



Request for Bids

**City of Westminster
Diffendal Parking Lot Retaining Wall**

**The City of Westminster
56 W. Main Street, Suite 1
Westminster, MD 21157
Purchaser: Lydia Colston**

Bids.Diffendal@westgov.com

***RFB#21-12
October 16, 2020***

CITY OF WESTMINSTER
56 West Main Street, Suite 1
Westminster, Maryland 21157



TELEPHONE
Local (410) 848-9000
Baltimore Line (410) 876-1313
www.westminstermd.gov

Date: October 16, 2020

To: Firms Interested in Submitting a Bid

From: Lydia Colston, Director of Finance

Re: Request for Bids by the City of Westminster for Diffendal Parking Lot Retaining Wall

The Mayor and Common Council of Westminster (the “City”) requests Bids (hereinafter, a “Bid” or “Proposal”) for Diffendal Parking Lot Retaining Wall in accordance with the attached Contract documents. By submission of a Bid, the Bidder represents that it has the ability to comply with all requirements contained therein. The City reserves the right to reject any or all proposals or any portion thereof.

Sealed bids consisting of all required Bid forms will be received by Lydia Colston, Director of Finance, 56 West Main Street, Suite 1, Westminster, Maryland 21157, no later than 2:00 pm on November 20, 2020. Sealed bids must be clearly marked “Bid for Diffendal Parking Lot Retaining Wall” on the outside of the envelope.

All Bids are to be accompanied by a bid bond in the amount of 10% of the Bid. A sample bid bond format is provided as part of this Request for Bids.

All blanks on each and every form submitted in connection with the Request for Bids must be filled in, and no change shall be made to the items described in the form. All Bids must be signed in ink by the Bidder, with signature in full. Proposal must be good for ninety (90) days.

Bids will be publicly opened and read aloud at 2:15 p.m. on Friday, November 20, 2020. The bid opening will be held virtually and may be viewed at www.facebook.com/WestminsterMD.

A mandatory pre-bid meeting will be held at 10:00 a.m. on Friday, October 30, 2020 (Eastern Standard Time) at 1838 Emerald Hill Lane, Westminster, MD 21157. In keeping with the City’s COVID-19 response, all attendees must wear a face covering/mask and practice physical distancing. Temperatures of those attending will be taken prior to entrance to the building.

This Request for Bids will be placed on the City website at:

<http://www.westminstermd.gov/bids.aspx>

Any bid addenda will be posted on the City website at <http://www.westminstermd.gov/bids.aspx>.

Prospective bidders who have questions regarding this Request for Bids should email their questions to bids.diffendal@westgov.com. The closing time for submission of questions is 4:30 p.m. on Monday, November 9, 2020. All questions and the associated answers will be posted on the City website at <http://www.westminstermd.gov/bids.aspx>.

To receive notification that information regarding this Request for Bids has been posted to the City website, bidders are encouraged to register with the City by providing their firm name, name of firm representative, and email address for the firm's point of contact to:

bids.diffendal@westgov.com.

REQUEST FOR BIDS

City of Westminster Diffendal Parking Lot Retaining Wall RFB #21-12/Contract #289-C

October 16, 2020

I. BACKGROUND

The Mayor and Common Council of Westminster (“the City”) owns and operates the Diffendal Parking Lot adjacent to the Carroll County Library. Many years ago, the brick walls surrounding the Parking Lot were part of an old commercial building. The walls show signs of deterioration and require restoration and structural improvements.

After considering several different options for wall repair or replacement, the City decided to leave the brick wall in place and to install a new post and panel retaining wall in front of the section of wall that is showing signs of movement. The remaining portion of the brick wall will be cleaned and re-pointed as part of the project.

II. SCOPE OF SERVICES

The City requests bids for a project involving installation of a new soldier pile precast retaining wall in front of the failing portion of brick wall and restoration and repair to the brick wall remaining exposed.

The general scope of work for this project includes:

1. Mobilization
2. Design and installation of post and panel system
3. Repair to existing brick wall where remaining exposed
4. Reestablishing existing grade
5. Final cleanup and demobilization

Mobilization and Demobilization

Mobilization shall include, but is not limited to, the performance of preparatory construction operations, including the movement of personnel and equipment to the project site, establishment of temporary facilities necessary to begin work, closure of the parking lot for traffic and protection of the parking lot surface beyond the limit of disturbance, and the cost of required insurances and bonds. The Contractor is responsible for obtaining all required building permits at zero cost to the Contractor. Demobilization shall include the removal of mobilized equipment and facilities and contract close out procedures.

Mobilization/demobilization will not be measured, but will be paid for on a lump sum basis, as under Item No. 1 on the Schedule of Values.

Special Conditions

1. The Contractor shall be qualified in the field of installing soldier piles and retaining walls with a successful track record of five years or more.
2. The Contractor shall install materials in accordance with all safety and weather conditions required by code and system design engineer or as modified by applicable rules and regulations of local, state, and federal authorities having jurisdiction.
3. The Contractor is responsible to maintain the brick masonry walls at the area of installation of the pile/precast system in the pre-construction condition. The Contractor shall determine and implement any necessary precautions during installation.

CITY OF WESTMINSTER, MARYLAND

INSTRUCTIONS TO BIDDERS

1. BIDS:

Sealed Bids will only be accepted by the Mayor and Common Council of Westminster (“the City”) if submitted in accordance with these instructions, the General Conditions, and any other attached Bid documents.

