning for laterals 12" and smaller for condition assessment purposes. Cleaning for inspection of new or rehabilitated infrastructure for acceptance purposes shall not be deemed as representative experience. For each project submitted to meet the experience

requirements, indicate the following:

- a. Name and location of project.
 - b. Name, address, and telephone number of Owner, Municipality, Authority, or a designated representative.
 - c. Brief description of work.
 - d. Amount of contract.
 - e. Date of completion – state if project was completed on time.
3. Provide the Engineer with a complete list of Subcontractors whom the Contractor proposes to use prior to the commencement of Work.
 4. Be fully capable of performing the Work required in strict accordance with the terms and provisions of the Contract Documents.

PART 2. PRODUCTS

2.01. GENERAL

- A. Not used.

2.02. EQUIPMENT

- A. The Contractor shall submit information on all equipment to be used for review and approval of the Engineer.
- B. The Contractor shall have all required equipment mobilized for the duration of the work.
- C. The Contractor shall provide documentation of availability of the following equipment (or equivalent) for this project:
 1. High Flow Jetting Pump: Minimum requirement is 80 GPM @ pressures up to 2,000 psi with Minimum Spool Capability of 600 feet jetter hose. Capable of cleaning from a cleanout to the AML and/or capable of being launched from within the mainline through the AML and cleaning up to the property line.
 2. 6,000 cfm @ 15 inches hg; articulating boom; 50 feet of 6-in to 10-in vacuum pipe. Vactoring capability of not less than 40 feet vertical.
 3. High Velocity Jetting Equipment:
 - a. All high velocity sewer cleaning equipment shall be constructed for ease and safety of operation.
 - b. The equipment shall have a selection of two or more velocity nozzles. The nozzles shall be capable of producing a scouring action from 15 to 45 degrees in all size lines to be cleaned.
 - c. Equipment shall also include a high velocity wand for washing and scouring manhole walls and floor. The wand shall be capable of producing

- flows from a fine spray to a long distance solid stream.
- d. The equipment shall carry its own water tank, auxiliary engines, pumps and hydraulically driven hose reel.
 - e. All controls shall be located so the equipment can be operated above ground.
- 4. Mobile TV Studios in accordance with:
 - a. Section 33 01 30.10: Small Diameter Sanitary Sewer Pipeline Inspection
 - b. Section 33 01 30.11: Large Diameter Sanitary Sewer Pipeline Inspection
 - c. Section 33 01 30.15: Lateral Sanitary Sewer Pipeline Inspection
 - 5. Water tank, generators, pumps, and air compressors.
 - 6. Jetting nozzles and floor skids designed specifically for the size ranges specified in the Contract Documents. Demonstrate availability of appropriate heads for the various work requirements.
 - 7. Water-tight debris boxes with decant system.
 - 8. CCTV camera equipment with a locating sonde to locate buried manholes.
 - 9. Approved backflow prevention device for filling water tanks from a hydrant.
- D. Debris Removal Equipment: Vacuum unit(s) used for removing sewer debris to include the following:
- 1. Positive displacement pumps or fans producing a minimum 1,500 cubic feet per minute of air movement.
 - 2. Storage tank.
 - 3. Minimum 6-inch diameter suction hoses attached to a hydraulic boom.
 - 4. Configure the storage tank to allow the liquid portion of the debris to be returned to the sewer.
- E. Specialty Cleaning Equipment for Physically Attached Solid Debris Cutting, Excessive Grease, Encrustation and Root Cutting
- 1. Solid debris and root cutting equipment to consist of remote controlled hydraulically driven saw, grinders or blade cutters, remotely operated robotic routers or other types of equipment capable of removing physically attached solid debris and excessive grease and roots.
 - 2. Select the cutting equipment to be used considering solid debris type, pipe material and lateral pipe condition.
 - 3. The specialty cleaning equipment shall include a unit that has a cutting nozzle and camera on the same platform, capable of removing an obstruction while simultaneously viewing the cleaning activity from the same vantage point. This unit is to be used where blockages are encountered in both directions that

prevent completion of the CCTV inspection for the entire length of the pipe or in cases where the pipe can only be accessed from one access point and a blockage prevents completion of the CCTV inspection.

- F. Flow Control Equipment
 - 1. Flow Control in Laterals
 - a. Undertake flow control measures such as off-peak work or use of cleaning equipment to lower downstream flow levels if the sewer or lateral flows are hampering effective cleaning.
- G. Communication Equipment
 - 1. Equipment cleaning crews shall have and utilize a suitable communication system, linking all crewmembers.

PART 3. EXECUTION

3.01. PERFORMANCE

- A. All open access structures or manholes will be attended at all times, and all access structures or manholes that were sealed or bolted to control odors or entry of extraneous water or for security reasons will be resealed or re-bolted after entry. The Contractor shall liaise with the Engineer to ensure that sealed or bolted chambers have been adequately sealed or bolted, post inspection.
- B. The Contractor understands that Baltimore City shall incur significant and substantial penalties from the state of Maryland in the event that sewage is discharged onto the ground or into any streams as related to the work in this Contract. In the event that sewage is released into the environment as a result of the Contractor's work, the Contractor shall immediately rectify the situation and notify the Engineer.
- C. The type of cleaning and inspection of laterals shall be identified on the plans and shall fall under the following categories:
 - 1. Sewer Lateral Inspections from Cleanouts to Mainlines or Manholes - Individual or Scattered Locations.
 - 2. Sewer Lateral Inspections from Mainlines or Manholes to Property Line / Cleanout - Individual or Scattered Locations.
 - 3. Sewer Lateral Inspections from Mainlines or Manholes to Property Line / Cleanout - All laterals along mainline with cleaning from clean-outs if accessible.
- D. The Contractor shall initially attempt to clean and inspect the lateral from the cleanout, if accessible. If a cleanout cannot be found or accessed per the specifications, the lateral shall be cleaned and inspected from the AML to the property line.
- E. Lateral Cleaning from Cleanout to Sewer Main:
 - 1. Access to cleanouts located within private property may require a Right-of-Entry

Agreement between the City and the private property owner if the cleanout or manhole on private property must be accessed and the homeowner is not allowing Contractor to enter.

2. The City shall obtain permissions, if needed and communicate via the Engineer, in good time, for the Contractor to schedule the lateral cleaning and inspection operation with each private property owner.
3. Cleaning of sanitary sewer laterals shall be performed for the complete section typically extending from the property line and/or cleanout to the sanitary sewer main. Cleanout risers shall also be cleaned when accessing from the cleanout.
4. For light and heavy cleaning evaluation purposes, sewers shall be considered clean when ninety-five (95) percent of the cross sectional area of the pipe is free of loose or settled debris of any size.
5. Each designated lateral line sections within the diameter ranges indicated within the Bid Form shall be cleaned using the equipment specified in 2.02 to facilitate a full inspection in the following sequence as needed:
 - a. Light Lateral Cleaning: Clean laterals of all loose or settled debris and objects of any size with the equipment identified in Clause 2.02 of this specification using up to three (3) passes through the entire lateral segment. The Contractor shall verify the level of cleanliness using a CCTV camera to demonstrate to the Engineer that the pipe is clean and ready for final CCTV inspection. If the Contractor believes the level of cleanliness has not been achieved after three passes, the Contractor shall request approval from the Engineer to initiate Heavy Cleaning as described herein. If the Contractor's equipment cannot pass through the pipe due to a blockage, the Contractor may request approval from the Engineer to initiate Specialty Lateral Cleaning as described herein.
 - b. Heavy Lateral Cleaning: Clean laterals of all loose or settled debris that could not be removed using light cleaning with the equipment identified in Clause 2.02 of this specification using up to nine (9) passes through the entire lateral segment. To be completed only as approved by the Engineer. The Contractor shall verify the level of cleanliness using a CCTV camera to demonstrate to the Engineer that the pipe is clean and ready for final CCTV inspection. If the Contractor believes the level of cleanliness has not been achieved after nine passes, the Contractor shall request approval from the Engineer to initiate Specialty Lateral Cleaning as described herein.
 - c. Specialty Lateral Cleaning: Clean laterals of items that block the passage of the cleaning or inspection equipment and cannot be removed using light or heavy cleaning such as excessive grease, roots, physically attached solid debris and large objects using remote controlled hydraulically or mechanically driven saw or blade cutters or grinders, remotely operated robots or other types of equipment capable of removing such items. To be

completed only as directed by the Engineer

6. The Contractor shall evaluate if the line is adequately cleaned to justify televising inspection work after each cleaning pass. The Contractor is wholly responsible for determining if the line is adequately cleaned to complete televising inspection.
 7. During all sewer or lateral cleaning operations, satisfactory precautions shall be taken to protect the sewer or lateral lines from damage that might be inflicted by the improper use of cleaning equipment. Whenever hydraulically propelled cleaning tools which depend upon water pressure to provide their cleaning force or any tools which retard the flow of water in the sewer line are used, precautions shall be taken to ensure that the water pressure created does not cause any damage or flooding to public or private property being served by the sewer segment involved.
- F. Lateral Cleaning from Sewer Main to Cleanout and/or Property Line:
1. When accessing the lateral via the sanitary sewer main for pipes less than 36" it may be necessary to light clean the sewer main prior to lateral CCTV inspection to allow the inspection equipment to reach the AML. This can only be performed with the approval of the Engineer. If additional cleaning, such as Heavy and/or Specialty Cleaning of the mainline, is deemed necessary, Contractor must request approval from the Engineer prior to performing such type of cleaning.
 2. Cleaning of sanitary sewer laterals shall be performed for the complete section typically extending from the AML to the property line. The cleaning equipment shall extend the entire distance between the sanitary sewer main and the property line regardless of the number of intermediate cleanouts.
 3. For light and heavy cleaning evaluation purposes, sewers shall be considered clean when ninety-five (95) percent of the cross sectional area of the pipe is free of loose or settled debris of any size.
 4. Each designated lateral line sections within the diameter ranges indicated within the Bid Form shall be cleaned using the equipment specified in 2.02 to facilitate a full inspection in the following sequence as needed:
 - a. Light Lateral Cleaning: Clean laterals of all loose or settled debris and objects of any size with the equipment identified in Clause 2.02 of this specification using up to three (3) passes through the entire lateral segment. The Contractor shall verify the level of cleanliness using a CCTV camera to demonstrate to the Engineer that the pipe is clean and ready for final CCTV inspection. If the Contractor believes the level of cleanliness has not been achieved after three passes, the Contractor shall request approval from the Engineer to initiate Heavy Cleaning as described herein. If the Contractor's equipment cannot pass through the pipe due to a blockage, the Contractor may request approval from the Engineer to initiate Specialty Lateral Cleaning as described herein.

- b. Heavy Lateral Cleaning: Clean laterals of all loose or settled debris that could not be removed using light cleaning with the equipment identified in Clause 2.02 of this specification using up to nine (9) passes through the entire lateral segment. To be completed only as approved by the Engineer. The Contractor shall verify the level of cleanliness using a CCTV camera to demonstrate to the Engineer that the pipe is clean and ready for final CCTV inspection. If the Contractor believes the level of cleanliness has not been achieved after nine passes, the Contractor shall request approval from the Engineer to initiate Specialty Lateral Cleaning as described herein.
 - c. Specialty Lateral Cleaning: Clean laterals of items that block the passage of the cleaning or inspection equipment and cannot be removed using light or heavy cleaning such as excessive grease, roots, physically attached solid debris and large objects using remote controlled hydraulically or mechanically driven saw or blade cutters or grinders, remotely operated robots or other types of equipment capable of removing such items. To be completed only as directed by the Engineer
- 5. The Contractor shall evaluate if the line is adequately cleaned to justify televising inspection work after each cleaning pass. The Contractor is wholly responsible for determining if the line is adequately cleaned to complete televising inspection.
- 6. During all sewer or lateral cleaning operations, satisfactory precautions shall be taken to protect the sewer or lateral lines from damage that might be inflicted by the improper use of cleaning equipment. Whenever hydraulically propelled cleaning tools which depend upon water pressure to provide their cleaning force or any tools which retard the flow of water in the sewer line are used, precautions shall be taken to ensure that the water pressure created does not cause any damage or flooding to public or private property being served by the sewer segment involved.
- G. If a lateral cleaning cannot be completed from the AML due to obstructions in the lateral or equipment limitations, a reversal cleaning shall be attempted from the cleanout, if accessible, with the approval of the Engineer. Time spent and costs incurred by the Contractor completing a reversal shall be subject to the approval of the Engineer.
- H. If a lateral cleaning cannot be completed from the cleanout due to obstructions in the lateral or equipment limitations, a reversal cleaning shall be attempted from the AML, if accessible, with the approval of the Engineer. Time spent and costs incurred by the Contractor completing a reversal shall be subject to the approval of the Engineer.
- I. In the event the Contractor is unable to completely perform inspection or cleaning from both directions due to obstructions (with the exception of a cross bore or collapse), the Contractor must inform the Engineer of this immediately. The Contractor shall, within two weeks, have the obstructions removed using specialty

cleaning equipment capable of removing the obstruction and simultaneously viewing the cleaning activity from the same vantage point in order to view the cleaning operation and not cause any damage to the host pipe.

- J. The Contractor shall attempt to remove a specific blockage in the pipe using light or heavy cleaning for up to one (1) hour before advising the Engineer the blockage cannot be removed. The Contractor shall provide the Engineer with the following information for blockages that cannot be removed.
 - 1. Location of the blockage indicated by a paint mark on the ground surface above the sewer and the distance from the nearest manhole.
 - 2. An inspection photograph, video recording or digital file of the blockage.
 - 3. The effect the blockage has on completion of the Work and the requirement for action to deal with the blockage such as an emergency sewer repair or scheduled maintenance.
 - K. The Contractor shall evaluate if the line is adequately cleaned to justify televising inspection work after each cleaning pass. The Contractor is wholly responsible for determining if the line is adequately cleaned to perform the televising inspection.
 - L. The Contractor is responsible for obtaining and maintaining all necessary permits and paying the corresponding fees needed for the Work and the transporting of any equipment or material over private property and public streets. It is further the Contractor's responsibility to obtain and maintain the necessary permits and/or permission from the Owner, Municipality and/or owners of private properties.
- 3.02. **SPECIALTY CLEANING OF PHYSICALLY ATTACHED SOLID DEBRIS, EXCESSIVE GREASE AND/OR ROOTS**
- A. In the event the Contractor is unable to completely perform CCTV lateral inspection or cleaning from both directions due to obstructions (with the exception of a cross bore or collapse), the Contractor must inform the Engineer of this immediately. Upon approval by the Engineer, the Contractor shall, within two weeks, have the obstructions removed using specialty cleaning equipment capable of removing the obstruction and simultaneously viewing the cleaning activity from the same vantage point in order to view the cleaning operation and not cause any damage to the host pipe. The Contractor will then televise the lateral segment in its entirety. The cost of the removal of obstructions will be paid for under the "Specialty Cleaning".
 - B. Physically attached solid debris, excessive grease and roots shall be removed, as approved by the Engineer where physically attached solid debris, excessive grease and root intrusion prevents passage of the camera. Special precautions should be exercised during the cleaning operation to assure removal of visible roots from the joint area.
 - 1. Contractor shall cut and remove physically attached solid debris, excessive grease and/or roots that cannot be removed through standard light and heavy cleaning efforts, as approved where indicated by the Engineer from the sewer inspection.

2. Contractor may use mechanical devices such as expanding root cutters and hydraulic procedures such as high-pressure jet cleaners.
3. Contractor may use hydraulically driven saw, grinder or blade cutters to remove material. Solid debris removal equipment to consist of remote controlled hydraulically driven cutters and reamers, remotely operated robots or other types of equipment capable of cutting back the solid debris such as concrete, asphalt and encrustation.
4. Contractor must select the equipment to be used considering debris type and sewer pipe condition.
5. Contractor must remove physically attached solid debris, excessive grease and/or roots to within one (1) inch of the inside surface of the sewer.
6. Contractor must monitor the entire removal operation and while the removal equipment is travelling within the pipe to reach the work area by CCTV inspection.
7. Flushing the sewer or the use of "spin nozzles" to remove grease will not be permitted.

C. Contractor shall inspect the entire sewer section in accordance with:

1. Section 33 01 30.15: Lateral Sewer Pipeline Inspection;
after completion of specialty cleaning.

3.03. FLOW CONTROL

- A. The recorded video must show the entire circumference of the lateral. Any flow control to remove standing water and debris shall be incidental to the contract. Bypass pumping to control flow is not required; however, the Contractor must, at a minimum, make reasonable effort to control the flow by using flushing equipment to temporarily retain flow or to remove standing water.
- B. The Contractor must also consider weather conditions and low diurnal flow patterns to obtain the best video image of the sewer. This may require the Contractor to schedule video work to times that are after major rain events or to overnight shifts when the sewer system attains a lower dry weather flow environment.
- C. Undertake flow control measures during off peak hours by means of sewer cleaning equipment to lower downstream flow levels or blocking / plugging if sewer flows are hampering effective lateral cleaning.
 1. Use sewer plugs to stop or reduce sewer flow that tether to and are removable from the ground surface.
 2. Monitor flow levels upstream of a plugged sewer at all times to ensure flooding of public or private property does not occur.
 3. Remove plugs placed in sewers and re-establish normal flow when directed to do by the Engineer.

3.04. TRAFFIC CONTROL

- A. The Contractor shall comply with Section 34 71 00 ROADWAY CONSTRUCTION from the Green Book and also with specific requirements stipulated in this Contract.

3.05. ACCEPTANCE OF WORK

- A. Submit required video inspections of lateral and specialty cleaning to the Engineer for review and determination if work performed is acceptable. The Engineer will review the inspection videos within fifteen (15) days of submission.
- B. Perform remedial work for lateral and specialty cleaning and a re-inspection for the locations where the work was determined by the Engineer as not being acceptable. Work to perform remedial work will have no separate measurement or payment will be made.

3.06. MEASUREMENT AND PAYMENT

A. Light Lateral Cleaning

- 1. Light lateral cleaning will be measured on a length basis for each size and type of lateral and paid for at the Contract Unit Price for "Light Lateral Cleaning". Light lateral cleaning will include up to three (3) passes through the entire length of the lateral segment using a high-pressure water jetter. Length to be paid for will be the total length of lateral cleaned in accordance with this specification, accepted and measured by the Engineer. The costs of all materials, labor, equipment, and all other incidental materials necessary for pipe cleaning of loose or settled debris shall be included in the cost of this item.
- 2. Light lateral cleaning shall be paid upon review and acceptance of the corresponding video inspection by the Engineer.

B. Heavy Lateral Cleaning

- 1. Heavy lateral cleaning will be measured on a length basis for each size and type of lateral and paid for at the Contract Unit Price for "Heavy Lateral Cleaning". Heavy lateral cleaning will include up to nine (9) passes through the entire length of the lateral segment using a high-pressure water jetter. Length to be paid for will be the total length of lateral cleaned in accordance with this specification, accepted and measured by the Engineer. The costs of all materials, labor, equipment, and all other incidental materials necessary for pipe cleaning of loose or settled debris shall be included in the cost of this item.
- 2. Heavy Lateral cleaning shall be paid upon review and acceptance of the corresponding video inspection by the Engineer.

C. Specialty Cleaning

- 1. Specialty cleaning shall include the cutting of physically attached solid debris including but not limited to concrete, asphalt or encrustation, excessive grease and roots that is attached to the pipe surface that could not be removed with light or heavy lateral cleaning. Debris shall be cut to within an inch of the surface of

the pipe wall.

2. The Engineer shall determine if specialty cleaning is warranted and approved prior to the work taking place. Measurements will be taken on site at time of cutting and approved by the Engineer.

D. Debris Removal

1. Debris removal will be incidental to the work. Immediately upon completion of work, the Contractor shall ensure that the entire area is cleaned of all debris, and that all debris is disposed of properly.

E. Flow Control

1. Flow control costs will be included within Lateral Cleaning tasks and are incidental to this Contract.

3.07. CLOSEOUT ACTIVITIES

- A. The Contractor shall comply with Section 01 77 00 CLOSEOUT PROCEDURES from the Green Book) and also with specific requirements stipulated in this Contract.

SECTION 33 01 30.50
MANHOLE PANORAMIC INSPECTION

PART 1. GENERAL

1.01. DESCRIPTION OF WORK

- A. This specification covers inspection of manholes using side scanning imaging and point cloud collection equipment to perform National Association of Sewer Service Company (NASSCO) Manhole Assessment Certification Program (MACP) Level 2 inspections for the purposes of assessing thoroughness of cleaning, observing and recording structural and service defects, evaluating construction, operational performance and miscellaneous features of existing manhole assets, and verifying new and rehabilitated sewer construction prior to acceptance.
- B. The Contractor shall provide all equipment, tools, labor, materials, and incidental services necessary to perform all work for Panoramic inspection of manholes as indicated and in compliance with the Contract Documents.
- C. Types of cleaning to be performed shall be undertaken in accordance with 33 01 30.53 Manhole Cleaning specification in order to be able to conduct a NASSCO-compliant inspection.
- D. Inspections may be witnessed by the Engineer.

1.02. REFERENCES

- A. National Association of Sewer Service Companies (NASSCO):
 - 1. Pipeline Assessment and Certification Program (PACP) Reference Manual.
 - 2. Manhole Assessment and Certification Program (MACP) Reference Manual.

1.03. DEFINITIONS

- A. Digital Panoramic Inspection: Operation necessary to complete a high-definition, true-color visual inspection with side wall scanning technologies for verification of existing internal manhole chamber conditions.
- B. CCTV Inspection: Closed circuit television inspection - Operation necessary to complete a high-definition, true-color audio-visual inspection for verification of existing internal sewer line conditions.
- C. MPEG: Moving Pictures Expert Group, is the acronym given to a family of international standards fused for coding audio-visual information in a digital compressed format.
- D. HDD: Portable Hard Disk Drive. For the purposes of this specification, HDD shall be written in accordance with the ISO-9660 Level 2 specifications.
- E. Engineer: City of Baltimore Engineer / Owner's Representative / Owner / Field Inspector.

1.04. RELATED REQUIREMENTS

- A. Section 33 01 30.10 - Small Diameter Sanitary Sewer Pipeline Inspection.
- B. Section 33 01 30.11 - Large Diameter Sanitary Sewer Pipeline Inspection
- C. Section 33 01 30.41 - Sanitary Sewer Pipeline Cleaning
- D. Section 33 03 30.53 - Manhole Cleaning
- E. Section 33 01 30.15 - Lateral Sewer Pipeline Inspection
- F. Section 33 01 30.44 - Lateral Sewer Pipeline Cleaning
- G. Section 33 01 30.65 - Sanitary Sewer Acoustic Inspection
- H. Section 33 01 30.87 - Temporary Sewer Bypass Pumping

1.05. SUBMITTALS

- A. Submit all contract submittals and/or drawings in accordance with Section 01 33 00 SUBMITTAL PROCEDURES from the City of Baltimore DPW (DPW) Specifications (The Green Book, 2006) and also with specific requirements stipulated in this Contract.
- B. Sample Inspection Report: Prior to initiating the Work, the Contractor shall submit to the Engineer the following documentation for approval to ensure quality and conformity requirements of this contract:
 - 1. Provide a sample report of each manhole inspection, including digital data files, of an actual manhole performed by each device to be used on this Contract for review at least one month before beginning the inspection work. The Sample Report shall include:
 - a. Two (2) copies of the data to the Engineer. Provide the appropriate viewing software, associated image and point cloud data and associated files to enable the interactive review of the inspection of the sample inspection for each device to be used as part of the submittal where viewing software will be provided at no additional cost to the Engineer. The Engineer will review the inspections for completeness and accuracy of content, to ensure that the required information is provided, and the image quality is acceptable. If the Engineer determines that the image data are defective or not of adequate quality, the Contractor shall re-perform the MACP inspection at the Contractor's expense.
 - b. One (1) MACP (version 7.0.0 or newer) compliant Microsoft Access, manhole inspection Databases containing inspection and defect information. Sewer condition coding shall be submitted as a MACP.mdb file accordingly. Name the MACP database according to the following file specification: [Contractor Name]_[Contract Number]_MACP_Submittal ##.mdb.
 - c. One (1) PDF copy of the manhole inspection logs to the Engineer. Logs

- shall record defects according to NASSCO's MACP.
- d. Sample observation photos.
- e. Submittal Tracking Spreadsheet utilizing the template provided in the Appendix of this specification.
- 2. Clearly identify the equipment make, model and serial number for the sample and all submittals.
- 3. Demonstrate the resolution of each camera using the recording resolution specified herein.
- 4. If the Engineer determines that the recording is defective or not of adequate quality, the Contractor shall correct deficiencies or, if necessary, re-perform the manhole inspection at the Contractor's expense.
- 5. Use the report submission accepted by the Engineer as a benchmark for subsequent inspection report submissions.
- 6. No inspection work is to be performed until the sample inspection report has been accepted by the Engineer.
- C. Submit copies of current NASSCO MACP certifications for all Inspectors and Reviewers who shall perform the Contracted Work in accordance with NASSCO requirements having attained and retained their MACP certifications.
- D. Submit a written description of procedures to be used to the Engineer, including product literature for all digital video equipment including, but not limited to side scanning post processed and point cloud data and reader software.
- E. Bi-weekly data submittals:
 - 1. Bi-weekly data submittals shall be completed within two (2) weeks of the completion of a work area or intermittent submittals as approved by the Engineer.
 - 2. For the bi-weekly data submittals, submit two (2) copies of the data to the Engineer. The Engineer will review the inspections for completeness and accuracy of content, to ensure that the required information is provided, and the image quality is acceptable. If the Engineer determines that the image data are defective or not of adequate quality, the Contractor shall re-perform the MACP inspection at the Contractor's expense.
 - 3. For the bi-weekly data submittals, submit one (1) MACP (version 7.0.0 or newer) compliant Microsoft Access, manhole inspection Database containing inspection and defect information. Sewer condition coding shall be submitted as a MACP.mdb file accordingly. Name the MACP database according to the following file specification: [Contractor Name]_[Contract Number]_MACP_Submittal ##.mdb.
 - 4. For the bi-weekly data submittals, submit a PDF copy of the manhole inspection logs to the Engineer. Logs shall record defects according to NASSCO's MACP.

5. For the bi-weekly data submittals, submit a submittal tracking spreadsheet to the Engineer.

- F. Prior to initiating cleaning or inspection efforts, the Contractor shall submit an Emergency Plan that outlines proposed methods for recovering their cleaning or inspection equipment that has become lodged, lost or uncontrollable within the manhole or sewer, including confined space entry procedures.
- G. Contractor is to provide a daily schedule to DPW with planned inspection locations and Asset IDs

1.06. QUALITY ASSURANCE

- A. Comply with the requirements of Section 01 45 00 QUALITY CONTROL and 01 74 00 CLEANING AND WASTE MANAGEMENT from the Green Book and also with specific requirements stipulated in this Contract.
- B. Comply with all codes, laws, ordinances, and regulations of governmental authorities having jurisdiction over this part of the work.
- C. The inspections shall be performed one manhole at a time based on DPW-assigned Asset IDs and per NASSCO requirements.
- D. Inspection shall be performed in accordance with most current NASSCO's Manhole Assessment and Certification Program (MACP).
- E. Inspection shall be performed by certified operators in accordance with NASSCO having attained and retained their PACP and MACP certification. Contractor shall ensure each operator is fully trained and certified in all aspects of manhole inspection and capable of making accurate observations and coding / recording all conditions that may be encountered in the manholes.
- F. Coding accuracy will be a function of the number of defects or construction features not recorded or omitted as well as of the correctness of the coding and classifications recorded. Coding accuracy is to satisfy the following requirements:
 - 1. MACP Header accuracy: 95%.
 - 2. MACP Component Observation Section: 95%
 - 3. Component defect coding accuracy: 85%.
 - 4. Inspections failing to meet these criteria will be rejected, re-inspected if required, recoded, and resubmitted at no additional cost to the Owner.
- G. Contractor shall implement a formal coding accuracy verification system before starting the Work.
 - 1. Submit coding accuracy checks with the corresponding digital panoramic inspection reports. The Contractor shall complete the MACP Contractor Data Submittal and a Quality Assurance (QA) Review Report documenting the results of the coding accuracy verification, attached separately, and include it with each respective data submission. Where QA has been undertaken by the Contractor,

MACP Section Header Fields 3 and 4 must be populated by the Contractor.

2. Re-code manhole inspections not satisfying the accuracy requirements and verify the accuracy of the manhole inspection immediately preceding and immediately following the non-compliant inspection. Repeat the process until the preceding and subsequent inspections meet the accuracy requirements.
 - H. The Contractor shall provide the Engineer with a complete list of Subcontractors whom the Contractor proposes to engage at least two (2) business days prior to the commencement of Work.
 - I. The Contractor shall maintain an up to date Progress Log that tracks the progress of the work and status of inspections. The Engineer should be provided with this information upon request. The log should document the following information at a minimum
 1. Work Package ID
 2. Manhole Asset ID
 3. Date of inspection
 4. Date of data submission
 5. Status of data acceptance / rejection
 6. Date of data acceptance / rejection
 7. Date of manhole re-inspection (as required)
 8. Date of data resubmittal (as required)
 9. Date of resubmitted data acceptance (as required)
 - J. All submittals will be subjected to a Quality Control/Quality Assurance (QA/QC) audit by the Engineer. Where inconsistencies are noted, the Contractor shall be responsible, where necessary and at no additional cost to the Engineer, for corrections including, re-inspection, recoding and entering additional information.
- 1.07. NOT USED
- 1.08. EXPERIENCE
- A. The Contractor shall submit documentation for Engineer approval to demonstrate the following experience as a business engaged in the digital panoramic inspection of manhole entities per the contract documents:
 1. The Contractor shall be in good standing under local contracting requirements or otherwise properly registered, licensed or permitted by law to carry on business within the State of Maryland throughout the term of the Contract, and shall provide the Engineer with evidence thereof per the contract documents.
 2. At any time during the term of the Contract, the Engineer may, at their sole discretion and acting reasonably, request updated evidence of good standing. A

Contractor, who fails to provide satisfactory evidence, will not be permitted to continue to perform any Work.

- B. The Contractor and/or any proposed Subcontractor, for the portion of the Work proposed to be contracted to them, shall:
1. Have a minimum of three (3) years of experience in the field of manhole inspection to NASSCO MACP Level 2 standards by means of digital panoramic data collection and have the required capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract Documents.
 2. Have successfully carried out work similar in nature, scope and value to the Work and demonstrate that within the past three (3) consecutive years prior to the bid, as a prime Contractor, the Contractor has successfully performed in a timely manner at least five projects similar in scope and type to the required work that totals 1,000 previous manhole inspections for condition assessment purposes. Inspection of new infrastructure for acceptance purposes shall not be deemed as representative experience. For each project submitted to meet the experience requirements, indicate the following:
 - a. Name and location of project.
 - b. Name, address, and telephone number of Owner or Engineer.
 - c. Brief description of work to include manholes inspected.
 - d. Amount of contract.
 - e. Date of completion – state if project was completed on time.
 3. Provide the Engineer with a complete list of Subcontractors whom the Contractor proposes to use prior to the commencement of Work.
 4. Be fully capable of performing the Work required in strict accordance with the terms and provisions of the Contract Documents.
- C. The Contractor shall submit, for Engineer's approval, documentation to demonstrate the following experience of the staff proposed for this project:
1. Operator certification documentation of each CCTV operator's NASSCO PACP certificate and for manhole inspectors, MACP certificate. The PACP and MACP certificate for all Operators performing work on this project shall be current on the day of the Contractor's submission and shall remain current throughout the performance of this work.
 2. Documentation of supervisors' and operators' training certifications, listing of completed projects, and a minimum of five years of experience in the internal inspection of manholes.

PART 2. PRODUCTS

2.01. GENERAL

Supplemental Technical Specifications

- A. Furnish the panoramic inspection studio, camera, audio-visual digital encoding equipment/software, and other necessary equipment, materials, electricity, labor, technicians, as may be needed to perform the panoramic inspection.

2.02. EQUIPMENT

- A. The Contractor shall submit a list describing all equipment to be used for review and approval of the Engineer.
- B. Sewer and manhole inspection units are to consist of a self-contained vehicle with separate areas for viewing and storage complete with the following equipment as a minimum.
 - 1. Cellular telephone and / or suitable communication systems linking all crew members.
 - 2. Fans and blowers capable of removing fog that may be present in sewers at the time of the inspection.
 - 3. Video cameras, lighting, cables and power source.
 - 4. Video monitor, videocassette recorder and digital video recorder.
 - 5. Computer system with video capture card or dedicated unit and other related equipment.
- C. Panoramic Digital Inspections
 - 1. Manhole inspections are to be performed using digital panoramic inspection system such as the IBAK PANORAMO SI, RST Helix or equivalent meeting the following criteria:
 - a. The inspection camera system must be 100% digital. Any analog or NTSC video camera will be deemed unacceptable.
 - b. The inspection camera system must have a minimum of two independently or simultaneously controlled digital cameras, one facing in the downward direction and one facing in the upward direction to encapsulate all observations and features within the chamber. Each camera must have a minimum of 185 degree field of view. The collected data shall include all raw images of the top and bottom camera.
 - c. The digital files must include a distortion-free virtual pan and tilt allowing the review of the manhole structure from any angle from any depth. The virtual pan and tilt must be able to view 360 degrees in any direction. The virtual pan and tilt must consist of views from the top and bottom camera, any virtual pan and tilts that artificially create this view from a single camera will be deemed unacceptable due to distorted images on the direct side view.
 - d. The inspection camera system must provide sufficient illumination of the interior of the manhole to obtain proper exposure without introducing any motion blur. The light shall be positioned 360 degrees around the camera

to distribute the light evenly onto the structure walls. The lighting must be able to illuminate manholes up 120-inches in diameter without the need of any auxiliary lighting. Auxiliary lighting may be required within larger manhole vaults or special purpose chambers and shall be inclusive to the Contract.

- e. Distance 0.0 foot shall be set to the manhole rim level in alignment to and above the 6 o'clock outgoing pipe (or first encountered outgoing pipe rotating clockwise from due north, if more than one outgoing pipe is encountered as per MACP) where all measurements for all respective manhole component observation depths will be recorded.
- f. The inspection system shall produce individual images or frames with no more than 0.001 inches of movement during image or frame exposure to produce crisp, clear images. Inspections showing evidence of blurred, corrupt or erroneous imagery, scratched lenses or protective glass plate or similar due to poor handling and application shall be rejected.
- g. The inspection camera must provide a minimum of 3,000 line of vertical resolution in the side view and a minimum of 500 lines in the perspective view.
- h. Contractor is responsible for reviewing collected data, coding observations, however the Engineer must have the ability to view the digital film file in the way that the contractor can view them, including full control of the virtual pan and tilt. Survey and coded metadata shall be preserved within the file deliverables for future reference by the Engineer or Owner.
- i. The digital film files must include an unfolded view of the manhole with a minimum of 3,000 lines of vertical resolution. The unfolded view shall provide the user both a depth and clock visual reference (ruler, scale or similar) to any observation or feature seen within the chamber. The digital film files will be captured to a "High Quality" setting that must include an unfolded view of the manhole with a minimum of 3,000 lines of vertical resolution, providing all front, back and wrapped images that will be, at a minimum height and width of 1040x1040 pixels, to a resolution of 96 dots per inch. Latest 4k technologies will also be reviewed for acceptance.
- j. Contractor to also provide file names within the executable software and the manholes are to be in alpha numeric order to ensure efficient reference.
- k. The inspection system must descend to the lowest point within the manhole chamber to a depth that will facilitate accurate perpendicular measurements using the software's measuring tools to occur.
- l. Any inspection exhibiting an incomplete descent having a distance greater than three (3) feet above the invert or water level resulting to data interpolation, will be rejected unless appurtenances or obstructions are present within the chamber and accepted by the Engineer.

- m. The digital film files must include the capability to produce a three-dimensional representation of the manhole structure. This data shall be used to perform geometric measurements. This file shall be exportable to common CAD programs for further analysis.
- n. The virtual pan and tilt and unfolded views must be able to be viewable by the Engineer with all the required software included at no additional cost.
- o. Scratches identified on glass camera lens or protective covers that inhibit clear views shall be rejected with instruction to re-inspect using repaired or replaced equipment. Excessive glare caused by sunlight that inhibits clear views shall be rejected with instruction to re-inspect using appropriate shielding.
- p. All chambers that exhibit weir wall or spill pipe weir levels as observed within the field or identified, but not limited to control structures or manholes identified by the Engineer, must be measured from manhole rim to weir crest where possible and detailed within the Inspection Comments field. Chambers exhibiting weir walls with no coded depth observations shall be rejected.
- q. Further to manhole pipe connections, the Contractor shall conform to NASSCO requirements however, where defective tap connections are identified within Field 115 of the Manhole Pipe Connection Section, the most significant observed defect seen within the connection shall be communicated within the remarks column having appropriate dimensioning, percentage values and clock references relating to its defect, comma separated for data processing requirements. (e.g. "FC,1",,,11,02"). Furthermore, the Contractor shall identify the affected property by completing a steel tape or calibrated footage counter measurement on the surface to confirm property number and note this within the comments field with an associated photograph taken of the offending defective tap.

PART 3. EXECUTION

3.01. HIGH FLOW CONDITIONS

- A. The Contractor shall attempt cleaning and inspection at times that facilitate obtaining the maximum visible image above the flow surface which are typically at the diurnal low flow periods each day or at night. Work that cannot be completed due to excess water levels shall be coordinated with the Engineer.
- B. If manhole chambers are observed to be surcharged the Contractor shall communicate the observation to the Engineer prior to inspection.
 - 1. The Engineer and Contractor shall collaborate to determine if there is a hydraulic or operational restriction within the area.
 - 2. If hydraulic overload is determined by the Engineer, cleaning and inspection shall take place during a low diurnal period, such as nighttime to ensure a full

cleaning and inspection of the chamber is completed.

3. If an operational issue exists, the cleaning of associated sewers shall be completed to alleviate and reduce flow. Otherwise, the Engineer will instruct whether an incomplete inspection be carried out of the surcharged manhole chamber.

3.02. MACP MANHOLE INSPECTION

- A. Manhole inspections shall be conducted in accordance with NASSCO MACP version 7.0.3 Level 2 standards but by utilizing non-man-entry techniques as noted herein.
- B. All open access structures or manholes will be attended at all times, and all access structures or manholes that were sealed or bolted to control odors or entry of extraneous water or for security reasons will be resealed or re-bolted after entry. The Contractor shall liaise with the Engineer to ensure that sealed or bolted chambers have been adequately sealed or bolted, post inspection.
- C. A skilled and NASSCO MACP certified technician or supervisor who shall be located at the control panel in the mobile data collection studio shall control the operation of the digital panoramic inspection equipment. Perform manhole inspections in accordance with 2.02.C and the following:
 1. From the top to the bottom of the manhole.
 2. From the manhole frame to the center line elevation of the existing sewer.
 3. Ensure the frame of the manhole is clearly visible at the start of the inspection.
 4. Provide a chalk board placed adjacent to the manhole cover, within the inspection imagery, noting the Date, Work Package ID, Manhole Asset ID, physical measurement of manhole rim to invert dimension and location details (i.e., address).
 5. Spray paint a mark (with a color consistent for the duration of the project) indicating north using an arrow visible on the surface and within the manhole frame.
 6. Spray paint a mark (with a color consistent for the duration of the project and a different color to the north mark) indicating the 6 o'clock position that is in reference to the first outgoing pipe (taken from north in a clockwise direction, as per NASSCO MACP requirements) visible on the surface and within the manhole frame.
 7. Block ambient light during the inspection to minimize problems related to lens flare and poor contrast.
 8. Inspect the manhole to the lowest depth that will facilitate accurate perpendicular measurements using the software's measuring tools.
 9. Complete all steel tape or calibrated footage counter measurements pertinent to mandatory MACP Level 2 measurements that are located at or around the cover and frame area. In accordance with NASSCO MACP standards, the Contractor

shall measure the rim to invert using a steel tape or calibrated footage counter from the surface to validate the measurement available from the panoramic scan.

10. No confined space entry shall be completed.

- D. As per 2.02.C.1.1 of this specification, the panoramic inspection device must descend to the lowest point within the chamber to minimize interpolated data beyond the scanning range, or the inspection will be rejected if insufficient evidence is reported to the Engineer. If the equipment cannot be lowered sufficiently due to permanent internally fitted appurtenances or defects, the Contractor shall complete the inspection, reporting all observations and reasoning for survey abandonment for acceptance by the Engineer. Debris in manhole shall not be a reason for survey abandonment.
- E. If temporary flow control equipment and monitoring devices are discovered within the chamber, the Contractor shall not proceed with the inspection and communicate to the Engineer of their discovery. This equipment is sensitive to movement and disturbance. The Engineer shall make reasonable efforts to have the equipment temporarily removed for re-inspection. Costs incurred for re-mobilization to the manhole shall be inclusive of the Contractor's unit price.
- F. Contractor shall document manhole conditions in digital photographs and digital scan. Digital photographs shall be taken of the surface (showing the manhole cover and ground surface), manhole interior, and of all observed defects (using a zoom lens or scan as needed). Additionally, and separate from the panoramic scan, the Contractor shall take a digital photograph of the manhole cover with a black chalkboard documenting the Date, Work Package ID, Manhole Asset ID, physical measurement of manhole rim to invert dimension and location details (i.e., address) written in chalk and laid flat on the manhole cover, and one photograph of the outside of the manhole (capturing physical address, intersection or nearest landmark that can be used to readily identify the location of the manhole) and an interior photo looking down from the rim with the outgoing pipe at 6 o'clock.
- G. Name the digital scan files according to the following file specification: **[Manhole ID]_[YYYYMMDD]_[HH:MM – 24 hour format].ipf**
- H. Name the digital photograph files for observations according to the following file specification: **[Manhole ID]_[YYYYMMDD]_[Code]_[Footage].jpg**
- I. Name the digital interior photograph file according to the following file specification: **[Manhole ID]_[YYYYMMDD]_[Interior].jpg**
- J. Name the digital exterior photograph location file according to the following file specification: **[Manhole ID]_[YYYYMMDD]_[Exterior Location].jpg**
- K. Name the digital exterior manhole cover photograph file according to the following file specification: **[Manhole ID]_[YYYYMMDD]_[Exterior Cover].jpg**
- L. Name the digital pipe connection files according to the following file specification: **[Manhole ID]_[YYYYMMDD]_Connection_[pipe connections number].jpg**

3.03. INSPECTION REPORTS:

Supplemental Technical Specifications

- A. The Contractor shall prepare inspection reports covering the panoramic inspection work and the information acquired.
- B. The Contractor shall report manhole defects in accordance with the NASSCO program known as Manhole Assessment and Certification Program (MACP). The Engineer reserves the right to refuse any inspection report that does not comply with the MACP program.
- C. Contractor shall provide a summary listing of all manholes or structures included in the original task order listing the date of inspection or attempted inspection, and indicating if the manhole was inspected, or if not, the reason, per the appropriate NASSCO standards for Inspection Status e.g., “Not Found” (NF), “No Access” (NA), and “Not Opened” (NO).
- D. An “empty header” or “MSA” inspection shall be completed for manholes that cannot be inspected for reasons such as high flow, depths or velocities, inaccessibility or unlocated access structures, heavy debris, Engineer direction, etc. The inspection form header and detail sections shall comply with NASSCO MACP level 1 guidelines populating all required header fields. The contractor will abandon the survey at a distance of 0-ft inspected and provide a general comment that describes the reason that the inspection cannot be conducted in the Additional Information field. Contractor shall record at least one photo documenting conditions preventing the inspection of the pipe segment. Empty header records, and image references for the photos, shall be included in the MACP database as submitted by the contractor with manholes on adjoining segments.
- E. The following fields shall be used when completing the “Header” details in the manhole inspection header form.
 1. Field 5 the “Owner” is City of Baltimore.
 2. Field 38 – 43 data shall be collected using a hand-held GPS device to achieve Nearest (N) or sub-meter (M) accuracies dependent upon available satellite coverage.
 3. Field 44 – Additional Information should be populated with the physical rim to invert measurement taken in the field.

Manhole Header Section	Field No.	Field Name	NASSCO Mandatory	REQUIRED (Yes / No)?
General Information	1	Surveyed By (<i>Operator / MACP User Name</i>)	Yes	Yes
	2	Certificate Number	Yes	Yes
	3	Reviewed By	No	No
	4	Reviewer Certificate Number	No	No
	5	Owner	No	Yes
	6	Customer	No	Yes

Manhole Header Section	Field No.	Field Name	NASSCO Mandatory	REQUIRED (Yes / No)?
	7	P/O Number (Contract No.)	No	Yes
	8	Work Order	No	Yes
	9	Media Label	No	Yes
	10	Project	No	Yes
	11	Date	Yes	Yes
	12	Time	No	Yes
	13	Sheet Number	Yes	Yes
	14	Weather	No	Yes
	15	Pre-Cleaning	Yes	Yes
	16	Date Cleaned	No	Yes
	17	Purpose of Survey	Yes	Yes
	18	Inspection Level	Yes	Yes
	19	Inspection Status	Yes	Yes
	20	Consequence of Failure	No	No

Location	21	Drainage Area	No	Yes
	22	Manhole/Access Point Number (Asset ID)	Yes	Yes
	23	Street (Name and Number)	Yes	Yes
	24	City	Yes	Yes
	25	Location Code	Yes	Yes
	26	Surface Type	Yes	Yes
	27	Inflow Potential from Runoff	No	No
	28	Location Details	No	Yes

Manhole Header Section	Field No.	Field Name	NASSCO Mandatory	REQUIRED (Yes / No)?
Manhole	29	MH Use (<i>Use of Access Point/Structure</i>)	Yes	Yes
	30	Access Type	Yes	Yes
	31	Year Constructed	No	No
	32	Year Renewed	No	No
	33	Evidence of Surcharge	Yes	Yes

Measurements	34	Rim to Invert (<i>Outgoing</i>)	Yes	Yes
	35	Rim to Grade (<i>Outgoing</i>)	Yes	Yes
	36	Grade to Invert (<i>Outgoing</i>)	Yes	Yes
	37	Rim to Grade Exposed	No	No
	38	Northing (<i>Y Coordinate</i>)	No	Yes
	39	Easting (<i>X Coordinate</i>)	No	Yes
	40	Elevation (<i>Z Coordinate</i>)	No	Yes
	41	Coordinate System (<i>Nearest Meter</i>)	No	Yes
	42	Vertical Datum (<i>Elevation</i>)	No	Yes
	43	GPS Accuracy	No	Yes
	44	Additional Information	No	Yes

The following fields shall be used when completing the “Manhole Component Observation Section” details in the manhole component observation form.

Manhole Component Section	Field No.	Field Name	NASSCO Mandatory	REQUIRED (Yes / No)?
Cover	45	Cover Type	Yes	Yes
	46	Cover Shape	Yes	Yes
	47	Cover Size	Yes	Yes
	48	Centre Cover Size	No	No
	49	Cover Size Width	Yes	Yes
	50	Cover Material	Yes	Yes
	51	Hole Diameter (<i>Vent</i>)	Yes	Yes

Manhole Component Section	Field No.	Field Name	NASSCO Mandatory	REQUIRED (Yes / No)?
	52	Hole Number (Number of Vent Holes)	Yes	Yes
	53	Cover Bearing Surface Diameter	Yes	No
	54	Cover Bearing Surface Width	Yes	No
	55	Cover/Frame Fit	Yes	Yes
	56	Cover Condition	Yes	Yes

Cover Insert	57	Insert Type	Yes	Yes
	58	Cover Insert Condition	Yes	Yes

Manhole Cover Adjustment Ring	59	Adjustment Ring Type	Yes	Yes
	60	Adjustment Ring Material	Yes	Yes
	61	Ring Condition (Adjustment Ring)	Yes	Yes
	62	Adjustment Ring Height	No	No

Frame	63	Frame Material	Yes	Yes
	64	Frame Bearing Surface Width	Yes	No
	65	Frame Bearing Surface Depth	Yes	No
	66	Frame Clear Opening Diameter	Yes	No
	67	Frame Clear Opening Width	Yes	No
	68	Frame Condition	Yes	Yes
	69	Seal Condition	Yes	Yes
	70	Frame Offset Distance	Yes	Yes
	71	Frame Seal Inflow	Yes	Yes
	72	Frame Depth	No	No

Chimney	73	Chimney Present	Yes	Yes
	74	Chimney First Material	Yes	Yes
	75	Chimney Second Material	No	No

Manhole Component Section	Field No.	Field Name	NASSCO Mandatory	REQUIRED (Yes / No)?
	76	Chimney I/I	No	No
	77	Chimney Clear Opening	No	No
	78	Chimney Depth	Yes	Yes
	79	Chimney Lining Interior (Coating)	No	No
	80	Chimney Lining Exterior (Coating)	No	No
	81	Chimney Condition	Yes	Yes

Cone	82	Cone Type	Yes	Yes
	83	Cone Material	Yes	Yes
	84	Cone Depth	Yes	Yes
	85	Cone Lining Interior	No	No
	86	Cone Lining Exterior	No	No
	87	Cone Condition	Yes	Yes

Wall	88	Wall Diameter (Length)	No	Yes
	89	Wall by Size (Width)	No	No
	90	Wall Material	Yes	Yes
	91	Wall Depth	Yes	Yes
	92	Wall Lining Interior (Coating)	No	No
	93	Wall Lining Exterior (Coating)	No	No
	94	Wall Condition	Yes	Yes

Bench	95	Bench Present	Yes	Yes
	96	Bench Material	Yes	Yes
	97	Bench Lining (Coating)	No	No
	98	Bench Condition	Yes	Yes

Manhole Component Section	Field No.	Field Name	NASSCO Mandatory	REQUIRED (Yes / No)?
Channel	99	Channel Installed	Yes	Yes
	100	Channel Material	Yes	Yes
	101	Channel Type	Yes	Yes
	102	Channel Exposure	Yes	Yes
	103	Channel Condition	Yes	Yes

Manhole Steps	104	Step Number	Yes	Yes
	105	Step Material	Yes	Yes

Additional Component Information	106	Additional Component Information	No	Yes*
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Pipe Connections	107	Pipe Number	Yes	Yes
	108	Clock Position	Yes	Yes
	109	Rim to Invert	Yes	Yes
	110	Direction	Yes	Yes
	111	Material	Yes	Yes
	112	Shape	Yes	Yes
	113	Height (Diameter)	Yes	Yes
	114	Width	Yes	Yes
	115	Pipe Condition	Yes	Yes
	116	Pipe Seal Condition	Yes	Yes
	117	Pipe Type	Yes	Yes
	118	Structure ID (Pipe/Lateral Segment Reference)	No	Yes
	119	Pipe Comments	No	No

Yes* - when required.

3.04. TRAFFIC CONTROL

- A. The Contractor shall comply with Section 34 71 00 ROADWAY CONSTRUCTION from the Green Book and also with specific requirements stipulated in this Contract.

Supplemental Technical Specifications

3.05. PROJECT DELIVERABLES

- A. The Contractor shall submit a formal Inspection Report, in digital formats, that summarizes all inspection activities and includes all inspection data in their raw format, along with any software required to view or utilize the raw data. Free viewer software, at no expense to the Engineer, must be provided by the Contractor to allow dimension verification and measurement and complete viewing of the data for Panoramic MACP scans including, but not limited to, the unfolded view and virtual pan and tilt.
- B. In addition to the viewing software, raw data to include but not limited to point cloud, contour and other .dat files (or similar) shall be provided in addition to scanned front, back and wrapped images and snapshots of any pertinent defects or features.
- C. The Contractor shall provide at least three (3), 2.5-inch portable hard disk drives (HDD), complete with all associated drivers and software, power adaptors and USB cables, delivered on a bi-weekly rotation exchange that contains completed inspections and data with viewing software and sewer condition coding data to the Engineer. Manhole condition coding shall be submitted as MACP.mdb files accordingly. Retained HDD's will be returned at an agreed frequency.
- D. All HDD's shall be sized appropriately to accommodate all above-mentioned files and have dual USB 3.0 (preferable) and (a minimum) USB 2.0 compatibility with a minimum data transfer rate of 480 MB/s.
- E. Submit completed inspections within two (2) weeks of the completion of a designated work area or intermittent submittals as agreed to within the fee and schedule for work program.
- F. Submit one MACP (version 7.0.0 or newer) compliant Microsoft Access, macp.mdb inspection database containing observed construction, structural, operational and miscellaneous observations for batches of manhole inspections that coincide with agreed submittal schedule to the Engineer for review. Name the MACP database according to the following file specification: [Contractor Name]_[Contract Number]_[MACP_Submittal]_[Number].mdb.

3.06. ACCEPTANCE OF WORK

- A. The Engineer shall review the manhole scans within fifteen (15) working days of submission and determine if work performed is acceptable.
- B. The Contractor shall re-perform manhole inspections where the Engineer has determined the requirements of the specification have not been satisfied.
- C. The Contractor shall correct non-compliant inspection submissions and resubmit the corrected inspections to the Engineer within ten (10) working days.
- D. The Contractor shall repeat the process until the inspection submissions are accepted by the Engineer. Work to perform remedial work will not be eligible for additional payment.

3.07. MEASUREMENT AND PAYMENT

A. Manhole Inspection

1. Digital Panoramic Inspections, Inspection coding and Inspection Reports will be included with manhole inspection.
2. Correction and re-submission of non-compliant submissions will be at Contractor's own expense.
3. No additional payment will be made for chambers exhibiting high flow and surcharged environments, pertaining to the investigation and collaboration when determining hydraulic or operational restrictions. Cleaning and inspection activities of manhole chambers carried out during low diurnal flows such as nighttime will not be further compensated.
4. Manhole inspections will be measured on a per item basis for each chamber and paid for at the Contract Unit Price for "Manhole Inspection". Number of units to be paid for will be the total number of manholes inspected in accordance with this specification, accepted and measured by the Engineer.
5. Payment will not be made until the required report submissions are accepted by the Engineer.
6. Payment will not be made for inspections re-performed where the Engineer has determined the requirements of the specification have not been satisfied.
7. The provision of "empty header" or "MSA" inspection data will be incidental to the Contract.

3.08. CLOSEOUT ACTIVITIES

- A. The Contractor shall comply with Section 01 77 00 CLOSEOUT PROCEDURES from the Green Book and also with specific requirements stipulated in this Contract.
- B. Acceptance of delivery to include revisions based on QA/QC Audit.

SECTION 33 01 30.53
MANHOLE CLEANING

PART 1. GENERAL

1.01. DESCRIPTION OF WORK

- A. Provide all equipment, tools, labor, materials and incidental services necessary to perform all manhole cleaning work as indicated and in compliance with the Contract Documents.
- B. Loose or settled debris includes but is not limited to loose, settled or not physically attached asphalt, concrete, bricks, rocks, broken pipe, broken encrustation, construction debris, sludge, dirt, sand, gravel, grit, solids, roots, grease, and other solid and semi-solid debris per NASSCO standards.
- C. The intent of manhole cleaning is to remove loose or settled debris using multiple passes using a cleaning wand associated with the high-pressure water jetter equipment and removal of debris from the bench and channel in order to be able to conduct a NASSCO compliant inspection.
- D. Types of Cleaning
 - 1. Manhole Cleaning: Cleaning of the entire height of the manhole and the bench and channel using a cleaning wand associated with the high-pressure water jetter equipment and the removal of all debris.

1.02. REFERENCES

- A. National Association of Sewer Service Companies (NASSCO):
 - 1. Manhole Assessment and Certification Program (MACP) Reference Manual.
 - 2. Pipeline Assessment and Certification Program (PACP) Reference Manual.

1.03. DEFINITIONS

- A. Digital Panoramic Inspection: Operation necessary to complete a high-definition, true-color visual inspection with side wall scanning technologies for verification of existing internal manhole chamber conditions.
- B. CCTV Inspection: Operation necessary to complete a high-definition, true-color audio-visual inspection for verification of existing internal sewer line conditions.
- C. MPEG: Moving Pictures Expert Group, is the acronym given to a family of international standards fused for coding audio-visual information in a digital compressed format.
- D. HDD: Portable Hard Disk Drive. For the purposes of this specification, HDD shall be written in accordance with the ISO-9660 Level 2 specifications.
- E. Engineer: City of Baltimore Engineer / Owner's Representative / Owner / Field

Inspector.

1.04. RELATED REQUIREMENTS

- A. Section 33 01 30.10 - Small Diameter Sanitary Sewer Pipeline Inspection
- B. Section 33 01 30.11 - Large Diameter Sanitary Sewer Pipeline Inspection
- C. Section 33 01 30.41 - Sanitary Sewer Pipeline Cleaning
- D. Section 33 01 30.50 - Manhole Panoramic Inspection
- E. Section 33 01 30.15 - Lateral Sewer Pipeline Inspection
- F. Section 33 01 30.44 - Lateral Sewer Pipeline Cleaning
- G. Section 33 01 30.65 - Sanitary Sewer Acoustic Inspection
- H. Section 33 01 30.87 - Temporary Sewer Bypass Pumping

1.05. SUBMITTALS

- A. Submit all contract submittals and/or drawings in accordance with Section 01 33 00 SUBMITTAL PROCEDURES from the City of Baltimore DPW (DPW) Specifications (The Green Book, 2006) and also with specific requirements stipulated in this Contract.
- B. Submit a written description of procedures to be used by the Engineer, including product literature for all high pressure water jetter equipment including, but not limited to hosing, jetter nozzles, water tanks, auxiliary engines, pumps, hydraulically driven hose reels, wash down wands, vacuor units and backflow prevention devices. The Contractor shall submit information on all equipment to be used for review and approval by the Engineer at least one (1) month before beginning the cleaning work.
- C. Provide written procedure for method of dewatering and debris disposal to the Engineer for approval.
- D. Prior to initiating cleaning or inspection efforts, the Contractor shall submit an Emergency Plan that outlines proposed methods for recovering their cleaning or inspection equipment that has become lodged, lost or uncontrollable within the manhole or sewer, including confined space entry procedures.

1.06. QUALITY ASSURANCE

- A. Comply with the requirements of Section 01 45 00 QUALITY CONTROL and 01 74 00 CLEANING AND WASTE MANAGEMENT from the Green Book and also with specific requirements stipulated in this Contract.
- B. Comply with all codes, laws, ordinances, and regulations of governmental authorities having jurisdiction over this part of the work.
- C. No discharge of sewage, as a result of the Contractor's operations, shall be allowed. The Contractor will be responsible to pay any and all fines associated with sewage discharges resulting from the Contractor's activities.

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- D. The Contractor shall not discharge into the sewer system, any water containing silt, mud or any other concentrated settleable material.

1.07. NOT USED

1.08. EXPERIENCE

- A. The Contractor shall submit documentation for Engineer approval to demonstrate the following experience as a business engaged in the cleaning of manholes per the contract documents:
 - 1. The Contractor shall be in good standing under local contracting requirements or otherwise properly registered, licensed or permitted by law to carry on business within the State of Maryland throughout the term of the Contract, and shall provide the Engineer with evidence thereof per the contract documents.
 - 2. At any time during the term of the Contract, the Engineer may, at their sole discretion and acting reasonably, request updated evidence of good standing. A Contractor, who fails to provide satisfactory evidence, will not be permitted to continue to perform any Work.
- B. The Contractor and/or any proposed Subcontractor, for the portion of the Work proposed to be contracted to them, shall:
 - 1. Have a minimum of three (3) years of experience in the field of manhole cleaning by means of cleaning wands associated with high velocity water jetting equipment and have the required capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract Documents.
 - 2. Have successfully carried out work similar in nature, scope and value to the Work and demonstrate that within the past three (3) consecutive years prior to the bid, as a prime Contractor, the Contractor has successfully performed in a timely manner at least five projects similar in scope and type to the required work that totals 1,000 previous manhole cleanings for condition assessment purposes. Cleaning for inspection of new infrastructure for acceptance purposes shall not be deemed as representative experience. For each project submitted to meet the experience requirements, indicate the following:
 - a. Name and location of project.
 - b. Name, address, and telephone number of Owner or Engineer.
 - c. Brief description of work to include manholes inspected.
 - d. Amount of contract.
 - e. Date of Completion – state if project was completed on time.
 - 3. Provide the Engineer with a complete list of Subcontractors whom the Contractor proposes to use prior to the commencement of Work.
 - 4. Be fully capable of performing the Work required in strict accordance with the

terms and provisions of the Contract Documents.

PART 2. PRODUCTS

2.01. GENERAL

- A. Not used.

2.02. EQUIPMENT

- A. The Contractor shall submit information on all equipment to be used for review and approval of the Engineer.
- B. The Contractor shall provide documentation of availability of the following equipment (or equivalent) for this project:
 - 1. High Flow Jetting Pump – Cleaning: Minimum requirement is 80 GPM @ pressures up to 2,000 psi with Minimum Spool Capability of 600 feet jetter hose; Maximum requirement is up to 250 GPM @ pressures up to 1,500 psi with Minimum Spool Capability of 1,500 feet of dual fused jetter hose.
 - 2. 6,000 cfm @ 15 inches hg; articulating boom; 50 feet of 6-in to 10-in vacuum pipe. Vactoring capability of not less than 40 feet vertical.
 - 3. High Velocity Jetting Equipment:
 - a. All high velocity sewer cleaning equipment shall be constructed for ease and safety of operation.
 - b. The equipment shall have a selection of two or more velocity nozzles. The nozzles shall be capable of producing a scouring action from 15 to 45 degrees in all size lines to be cleaned.
 - c. Equipment shall also include a high velocity wand for washing and scouring manhole walls and floor. The wand shall be capable of producing flows from a fine spray to a long distance solid stream.
 - d. The equipment shall carry its own water tank, auxiliary engines, pumps and hydraulically driven hose reel.
 - e. All controls shall be located so the equipment can be operated above ground.
 - 4. Water tank, generators, pumps, and air compressors.
 - 5. Water-tight debris boxes with decant system.
 - 6. Approved backflow prevention device for filling water tank from a hydrant.
- C. Debris Removal Equipment: Vacuum unit(s) used for removing sewer debris to include the following:
 - 1. Positive displacement pumps or fans producing a minimum 1,500 cubic feet per minute of air movement.

2. Storage tank.
 3. Minimum 6-inch diameter suction hoses attached to a hydraulic boom.
 4. Configure the storage tank to allow the liquid portion of the debris to be returned to the sewer.
- D. Communication Equipment
1. Equipment cleaning crews shall have and utilize a suitable communication system, linking all crewmembers.

PART 3. EXECUTION

3.01. HIGH FLOW CONDITIONS

- A. The Contractor shall attempt cleaning and inspection at times that facilitate obtaining the maximum visible image above the flow surface which are typically at the diurnal low flow periods each day or at night. Work that cannot be completed due to excess water levels shall be coordinated with the Engineer.
- B. If manhole chambers are observed to be surcharged the Contractor shall communicate the observation to the Engineer prior to inspection.
1. The Engineer and Contractor shall collaborate to determine if there is a hydraulic or operational restriction within the area.
 2. If hydraulic overload is determined by the Engineer, cleaning and inspection shall take place during a low diurnal period, such as nighttime to ensure a full cleaning and inspection of the chamber is completed.
 3. If an operational issue exists, the cleaning of associated sewers shall be completed to alleviate and reduce flow. Otherwise, the Engineer will instruct whether an incomplete inspection be carried out of the surcharged manhole chamber.

3.02. PERFORMANCE

- A. The Contractor understands that Baltimore City shall incur significant and substantial penalties from the state of Maryland in the event that sewage is discharged onto the ground or into any streams as related to the work in this Contract. In the event that sewage is released into the environment as a result of the Contractor's performing the work, the Contractor shall immediately rectify the situation and notify the Engineer.
- B. All open access structures or manholes will be attended at all times, and all access structures or manholes that were sealed or bolted to control odors or entry of extraneous water or for security reasons will be resealed or re-bolted after entry. The Contractor shall liaise with the Engineer to ensure that sealed or bolted chambers have been adequately sealed or bolted, post inspection.
- C. All cleaning shall commence in the upper chimney component of the manhole moving loose or settled debris to the lower cone and wall components and to the benching and

channel regardless of the method chosen to clean the sections. Cleaning shall include the trapping and removal of all loose or settled debris from the invert of the manhole as the cleaning progresses. Any debris moved into the associated mainline sewers shall be subsequently cleaned.

1. Suitable debris boxes shall be installed as necessary in the manhole in such a manner that solids and debris are trapped. No loose or settled debris shall be allowed to pass these boxes.
 2. The cleaning and inspection submittal shall be rejected if the inspection observes debris within the interconnecting mainline sewers by the Engineer. The Contractor shall be instructed to revisit, re-clean and re-inspect the asset.
 3. Under no circumstances shall sewage or solids removed from the sewer line be dumped onto streets, catch basins, storm drains, or receiving waters.
 4. All materials removed shall be properly disposed at a landfill licensed to receive the applicable wastes.
- D. Each designated manhole chamber indicated within the Bid Form shall be cleaned using a high-pressure water jetter with jetter wash down wand. The equipment selected for cleaning shall be capable of removing loose or settled debris from the sewer lines and manholes using the provided types of cleaning as per 1.01.F to facilitate a full inspection.
- E. Cleaning shall be considered the use of a rotation method to work down the chamber through the components in increments that remove debris in a segmented and controlled manner throughout the full depth of the chamber to be cleaned. The contractor shall use a cleaning wand associated with the high-pressure water jetter equipment to ensure the chamber is adequately cleaned to facilitate the manhole inspection.
- F. The Contractor shall evaluate if the manhole is adequately cleaned to justify scanning inspection work after cleaning. The Contractor is wholly responsible for determining if the line is adequately cleaned to complete the scanning inspection.
- G. During all manhole cleaning operations, satisfactory precautions shall be taken to protect the manhole chamber from damage that might be inflicted by the improper use of cleaning equipment. Whenever hydraulically propelled or pressurized cleaning tools which depend upon water pressure to provide their cleaning force or any tools which retard the flow of water in the manhole chamber are used, precautions shall be taken to ensure that the water pressure created does not cause any damage or flooding to the manhole or to public or private property being served by the manhole or surrounding sewers involved.
- H. The Contractor is responsible for obtaining and maintaining all necessary permits and paying the corresponding fees needed for the Work and the transporting of any equipment or material over private property and public streets. It is further the Contractor's responsibility to obtain and maintain the necessary permits and/or permission from the Owner, Municipality and/or owners of private properties.

3.03. TRAFFIC CONTROL

- A. The Contractor shall comply with Section 34 71 00 ROADWAY CONSTRUCTION from the Green Book and also with specific requirements stipulated in this Contract.

3.04. ACCEPTANCE OF WORK

- A. The Contractor shall submit completed inspections within two (2) weeks of the completion of a designated work area or intermittent submittals as agreed to within the fee and schedule for work program.
- B. The Contractor shall provide the appropriate viewing software, associated image and point cloud data and associated files to enable the interactive review of the chamber inspection and resultant manhole cleaning efforts to the Engineer for review and determination if work performed is acceptable. The Engineer will review the inspection data within fifteen (15) days of submission.
- C. The Contractor shall correct non-compliant inspection submissions and resubmit the corrected inspections to the Engineer within ten (10) working days.
- D. The Contractor shall repeat the process until the inspection submissions are accepted by the Engineer
- E. The Contractor shall perform remedial work for manhole cleaning and a re-inspection for the locations where the work was determined by the Engineer as not being acceptable. Work to perform remedial work will not be eligible for additional payment.

3.05. MEASUREMENT AND PAYMENT

- A. Manhole Cleaning
 - 1. Manhole cleaning will be measured on a per item basis for each chamber and paid for at the Contract Unit Price for “Manhole Cleaning”. Number of units to be paid for will be the total number of manholes cleaned in accordance with this specification, accepted and measured by the Engineer.
 - 2. Manhole cleaning shall be paid upon review and acceptance of the corresponding scanned inspection and reports as per Section 33 01 30.50 Manhole Panoramic Inspection by the Engineer.
 - 3. Payment will not be made for cleaning activities re-performed where the Engineer has determined the requirements of the specification have not been satisfied.
- B. Debris Removal
 - 1. Debris removal and disposal will be incidental to the Manhole Cleaning work. Immediately upon completion of work, the Contractor shall ensure that the entire area is cleaned of all debris, and that all debris is disposed of properly.

3.06. CLOSEOUT ACTIVITIES

- A. The Contractor shall comply with Section 01 77 00 CLOSEOUT PROCEDURES from the Green Book and also with specific requirements stipulated in this Contract.
- B. Acceptance of delivery to include revisions based on QA/QC Audit.

SECTION 33 01 30.65

SANITARY SEWER ACOUSTIC INSPECTION

PART 1. GENERAL

1.01. DESCRIPTION OF WORK

- A. This specification covers inspection of sewers using acoustic equipment for the purposes of assessing the magnitude of blockages for pipes 6" to 12" in height. To obtain a reading that determines if blockages are present in a sewer line, adjacent manhole covers are removed, the transmitter unit is placed in one manhole and the receiver is placed in the adjacent manhole. The transmitter emits a series of noise frequencies, the receiver processes the signals and provides a numeric value from 0 to 10 to indicate the degree of blockages in the sewer line.
- B. The Contractor shall be responsible for providing all equipment, tools, labor, materials, and incidental services necessary to perform all work for acoustic inspections of sewer lines as indicated and in compliance with the Contract Documents.
- C. Inspections may be witnessed by the Engineer.

1.02. RELATED REQUIREMENTS:

- A. Section 33 01 30.10 - Small Diameter Sanitary Sewer Pipeline Inspection
- B. Section 33 01 30.11 - Large Diameter Sanitary Sewer Pipeline Inspection
- C. Section 33 01 30.41 - Sanitary Sewer Pipeline Cleaning
- D. Section 33 01 30.50 - Manhole Panoramic Inspection
- E. Section 33 01 30.53 - Manhole Cleaning
- F. Section 33 01 30.15 - Lateral Sewer Pipeline Inspection
- G. Section 33 01 30.44 - Lateral Sewer Pipeline Cleaning
- H. Section 33 01 30.87 - Temporary Sewer Bypass Pumping

1.03. REFERENCES

- A. National Association of Sewer Service Companies (NASSCO):
 - 1. Pipeline Assessment and Certification Program (PACP) Reference Manual.
 - 2. Manhole Assessment and Certification Program (MACP) Reference Manual.

1.04. DEFINITIONS

- A. Acoustic Inspection: Operation necessary to complete an acoustic inspection for verification of existing internal sewer line conditions.
- B. HDD: Portable Hard Disk Drive. For the purposes of this specification, HDD shall be

written in accordance with the ISO-9660 Level 2 specifications.

- C. Engineer: City of Baltimore Engineer / Owner's Representative / Owner / Field Inspector.

1.05. SUBMITTALS

- A. Submit all contract submittals and/or drawings in accordance with Section 01 33 00 SUBMITTAL PROCEDURES from the City of Baltimore DPW (DPW) Specifications (The Green Book, 2006) and also with specific requirements stipulated in this Contract.
- B. Sample Inspection Report: The Contractor shall submit to the Engineer the following documentation for approval to ensure quality and conformity requirements of this contract:
1. Provide a sample report of an acoustic inspection, including digital data files, of an actual sewer performed by each device to be used on this Contract for review at least one month before beginning the inspection work.
 2. Clearly identify the equipment make, model and serial number for the sample and all submittals.
 3. Submit a Submittal Tracking Spreadsheet utilizing the template provided in the Appendix of this specification.
 4. If the Engineer determines that the data is not of adequate quality, the Contractor shall correct deficiencies or, if necessary, re-perform the acoustic inspection at the Contractor's expense.
 5. Use the report submission accepted by the Engineer as a benchmark for subsequent inspection report submissions.
 6. No inspection work is to be performed until the sample inspection report has been accepted by the Engineer.
- C. The Contractor must provide evidence that all Inspectors and Reviewers have participated in training provided by either the manufacturer or the manufacturer's representative prior to the start of work.
- D. Submit a written description of procedures to be used to the Engineer, including product literature for all acoustic equipment
- E. Bi-weekly data submittals:
1. Bi-weekly data submittals shall be completed within two (2) weeks of the completion of a work area or intermittent submittals as agreed to within the fee and schedule for a large work area.
 2. For the bi-weekly data submittals, submit two (2) copies of acoustic results to the Engineer. The Engineer will review the inspections, for completeness and accuracy of content, to ensure that the required information is provided. If the Engineer determines that the results are not of adequate quality, the Contractor

shall re-perform the acoustic inspection at the Contractor's expense.

3. For the bi-weekly data submittals, submit a submittal tracking spreadsheet to the Engineer.

- F. Prior to initiating cleaning or inspection efforts, the Contractor shall submit an Emergency Plan that outlines proposed methods for recovering their cleaning or inspection equipment that has become lodged, lost or uncontrollable within the manhole, including confined space entry procedures.
- G. Contractor is to provide a daily schedule to Baltimore DPW with planned inspection locations.

1.06. QUALITY ASSURANCE

- A. Comply with the requirements of Section 01 45 00 QUALITY CONTROL and 01 74 00 CLEANING AND WASTE MANAGEMENT from the Green Book and also with specific requirements stipulated in this Contract.
- B. Comply with all codes, laws, ordinances, and regulations of governmental authorities having jurisdiction over this part of the work.
- C. Inspection shall be performed in accordance with most current recommendations of the equipment manufacturer.
- D. The inspections shall be performed one pipe segment at a time based on DPW-assigned Asset IDs.
- E. Inspection shall be performed by certified operators. The Contractor shall ensure each operator is fully trained and certified in all aspects of acoustic inspection and capable of making accurate observations.
- F. The Contractor shall provide the Engineer with a complete list of Subcontractors whom the Contractor proposes to engage at least two (2) business days prior to the commencement of Work.
- G. The Contractor shall maintain an up to date Progress Log that tracks the progress of the work and status of inspections. The Engineer shall be provided with this information upon request. The log should document the following information at a minimum:
 1. Work Package ID
 2. Pipe Asset ID
 3. Upstream and Downstream Manhole Asset IDs
 4. Date of inspection
 5. Date of data submission
 6. Status of data acceptance / rejection
 7. Date of data acceptance / rejection

8. Date of segment re-inspection (as required)
 9. Date of data resubmittal (as required)
 10. Date of resubmitted data acceptance (as required)
 - H. The Contractor shall complete an internal audit to determine accuracy of the acoustic results, applying their name and reviewed by timestamp to the inspection prior to issuance.
 - I. The Engineer shall be entitled to an audit of the control system and be present when assessments of the acoustic results are being determined. When requested by the Engineer in writing, forward to the Engineer sufficient details and information for such audit assessment. Should any report fail to achieve a margin that the Engineer deems satisfactory, the Contractor, without any additional compensation, shall recode and resubmit any data or reports that the Engineer deems necessary.
 - J. All submittals will be subjected to a Quality Control/Quality Assurance (QA/QC) audit by the Engineer. Where inconsistencies are noted, Contractor shall be responsible, where necessary and at no additional cost to the Engineer, for corrections including, re-inspection, recoding and entering additional information.
- 1.07. NOT USED
- 1.08. EXPERIENCE
- A. The Contractor shall submit documentation for Engineer approval to demonstrate the following experience as a business engaged in the acoustic inspection of sewer lines per the Contract documents:
 1. The Contractor shall be in good standing under local contracting requirements or otherwise properly registered, licensed or permitted by law to carry on business within the State of Maryland, throughout the term of the Contract, and shall provide the Engineer with evidence thereof per the Contract documents.
 2. At any time during the term of the Contract, the Engineer may, at their sole discretion and acting reasonably, request updated evidence of good standing. A Contractor, who fails to provide satisfactory evidence, will not be permitted to continue to perform any Work.
 - B. The Contractor and/or any proposed Subcontractor, for the portion of the Work proposed to be contracted to them, shall:
 1. Have a minimum of three (3) years of experience in the field of sewer pipeline acoustic inspection by means of acoustic equipment and have the required capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract Documents.
 2. Have successfully carried out work similar in nature, scope and value to the Work and demonstrate that within the past three (3) consecutive years prior to the bid, as a prime Contractor, the Contractor has successfully completed over 50,000 feet of previous acoustic inspection on sewers 12" and smaller for

condition assessment purposes. Inspection of new and rehabilitated infrastructure for acceptance purposes shall not be deemed as representative experience. For each project submitted to meet the experience requirements, indicate the following:

- a. Name and location of project.
 - b. Name, address, and telephone number of Owner or Engineer.
 - c. Brief description of work to include length and diameter of pipelines inspected.
 - d. Amount of contract.
 - e. Date of Completion – state if project was completed on time.
3. Provide the Engineer with a complete list of Subcontractors whom the Contractor proposes to use prior to the commencement of Work.
 4. Be fully capable of performing the Work required in strict accordance with the terms and provisions of the Contract Documents.
- C. The Contractor shall submit, for Engineer's approval, documentation to demonstrate the following experience of the staff proposed for this project:
1. The Contractor must provide evidence that all Inspectors and Reviewers have participated in training provided by either the manufacturer or the manufacturer's representative prior to the start of work.
 2. Documentation of supervisors' and operators' training certifications, listing of completed projects, and a minimum of three (3) years of experience in the acoustic inspection of sewers.

PART 2. PRODUCTS

2.01. GENERAL

- A. Furnish the acoustic equipment/software, and other necessary equipment, materials, electricity, labor, technicians, as may be needed to perform the acoustic inspection.

2.02. EQUIPMENT

- A. The Contractor shall submit a list describing all equipment to be used for review and approval by the Engineer.
- B. Acoustic sewer inspection equipment shall be Sewer Line Rapid Assessment Tool (SL-RAT) as manufactured by InfoSense, Inc., or approved equal.
- C. General Specification
 1. The system shall be capable of inspecting 6" - 12" gravity-fed sanitary sewer lines using active acoustic transmission (transmit on one end of the pipe, receive on the other end of pipe). Active transmission of sound for an individual inspection should be limited to no more than four (4) minutes of transmission

time.

2. The system shall be capable of inspecting an individual pipe length up to 800 linear feet.
3. The device shall contain a USB connection or similar to allow for downloading of inspection data to a computer.
4. Acoustic inspection results shall be provided on the device within three (3) minutes of completion of each individual inspection.
5. The device(s) shall not need to come into contact with the waste flow, and shall not require penetration of more than two (2) feet into the manhole or access point.
6. The device(s) shall be battery powered with the capability of performing at least thirty-five (35) measurements on a fully charged battery.
7. The device(s) shall have the ability to provide GPS coordinates and a time stamp for each measurement.
8. The inspection data shall be accessible to the end-user in raw form via CSV or equivalent electronic format after download.
9. The inspection data shall also be available for archiving, analysis, editing, and export from cloud-based software available to the end-user through internet access.

D. Acoustic Transmitter (TX):

1. The acoustic transmitter shall be a portable unit, not weighing more than 20 lbs. and shall be capable of being deployed through an access hole with a minimum of twenty-four (24) inch clear opening.

E. Acoustic Receiver (RX):

1. The acoustic receiver shall be a portable unit, not weighing more than 15 lbs. and shall be capable of being deployed through an access hole with a minimum of twelve (12) inch clear opening.

F. Documentation:

1. The system shall include:
 - a. Owner's Manual
 - b. Software CD containing software compatible with Windows XP, Windows Vista, Windows 7 and Windows 365 for downloading acoustic inspection data.
 - c. Warranty Card
 - d. Evidence that the unit has been calibrated prior to use by the Contractor.

G. Service:

1. The manufacturer shall maintain a service and repair facility for the equipment described above that is located in the United States of America.

PART 3. EXECUTION

3.01. ACOUSTIC INSPECTION

- A. All open access structures or manholes will be attended at all times, and all access structures or manholes that were sealed or bolted to control odors or entry of extraneous water or for security reasons will be resealed or re-bolted after entry. The Contractor shall liaise with the Engineer to ensure that sealed or bolted chambers have been adequately sealed or bolted, post inspection.
- B. The Contractor understands that Baltimore City shall incur significant and substantial penalties from the state of Maryland in the event that sewage is discharged onto the ground or into any streams as related to the work in this Contract. In the event that sewage is released into the environment as a result of the Contractor's work, the Contractor shall immediately rectify the situation and notify the Engineer.
- C. At the commencement of each acoustic inspection, input the correct length of the sewer segment from access point to access point in the acoustic equipment corresponding to the measured length.
- D. Remove the manhole covers on either end of the sewer segment to be assessed.
- E. Place the transmitter unit in one manhole and place the receiver unit in the adjacent manhole.
- F. Initiate the inspection with the transmitter emitting a series of noise frequencies and the receiver processing the signals to provide a numeric value from 0 to 10 to indicate the degree of blockages in the sewer line.
- G. Record the acoustic score and rating per the manufacturer's recommendations on the use of the equipment.
- H. If it is determined that effective acoustic inspection cannot be performed on a specific pipe segment, notify the Engineer in writing.
- I. Observations that are critical to public safety or pose imminent threat to the public or environment shall be reported within 24-hours.

3.02. INSPECTION REPORTS

- A. Prepare an acoustic inspection report and database in a digital spreadsheet format covering the acoustic inspection work and the information acquired. Inspection forms shall be completed and submitted for all pipe sections requiring inspection, including those for which an actual inspection cannot be performed.
- B. The Contractor shall provide the digital spreadsheet that contains completed acoustic inspection data to the Engineer.
- C. The Engineer reserves the right to refuse any inspection report that does not comply

with the manufacturer's recommendations.

- D. An "empty header" or "0-ft MSA" acoustic inspection shall be completed for a sewer segment that cannot be inspected for reasons such as high flow, inaccessibility to the sewer due to inaccessible or unlocated access structures, and at the Engineer's direction, etc. The inspection form header and detail sections shall comply with the manufacturer's guidelines populating all required header fields. The contractor will provide a general comment that describes the reason that the inspection cannot be conducted in the Additional Information field. The Contractor shall record at least one photo documenting conditions preventing the acoustic inspection of the pipe segment. Empty header records shall be included in the database as submitted by the contractor.

3.03. TRAFFIC CONTROL

- A. The Contractor shall comply with Section 34 71 00 ROADWAY CONSTRUCTION from the Green Book and also with specific requirements stipulated in this Contract.

3.04. ACCEPTANCE OF WORK

- A. The contractor shall submit required acoustic inspections of each sewer segment to the Engineer for review and determination if the work performed is acceptable.
- B. The Engineer shall review the inspection videos within fifteen (15) working days of submission.
- C. The Contractor shall re-perform acoustic inspections where the Engineer has determined the requirements of the specification have not been satisfied.
- D. The Contractor shall correct non-compliant inspection submissions and resubmit the corrected inspections to the Engineer within ten (10) working days.
- E. The Contractor shall repeat the process until the inspection submissions are accepted by the Engineer. Work to perform remedial work will not be eligible for additional payment.

3.05. PROJECT DELIVERABLES

- A. Acoustic Sewer Inspections shall include the following information:
 - 1. The Contractor shall submit formal Acoustic Inspection Reports and databases respectively, in digital (PDF and CSV) formats, that summarizes all inspection activities and includes all data including sewer line segment Pipe Asset ID, upstream and downstream manhole Asset IDs, date of acoustic inspection, and the acoustic inspection scores and ratings.
 - 2. The Contractor shall supply separately two (2) duplicated, 2.5-inch portable HDD's, complete with all associated drivers and software, power adaptors and USB cables, containing all inspections and coding data to the Engineer and Owner upon completion of the project.

3. Diagrams and sketches relating to mapping discrepancies if encountered.

3.06. MEASUREMENT AND PAYMENT

A. Acoustic Inspection

1. Acoustic Inspection Reports and databases will be included with the sewer inspection.
2. Correction and re-submission of non-compliant submissions will be at Contractor's own expense.
3. Acoustic inspections will be measured on a length basis for each and paid for at the Contract Unit Price for "Acoustic Inspection". Length to be paid for will be the total length of sewer acoustically inspected in accordance with this specification, accepted and measured by the Engineer.
4. Payment will not be made until the required report submissions are accepted by the Engineer.
5. Payment will not be made for inspections re-performed where the Engineer has determined the requirements of the specification have not been satisfied.
6. The "Miscellaneous Allowance" shall relate to approved completed work that is deemed outside of all other measurement and payment items, accepted and measured by the Engineer.
7. The provision of "empty header" or "0-ft MSA" inspection data will be incidental to the Contract.

3.07. CLOSEOUT ACTIVITIES

- A. The Contractor shall comply with Section 01 77 00 CLOSEOUT PROCEDURES from the Green Book and also with specific requirements stipulated in this Contract.
- B. Acceptance of delivery to include revisions based on QA/QC Audit.

SECTION 33 01 30.87
TEMPORARY SEWER BYPASS PUMPING

PART 1. GENERAL

1.01. DESCRIPTION OF WORK

- A. The requirements and provisions shall be construed to be the minimum requirements of these specifications. This Specification shall form the requirements for implementing a temporary pumping system for diverting existing sewage flow around the Work area for a duration of the work performed in the sewer.
- B. Work covered in this document consists of bypass pumping minimum requirements, installation and operation of existing City of Baltimore sewer systems that require temporary diversion of flow to provide adequate and reliable sewer services at all times during planned or emergency sewer poor condition and resultant rehabilitation construction-related series of activities.
- C. Unless otherwise specified, all work shall conform to the City of Baltimore's Green Book.

1.02. DEFINITIONS

- A. Average Daily Dry Weather Flow: The sum of the flow records during dry weather conditions, for a period of twenty-four hours, divided by 24.
- B. Average Daily Flow: The sum of the flow records for a period of twenty-four hours, divided by 24.
- C. Engineer: City of Baltimore Engineer / Owner's Representative / Owner / Field Inspector.

1.03. ASSIGNMENT OF WORK

- A. Task orders will be generated that identify the lines to be bypassed in a planned or reactive manner and will be subject to the Engineer's approval before work commences.
- B. For Planned Bypass Pumping Work
 - 1. Notices to the Contractor will be provided by the Engineer where Flow Control Plans will be drawn up by the Contractor for review by the Engineer prior to mobilization.
 - 2. For planned bypass pumping Work, the Contractor will have the opportunity to aggregate the task orders to minimize travel time between work locations but must maintain a schedule to complete the work within one month of issuance.
 - 3. For pipe less than 10", planned bypass pumping shall be capable of accommodating average daily flows for up to 3.0 MGD and shall be paid using the appropriate bypass bid items per Part 4.

4. For pipe 10" and greater, planned bypass pumping shall be capable of accommodating average daily dry weather flows as provided by the City where costs for bypass pumping shall be paid using the appropriate bypass bid items per Part 4.

C. For Emergency Bypass Pumping Work

1. The Contractor will mobilize equipment within four (4) hours to establish a working and operating flow bypass with the necessary equipment.
2. Generic emergency bypass plans shall be submitted directly following award of the Contract.
3. For pipe less than 10", emergency bypass pumping shall be capable of accommodating average daily flows for up to 3.0 MGD. On occasion, average daily flows may exceed 3.0 MGD where the Contractor may implement the appropriate bypass set up to meet the site requirements and shall be paid using the appropriate bypass bid items per Part 4.
4. For pipe 10" and greater, emergency bypass pumping shall be capable of accommodating average daily dry weather flows as provided by the City. On occasion, average daily flows may exceed the aforementioned City data, where the Contractor may implement the appropriate bypass set up to meet the site requirements and shall be paid using the appropriate bypass bid items per Part 4.

1.04. RELATED REQUIREMENTS

- A. Section 33 01 30.10 - Small Diameter Sanitary Sewer Pipeline Inspection
- B. Section 30 01 30.11 - Large Diameter Sanitary Sewer Pipeline Inspection
- C. Section 33 01 30.41 - Sanitary Sewer Pipeline Cleaning
- D. Section 33 01 30.50 - Manhole Panorama Inspection
- E. Section 33 01 30.53 - Manhole Cleaning

1.05. REFERENCES

- A. National Association of Sewer Service Companies (NASSCO):
 1. Pipeline Assessment and Certification Program (PACP) Reference Manual.
 2. Manhole Assessment and Certification Program (MACP) Reference Manual.
- B. The City of Baltimore DPW Standard Specifications 2006

1.06. EXPERIENCE

- A. The Contractor shall submit documentation for Engineer approval to demonstrate the following experience as a business engaged in the bypass pumping of sewer lines per the Contract documents.

- B. The Contractor shall be in good standing under local contracting requirements or otherwise properly registered, licensed or permitted by law to carry on business within the State of Maryland throughout the term of the Contract, and shall provide the Engineer with evidence thereof per the Contract documents.
- C. At any time during the term of the Contract, the Engineer may, at their sole discretion and acting reasonably, request updated evidence of good standing. A Contractor, who fails to provide satisfactory evidence, will not be permitted to continue to perform any Work.
- D. The Contractor and/or any proposed Subcontractor, for the portion of the Work proposed to be contracted to them, shall:
 - 1. Have a minimum of three (3) years of experience in the field of bypass pumping and have the required capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract Documents.
 - 2. Have successfully carried out work similar in nature, scope and value to the Work and demonstrate that within the past three (3) consecutive years prior to the bid, the Contractor has successfully performed in a timely manner at least five (5) projects similar in scope and type to the required Work. For each project submitted to meet the experience requirements, indicate the following:
 - a. Name and location of project.
 - b. Name, address, and telephone number of Owner, Municipality, Authority, or a designated representative.
 - c. Brief description of work and equipment used with approximated flow bypass quantities in Million Gallons Per Day (MGD).
 - d. Amount of contract.
 - e. Date of Completion – state if project was completed on time.
 - 3. Provide the Engineer with a complete list of Subcontractors whom the Contractor proposes to use prior to the commencement of Work.
 - 4. Be fully capable of performing the Work required in strict accordance with the terms and provisions of the Contract Documents.

1.07. SUBMITTALS

- A. Submit the following:
 - 1. Submit shop drawings in accordance with Section 01 33 00 SUBMITTAL PROCEDURES from the City of Baltimore DPW Specifications (The Green Book) and also with specific requirements stipulated in this Contract.
 - 2. Submit a written description of procedures to be used to the Owner, including product literature for all bypass pumping equipment including, but not limited to hosing, jetter nozzles, water tanks, auxiliary engines, pumps, hydraulically driven hose reels, wash down wands, vactor units, autodialer and backflow

prevention devices.

3. Prior to initiating bypass pumping efforts, the Contractor shall submit an Emergency Plan that outlines proposed methods for recovering cleaning equipment that has become lodged, lost or uncontrollable within the sewer or lateral.
4. Contractor is to provide a daily schedule to the Engineer with planned cleaning locations.
5. Detailed bypass pumping plan and description of proposed pumping system. Indicate number, size, material, location and method of installation of suction and discharge piping, size of pipeline or conveyance system to be bypassed, staging area for pumps, site access point, and expected flow. A list of the key components required for the flow control measures, including but not limited to the following:
 - a. Submit generic emergency bypass pumping plans
 - b. Configurations
 - i. Size and location of manhole or access points for suction and discharge hose or piping.
 - ii. Monitoring plan (if required). Note: all plans shall include a 24 hr contact person.
 - iii. Cofferdams
 - iv. Piping or hoses (where required)
 - v. Temporary pipe supports and anchoring required.
 - vi. Weir locations, heights and materials.
 - vii. Sections showing suction and discharge pipe depth, embedment, select fill and special backfill, if buried.
 - viii. Method of protecting discharge manholes or structures from erosion and damage.
 - ix. Procedures to monitor upstream mains for backup impacts.
 - x. Details on pump controls and instruments to safely operate and alarm of conditions. Provide sequence of Contractor's emergency response contacts for the autodialers.
 - xi. Flowmetering procedure and equipment.
 - c. Pumps
 - i. Bypass pump sizes, capacity, number of each size to be on site and power requirements.
 - ii. Means and methods for dealing with excessive flows or wet weather events.

- iii. Thrust and restraint block sizes and locations.
- iv. Backup pump, power and piping equipment.
- v. Design plans and computation for access to bypass pumping locations indicated on drawings.
- vi. Method of noise control for each pump and/or generator.
- vii. Method of preventing odors from being generated above normal levels.
- viii. Emergency plan detailing procedures to be followed in event of pump failures, sewer overflows, service backups, and sewage spillage.
- ix. Alarm system that will allow prompt determination of either excessive sewer surcharging or loss of bypassing piping integrity during operation.
- d. Calculations
 - i. Calculations for selection of bypass pumping pipe size.
 - ii. Calculations of static lift, friction losses, and flow velocity. Pump curves showing pump operating range.
- e. Flow Control
 - i. Sewer plugging method and type of plugs.
 - ii. Means and methods for bypassing flows from apartment complexes and commercial buildings.
 - iii. A detailed procedure for installation and removal of the flow control measures.
 - iv. A tabular flow control plan is acceptable for assets 18" in diameter and smaller.
- f. Schedule
 - i. For bypass pumping a schedule for installation and maintenance of bypass pumping lines.
 - ii. Procedures for setup and breakdown of pumping operations.
 - iii. Cold weather operational plan as appropriate to protect equipment and pipes from freezing.
- 6. Where requested by the Engineer, flow control plans shall be prepared and stamped by a Professional Engineer, registered in the State of Maryland in accordance with the Green Book, experienced in the design and implementation of temporary flow bypass works, and will meet requirements of codes and regulatory agencies having jurisdiction.

1.08. SECURITY CLEARANCES AND COMMUNICATIONS

Supplemental Technical Specifications

A. Security Clearances

1. The Contractor shall comply with DIVISION 1 GENERAL CONDITIONS from the City of Baltimore DPW Specifications (The Green Book) and also with specific requirements stipulated in this Contract.

B. Communications

1. The Contractor shall comply with DIVISION 1 GENERAL CONDITIONS from the City of Baltimore DPW Specifications (The Green Book) and also with specific requirements stipulated in this Contract.

1.09. CITY OF BALTIMORE RESPONSIBILITIES

- A. Estimated daily flows shall be provided by the Engineer to the Contractor prior to initiating a specific bypass operation, except for pipe diameters less than 10" inch.

1.10. CONTRACTORS RESPONSIBILITY FOR OVERFLOWS AND SPILLS

- A. Schedule and perform Work in manner that does not cause or contribute to incidence of overflows, releases or spills of sewage from sanitary sewer system or bypass operation. Should any liquid or solid matter from the bypass pump system be spilled, discharged, leaked or otherwise deposited into the open environment the immediately clean up and disinfect the affected area. Notify the Owner and perform required cleanup at no additional cost to the Owner.

- B. When flow in a sewer line is bypassed by the Contractor, the Contractor shall take sufficient precautions to protect the public health and to protect the sewer lines from damage that might result from sewer surcharging. Further, the Contractor shall take precautions to ensure that sewer flow control operations do not cause flooding or damage to public or private property being served by the sewers involved. The Contractor shall be responsible for any damage resulting from his flow control operations.

1. Provide the Engineer with at least 48 hours' notice and proposed method of flow control before undertaking flow control measures during planned work. 48 hour notice may not be possible for emergency bypass work.
2. Demonstrate that off peak work, sewer cleaning equipment, or a combination of methods cannot effectively reduce the flow levels to the specified maximum before requesting the use of bypass pumping.
3. Provide the Engineer with information on capacity of pumping equipment for review before setting up bypass pumping.
4. Any liquid or solid matter which is bypass pumped from the sewer collection system shall be discharged to another sewer manhole or appropriate vehicle or container only.
5. No such liquid or solid matter shall be allowed to be discharged, stored or deposited to the open environment.

6. If an autodialer is utilized with the bypass system, the automatic dialing system will notify the Contractor and the Engineer in the event of high-water levels. The Contractor must respond to all autodialer alerts.
 - C. The Contractor is hereby made aware no flow shall be discharged to the river, streams, banks, or any other storm outlet during cleaning or inspection operations. Additionally, no sewage shall be permitted to surcharge to the point that it overflows to any of the above or back into private buildings through lateral connections. The Contractor must notify the Engineer immediately of any spill event. Any damage or fines resulting from such occurrences are the sole responsibility of the Contractor.
 - D. However, it is often found that the Contractor must traverse private property to access the sewer within the utility easement. The City policy is to request from the Property Owner a Right-of-Entry (ROE) Agreement or permission letter for this access. The City will provide documentation of access permission to the Contractor prior to issuing the notice-to-proceed.
- 1.11. SENSITIVE LOCATIONS
- A. All sanitary sewer main work near school buildings (or similar institutions) shall be initiated in consultation with school authorities or similar, and completed during a period when the schools (or similar institutions) are closed.
 - B. In case of work near commercial buildings, the same provisions are to be followed in consultation with the business/property owners such that the work causes the least disruption to their operations.
- 1.12. QUALITY ASSURANCE
- A. Use only materials that are suitable for sewer piping systems.
 - B. Perform leakage and pressure tests on discharge piping before operation. Notify the Engineer twenty-four (24) hours prior to testing. Should any liquid or solid matter from the bypass pump system be spilled, discharged, leaked or otherwise deposited into the open environment immediately clean up and disinfect the affected area. Notify the Owner or Engineer and perform the required cleanup at no additional cost to the Owner.
 - C. At a minimum, maintain and inspect temporary pumping system at the beginning and end of each shift that pumps are operating. Responsible operator shall be available to attend site at all times when pumps are operating. Further to this, if an auto-dialer is utilized with the bypass system, the automatic dialing system shall be in working order and notify the Contractor and the Engineer in the event of high-water levels.
 - D. Keep and maintain spare parts for pumps and piping on site, as required.
 - E. Maintain adequate hoisting equipment and accessories on site for each pump.
 - F. Maintain daily maintenance and inspection logs.

PART 2. PRODUCTS

2.01. MATERIAL AND EQUIPMENT

A. General

1. In order to prevent the accidental spillage of flow, all discharge systems shall be temporarily constructed of ridged pipe with positive, restrained joints. Only materials may be used that withstand one-hundred fifty (150) psi pressures and greater and are suitable for contact with domestic sanitary sewage. Under no circumstances will aluminum "irrigation" type piping or glued PVC pipe be allowed. Discharge hose will only be allowed in short sections and by specific permission from the Engineer. The bypass pumping system shall be One Hundred percent (100%) watertight.

B. Discharge, Suction, and Bypass Pipes: As approved by Engineer.

1. Discharge piping: Determine according to flow calculations and system operating calculations submittal.
2. Suction piping: Determine according to pump size, flow calculations, and manhole depth following manufacturer's specifications and recommendations.
3. Homogenous throughout, free of visible cracks, discoloration, pitting, varying wall thickness, holes, foreign material, blisters, or other deleterious faults.
4. Neither aluminum "irrigation type" piping nor glued PVC piping will be permitted.

C. Flexible Hoses and Associated Couplings and Connectors:

1. Suitable for intended service per the specifications herein and as approved by Engineer.
2. Rated for external and internal loads anticipated by the pump selected for use, including test pressure expected during leakage and pressure tests.
3. When subject to traffic loading, compose system, such as traffic ramps or covers, install system and maintain H-20 loading requirements while in use or as directed by the Engineer.

D. Flowmeter: a calibrated flowmeter shall be used to verify flow amounts for payment purposes. The Engineer may ask to inspect or verify the flow amounts at any time of the bypass operation.

E. Valves and Fittings:

1. All pumps used shall be fully automatic self-priming units that do not require the use of foot-valves or vacuum pumps in the priming system. The pumps may be electric or diesel powered. All pumps used must be constructed to allow dry running for long periods of time to accommodate the cyclical nature of effluent flows.
2. Determine according to flow calculations, pump sizes previously determined, and system operating pressures.

F. Plugs:

1. Select and install according to size of line to be plugged, pipe and manhole configurations, and based on specific site.

G. Additional plugs:

1. Make available in the event a plug fails. Plugs shall be inspected before use for defects which may lead to failure.

H. Pumps:

1. The Contractor shall provide the necessary stop/start controls for each pump.
2. Fully automatic self-priming units that do not require the use of foot-valves or vacuum pumps in priming system.
3. Electric or diesel powered.
4. Constructed to allow dry running for long periods of time to accommodate cyclical nature of effluent flows.
5. Provide the necessary stop/start controls and alarms for each pump. Autodialers shall be used to alert of problems, if a header system is used to manifold the pumps, each pump shall include an autodialer. The autodialer shall be capable of being remotely contactable, at a minimum, for up to four (4) telephone numbers; two telephone numbers shall be provided by The City of Baltimore.
6. Provide the necessary stop/start controls for each pump.
7. One stand-by pump of each size maintained on site. Back-up pumps shall be on line and isolated from the primary system by a valve.
8. Noise control shall be utilized as a means to reduce noise to a level as required to comply with City of Baltimore noise ordinances.

2.02. PERFORMANCE

A. Design Requirements: Unless stated otherwise the minimum design requirements will provide the following:

1. Provide pipeline plugs, weirs, discharge piping and pumps of adequate size to handle the flows indicated above to divert the flow indicated in the Drawings.
2. Temporary bypass system shall be capable of continuous operation 24 hours per day if necessary.

PART 3. CONSTRUCTION REQUIREMENTS

3.01. PREPARATION

- A. Maintain copy of emergency plan on site for duration of project.
- B. Determine location of bypass pumping system in order to minimize disturbance to existing utilities. Field locate existing utilities in proposed bypass area. Obtain

approvals for placement within public or private property. Obtain Engineer's approval of locations prior to construction.

- C. The Contractor is responsible for locating existing utilities within the area where the Contractor elects to locate buried bypass pipelines. The Contractor shall locate his bypass pipelines to minimize any disturbance to existing utilities and shall obtain approval of the temporary pipeline locations from the Engineer.
- D. When working inside a manhole or force main, the Contractor shall exercise caution and comply with OSHA requirements when working in the presence of sewer gases, combustible or oxygen-deficient atmospheres, and confined spaces.
- E. If it is the intent for the bypass pumping system to operate and be controlled by a series of wastewater floats to automatically start and stop pumps and to communicate with the autodialer, depending on water levels in the manhole(s). The autodialer shall alert and alarm the Contractor and Engineer by cell phone communication of potential failures and prior to any high-water alarms. The Contractor shall be responsible for ensuring proper operation and maintenance of the bypass pumping and autodialer system.

3.02. BYPASS PUMPING

- A. Transport, deliver, handle, and store pipe, fittings, pumps, ancillary equipment and materials to prevent damage and following manufacturer's recommendations.
- B. Inspect all material and equipment for proper operation before initiating Work.
- C. Material found to be defective or damaged due to manufacturer or shipment:
 - 1. When Engineer deems repairable: Repair as recommended by manufacturer.
 - 2. When Engineer deems not repairable: Replace as directed by Engineer before initiating Work.
- D. Delivery and Storage
 - 1. Transport, deliver, handle, and store pipe, fittings, pumps, ancillary equipment and materials to prevent damage and following manufacturer's recommendations.
 - 2. Inspect all material and equipment for proper operation before initiating Work.
- E. Installation, Operation and Removal
 - 1. The Contractor shall remove manhole cover (lid) and / or frame, lifting rings as necessary or make connections to the existing sewer and construct temporary bypass pumping structures only at the access location indicated on the Bypass Plan and as may be required to provide adequate suction conduit.
 - 2. The Contractor shall ensure all signing, guarding, trip hazard protection ramps and appropriate barriers are provided, ensuring all manholes are protected from pedestrians.
 - 3. Testing

- a. The Contractor shall perform leakage and pressure tests of the bypass pumping discharge piping using clean water prior to actual operation. The Engineer will be given 24 hours notice prior to testing.
 4. Inspection
 - a. Contractor shall inspect bypass pumping system every two (2) hours to ensure that the system is working correctly, or every twenty-four (24) hours when working with the autodialer system.
 5. Maintenance
 - a. The Contractor shall insure that the temporary pumping system is properly maintained and a responsible operator shall be on hand at all times when pumps are operating.
 6. Removal of Flow Control
 - a. Plugging or blocking of sewage flows shall incorporate a primary and secondary plugging device. When plugging or blocking is no longer needed for performance and acceptance of work, it is to be removed in a manner that permits the sewage flow to slowly return to normal without surge, to prevent surcharging or causing other major disturbances downstream.
 - F. When planned or emergency bypass pumping is required, the Contractor shall supply all necessary pumps, conduits and other equipment to divert the flow around the pipe section or manhole in which Work is to be performed. The bypass system shall be of sufficient capacity to handle existing dry-weather flow plus additional flow that may occur during wet-weather (i.e. rainfall or snowmelt events). The Contractor shall be responsible for furnishing the necessary labor and supervision to set up and operate the bypass system. Pumps and equipment shall be continuously monitored by the Contractor during the periods that bypassing is required.
 - G. Where bypass pumping extends for more than a day, a week or a month, actual flow meter data shall be provided to accompany at least 60% of the time bypass pumping is running.
 - H. The Contractor shall select pumping / bypassing equipment that will not have excessive noise levels from pumping / bypassing equipment and shall be restricted to a maximum of seventy decibels (70 dB) at a distance of 50 feet. If pumping is required on a 24-hour basis, engines shall be equipped in a manner to keep noise to a minimum and in accordance with the local requirements for noise control.
- 3.03. FLOW CONTROL PRECAUTIONS
- A. When flow in a sewer line is plugged, blocked or bypassed by the Contractor, the Contractor shall take sufficient precautions to protect the public health and to protect the sewer lines from damage that might result from sewer surcharging. Further, the Contractor shall take precautions to ensure that sewer flow control operations do not cause flooding or damage to public or private property being served by the sewers

involved. The Contractor shall be responsible for any damage resulting from his flow control operations.

- B. When flow in a sewer line is plugged or blocked by the Contractor, he shall monitor the conditions upstream of the plug and shall be prepared to immediately start bypass pumping, if needed. Any liquid or solid matter which is bypass pumped from the sewer collection system shall be discharged to another sewer manhole or appropriate vehicle or container only. No such liquid or solid matter shall be allowed to be discharged, stored or deposited to the open environment. The Contractor shall protect all pumps, conduit and other equipment used for bypass from traffic or other possible sources of damage.
- C. Should any liquid or solid matter from the sewer system be spilled, discharged, leaked or otherwise deposited to the open environment as a result of the Contractor's flow control operations, the Contractor shall be responsible for all cleanup and disinfection of the affected area and all associated costs.

3.04. TRAFFIC CONTROL

- A. The Contractor shall comply with Section 34 71 00 ROADWAY CONSTRUCTION from the City of Baltimore DPW Specifications (The Green Book) and also with specific requirements stipulated in this Contract.

3.05. ACCEPTANCE OF WORK

- A. For planned bypass pumping, no work shall commence until submittals are provided and accepted by the Engineer for each site.
- B. For emergency bypass pumping, the Contractor and Engineer shall agree to the bypass set up within the initial four (4) hours of the event where upon the equipment shall be mobilized. The Contractor shall communicate any significant changes to the initial bypass setup to accommodate existing flows at that time.
- C. To the best ability of the Contractor, the bypass pipeline shall be located off streets and sidewalks and on shoulders of the roads. When the bypass pipeline crosses local streets and private driveways, the contractor must place the bypass pipelines in trenches and cover with temporary pavement. Upon completion of the bypass pumping operations, and after the receipt of written permission from the Engineer, the Contractor shall remove all the piping, restore all property to pre-construction condition and restore all pavement. The Contractor is responsible for obtaining any approvals for placement of the temporary pipeline within public ways from the City.

PART 4. MEASUREMENT AND PAYMENT

4.01. GENERAL

- A. Measurement and payment shall include but not limited to all labor, materials, equipment, tools and incidentals for the pump setup, plugging, pumping and diversion of sewage flow, development of the flow control and bypassing plan, setup, pumps, piping, fuel/electricity, maintenance, transportation and storage, temporary bypass and

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service piping, confined space entry and equipment, inserting and removing pipe plugs, constructing bulkheads, pumping flows, monitoring water levels, installing bypass/diversion piping, trenching, jacking and boring, abandoning the jacked casing, plating for diversion piping, erecting, maintaining and dismantling above ground bypass piping bridging temporary structures, backfill, compaction, placing temporary pavement, traffic control, and any surface restoration.

- B. It is the intent for bypass pumping systems to be temporary. In some cases, the City may instruct adjustment to the bypass system to allow its function for an extended period of time as identified in the bid items. Changes at the City's request can be billed to the Miscellaneous Allowance on the approval of the Engineer, using time and material costs incurred for the modification to the bypass set up.
- C. All costs associated for the planned and emergency bypass pumping for the movement, placement, replacement, operation, repair or other such activities relating to planned bypass pumping and associated equipment mobilization efforts shall be inclusive to the costs identified within the pay items given below.
- D. For Planned Bypass Pumping Work
 - 1. All costs associated for planned bypass pumping for the movement, placement, replacement, operation, repair or other such activities relating to planned bypass pumping and associated equipment mobilization and demobilization efforts shall be inclusive to the costs identified within the pay items given below.
 - 2. Where daily dry weather flows as determined by the City are bypassed having flows:
 - a. from 0.1 MGD to 1.5 MGD, the cost for bypass pumping shall be paid using the appropriate planned bypass bid items for daily, weekly or monthly durations where all bypass pumping considered for payment shall be actual metered flows for average dry weather flow for a twenty-four (24) hour period.
 - b. greater than 1.5 MGD to 3.0 MGD, the cost for bypass pumping shall be paid using the appropriate planned bypass bid items for daily, weekly or monthly durations where all bypass pumping considered for payment shall be actual metered flows for average dry weather flow for a twenty-four (24) hour period.
 - c. greater than 3.0 MGD to 5.0 MGD, the cost for bypass pumping shall be paid using the appropriate planned bypass bid items for daily, weekly or monthly durations where all bypass pumping considered for payment shall be actual metered flows for average dry weather flow for a twenty-four (24) hour period.
 - d. greater than 5.0 MGD to 10.0 MGD, the cost for bypass pumping shall be paid using the appropriate planned bypass bid items for daily, weekly or monthly durations where all bypass pumping considered for payment shall be actual metered flows for average dry weather flow for a twenty-four

(24) hour period.

E. For Emergency Bypass Pumping Work

1. Reactive emergency mobilization and demobilization for bypass pumping work will be paid on a per site location basis as per the bid sheet that will incorporate all plant, labor and equipment.
2. Bypass pumping during emergency events having flows:
 - a. from 0.1 MGD to 1.5 MGD the cost for bypass pumping shall be paid using the appropriate bypass bid items for daily, weekly or monthly durations where all bypass pumping considered for payment shall be actual metered flows for average dry weather flow for a twenty-four (24) hour period.
 - b. greater than 1.5 MGD to 3.0 MGD the cost for bypass pumping shall be paid using the appropriate bypass bid items for daily, weekly or monthly durations where all bypass pumping considered for payment shall be actual metered flows for average dry weather flow for a twenty-four (24) hour period.
 - c. greater than 3.0 MGD to 5.0 MGD, the cost for bypass pumping shall be paid using the appropriate bypass bid items for daily, weekly or monthly durations where all bypass pumping considered for payment shall be actual metered flows for average dry weather flow for a twenty-four (24) hour period.
 - d. greater than 5.0 MGD to 10.0 MGD, the cost for bypass pumping shall be paid using the appropriate bypass bid items for daily, weekly or monthly durations where all bypass pumping considered for payment shall be actual metered flows for average dry weather flow for a twenty-four (24) hour period.

4.02. CLOSEOUT ACTIVITIES

- A. The Contractor shall comply with Section 01 77 00 CLOSEOUT PROCEDURES from the City of Baltimore DPW Specifications (The Green Book) and also with specific requirements stipulated in this Contract.
- B. The Contractor shall properly demobilize the bypass system. Should any restoration be required and not part of this contract, the Contractor shall inform City/Engineer of areas of restoration needed for on-call contractor to perform restoration. Any damage caused by the Contractor's negligence shall be remedied at the cost of the Contractor.

Appendix B

Submittal Tracking Spreadsheets

Table of Contents

- B-1 – Acoustic Inspection Data Submittal Tracking
- B-2 – LACP Inspection Data Submittal Tracking
- B-3 – MACP Inspection Data Submittal Tracking
- B-4 – PACP Inspection Data Submittal Tracking

B-1 – Acoustic Inspection Data Submittal Tracking

Customer:
Contractor:
Contract Number:
Submittal Number:
Date of Submittal:
Total Length Surveyed (LF):

Glossary of Terms

Inspection ID	The unique ID identifying an individual survey.
Inspection Date	The date of the survey recorded; recorded format MM/DD/YYYY.
Inspection Time	The time at the beginning of the survey; recorded in the 24 hour time format HH:MM:SS.
Location Details	Further details on the location for reference to help locate structure in the future; such as address, permanent landmarks or buildings.
Pipe Segment Reference	The unique ID identifying the pipe segment surveyed; this is the pipe Asset ID
Upstream MH	The reference number for the manhole or access point of the survey as given in the established referencing system; Upstream MH or node Asset ID.
Downstream MH	The reference number for the manhole or access point of the survey as given in the established referencing system; Downstream MH or node Asset ID.
Height (in)	The dimension is the pipe height (diameter) at the manhole wall estimated to the nearest whole inch.
Width (in)	The dimension is maximum pipe width (if not circular) at the manhole wall estimated to the nearest whole inch; if circular, width and height are the same.
AGM Length (LF)	The Above Ground Measured distance from the wall of the starting access point to the wall of the finishing access point; this is expected pipe length but not necessarily the length surveyed.
Acoustic Score	The acoustic score from the survey equipment.
Acoustic Rating	The acoustic rating from the survey equipment.

Inspection ID	Inspection Date	Inspection Time	Location Details	Pipe Segment Reference	Upstream MH	Downstream MH	Height (in)	Width (in)	AGM Length (LF)	Acoustic Score	Acoustic Rating

B-2 – LACP Inspection Data Submittal Tracking

Customer:
Contractor:
Contract Number:
Submittal Number:
Date of Submittal:
Total Numbers of Lateral Surveys:

Glossary of Terms

Inspection ID	The unique ID identifying an individual survey within the LACP database.
Inspection Date	The date of the survey recorded; recorded format MM/DD/YYYY.
Inspection Time	The time at the beginning of the survey; recorded in the 24 hour time format HH:MM:SS.
Location Details	Further details on the location for reference to help locate structure in the future; such as address, permanent landmarks or buildings.
Inspection Technology Used	The type of camera, e.g. push camera or lateral launcher.
Lateral Segment Reference	The unique ID identifying the lateral surveyed; this is the lateral Asset ID.
Access Point ID No.	The reference number for the access point of the survey as given in the established referencing system.
Pipe Segment Reference	The reference number for the associated mainline pipe as given in the established referencing system; this is the pipe Asset ID.
Upstream MH	The reference number for the manhole or access point of the associated mainline pipe as given in the established referencing system; Upstream MH or node Asset ID.
Downstream MH	The reference number for the manhole or access point of the associated mainline pipe as given in the established referencing system; Downstream MH or node Asset ID.
Direction	The direction of survey in relation to the direction of flow - using codes D = Downstream and U = Upstream.
Height (in)	The dimension is the pipe height (diameter) estimated to the nearest whole inch.
Width (in)	The dimension is maximum pipe width (if not circular) estimated to the nearest whole inch; if circular, width and height are the same.
AGM Length (LF)	The Above Ground Measured distance from the wall of the starting access point to the wall of the finishing access point; this is expected pipe length but not necessarily the length surveyed.
Length Surveyed (LF)	The distance actually surveyed i.e. the distance displayed on the counter; this may differ from the GIS Length.
Deployment Number	The number representing the unique insertion of the floating camera; specific only to surveys captured using the floating camera.
CCTV Video File Name	The file name of the CCTV video for the survey; recorded format according to the specifications.

Inspection ID	Inspection Date	Inspection Time	Location Details	Inspection Technology Used	Lateral Segment Reference	Access Point ID No.	Pipe Segment Reference	Upstream MH	Downstream MH	Direction	Height (in)	Width (in)	AGM Length (LF)	Length Surveyed (LF)	Deployment Number	CCTV Video File Name

B-3 – MACP Inspection Data Submittal Tracking

Customer:
Contractor:
Contract Number:
Submittal Number:
Date of Submittal:
Total Number of MH Surveys:

<u>Glossary of Terms</u>	
Inspection ID	The unique ID identifying an individual survey within the MACP database.
MH Asset ID	The unique ID identifying the manhole surveyed; this is the manhole ID.
Inspection Date	The date of the survey recorded; recorded format MM/DD/YYYY.
Inspection Time	The time at the beginning of the survey; recorded in the 24 hour time format HH:MM:SS.
Location Details	Further details on the location for reference to help locate structure in the future; such as address, permanent landmarks or buildings.
Inspection Status	Enter the status of the inspection using the applicable NASSCO MACP standard code.
MH Scan File Name	The file name of the manhole scan for the survey; recorded format according to the specifications.

Inspection ID	MH Asset ID	Inspection Date	Inspection Time	Location Details	Inspection Status	MH Scan File Name

B-4 – PACP Inspection Data Submittal Tracking

Customer:
Contractor:
Contract Number:
Submittal Number:
Date of Submittal:
Total Length Surveyed (LF):

Glossary of Terms

Inspection ID	The unique ID identifying an individual survey within the PACP database.
Inspection Date	The date of the survey recorded; recorded format MM/DD/YYYY.
Inspection Time	The time at the beginning of the survey; recorded in the 24 hour time format HH:MM:SS.
Location Details	Further details on the location for reference to help locate structure in the future; such as address, permanent landmarks or buildings.
Pipe Segment Reference	The unique ID identifying the pipe segment surveyed; this is the pipe Asset ID
Upstream MH	The reference number for the manhole or access point of the survey as given in the established referencing system; Upstream MH or node Asset ID.
Downstream MH	The reference number for the manhole or access point of the survey as given in the established referencing system; Downstream MH or node Asset ID.
Direction	The direction of survey in relation to the direction of flow - using codes D = Downstream and U = Upstream.
Height (in)	The dimension is the pipe height (diameter) at the manhole wall estimated to the nearest whole inch.
Width (in)	The dimension is maximum pipe width (if not circular) at the manhole wall estimated to the nearest whole inch; if circular, width and height are the same.
AGM Length (LF)	The Above Ground Measured distance from the wall of the starting access point to the wall of the finishing access point; this is expected pipe length but not necessarily the length surveyed.
Length Surveyed (LF)	The distance actually surveyed i.e. the distance displayed on the counter; this may differ from the GIS Length.
Deployment Number	The number representing the unique insertion of the floating camera; specific only to surveys captured using the floating camera.
CCTV Video File Name	The file name of the CCTV video for the survey; recorded format according to the specifications.

Inspection ID	Inspection Date	Inspection Time	Location Details	Pipe Segment Reference	Upstream MH	Downstream MH	Direction	Height (in)	Width (in)	AGM Length (LF)	Length Surveyed (LF)	Deployment Number	CCTV Video File Name