2. RESERVATIONS:

a. The City reserves the right to waive formalities or technicalities in bids as the interests of the City may require.

b. The City may waive minor differences in specifications, provided these differences do not violate the intent of the specification or materially affect the operation for which the item is being acquired.

c. Bids which show omission, irregularity, alteration of forms, or additions not called for, and conditional or unconditional, unresponsive bids, or bids obviously unbalanced may be rejected.

d. The City reserves the right to award Contracts on a lump sum or an individual item basis, or such combination thereof as the interests of the City may require.

e. The City reserves the right to purchase additional like units at the same unit cost.

f. The City reserves the right to reject any and/or all bids; to accept a portion of a bid or bids only; to advertise for new proposals; to proceed to do the work otherwise; or to abandon the work, if in the City’s judgment, the City’s best interests will be served by doing so.

g. Any contract resulting from this solicitation will be awarded to the bidder who has submitted the proposal most advantageous to the City in its sole discretion, considering such things as the price and the bidder’s qualifications, experience and references, in addition to any other factors identified in the Scope of Work.

3. QUALIFICATIONS OF BIDDERS:

The City may make such investigation as it deems necessary to determine the ability of the Bidder to furnish the services and the Bidder shall furnish to the City all such information and data for this purpose that the City may request. The City reserves the right to reject any Bid if the evidence submitted by the Bidder or an investigation of such Bidder fails to satisfy the City that such Bidder is properly qualified to carry out the obligations of the Contract.

4. REQUIRED ATTACHMENTS TO BIDS:

Each Bid shall be accompanied by the following which are attached herewith:

- a. Bid Form
- b. Schedule of Values
- c. Attachment to Schedule of Values
- d. Experience Record Form
- e. List of References
- f. Vendor Responsibility Form
- g. Equal Opportunity Employer Form
- h. Affidavit of Non-Collusion and Non-Conviction
- i. W-9 Form
- j. Bid Bond (10%)

5. ACCEPTANCE OR REJECTION OF BIDS; RESERVATIONS:

The City will accept or reject bids within ninety (90) days of the date set for opening bids. The City reserves the right to reject or accept any or all bids or portion thereof where such rejection or acceptance would, in the City's sole discretion, be in the best interest of the City, and further reserves the right to reduce or modify the scope of the Project in order to meet funding limits, budget, and scheduling constraints.

6. NOTICE OF AWARD, SIGNING OF CONTRACT AND BONDS:

The successful Bidder agrees to sign a Contract in substantially the form included as Exhibit B in the Request for Proposals (except that certain additional provisions may be required of non-corporate Contractors pertaining to their status as sole proprietorships or partnerships and their workers' compensation coverage) binding it to the terms of this Bid as set forth in the legal notice inviting bids and the bid documents and any addenda thereto, within ten (10) days of notice of award. Failure of the Bidder to do so may result in the loss of its Bid security and/or its award of Bid.

7. BID WITHDRAWALS:

Prior to the time of opening, Bids may be withdrawn only upon written request received from Bidder. No Bidder may withdraw its Bid for a period of ninety (90) days after the opening of Bids.

8. ADDENDA:

Any addenda issued after the Invitation to Bid and before the opening of Bids shall be covered in the proposal, and in closing the Contract they shall become a part thereof. Bidders will be required to submit a signed and dated copy of the addenda as acknowledgement of receipt.

9. SPECIFICATIONS:

Bidders must examine the specifications carefully. In case doubt shall arise as to the meaning or intent of anything shown in the specifications, inquiry shall be made of the City before the Bid is submitted. The submission of a Bid shall indicate that the Bidder thoroughly understands the terms of the Bid and the specifications.

10. BONDS:

Performance bond in the amount of 100% of Contract amount and payment bond in the amount of 100% of Contract amount are required. Sample formats are provided in the Contract Documents.

11. TAXES:

The Contractor shall pay all sales, consumer, use, and other similar taxes required by applicable law to be paid with respect to the work performed or the materials or equipment furnished. The City of Westminster is exempt from the payment of such taxes with respect to items purchased directly.

12. BID FORMS:

A. The Bid Form and attachments are included in the Bid package. Bids shall be submitted on the attached forms and shall be filled out in full, in ink or by typewriter. If changes and erasures are made, such changes and erasures shall be clear and legible, and shall be initialed by the person signing the Bid Form. The Bid Form may provide for submission of a price or prices for one or more items, which may be lump sum Bids, alternate prices, or scheduled items resulting in a Bid on a unit of construction or a combination thereof, or other Bidding arrangements. Unless specifically called for, alternate Bids will not be considered.

Bids in which the prices obviously are unbalanced may be rejected. Unbalanced prices shall be interpreted to mean that the unit price for any items is such that it is unreasonable for that particular item when considered by itself and not considered in connection with the Bid submitted on any other item or items.

Bids shall be based on products, materials, and methods named in the Contract Documents.

The Bidder must detach the completed Bid Form and required attachments and submit them in a sealed, opaque envelope bearing the Bidder's name and address at the time and place indicated on the Invitation to Bid. Bids may be modified or withdrawn at any time prior to the opening of bids. Signing of Bids shall comply with instructions on the Bid Form.

B. The Bidder assumes full responsibility for timely delivery at location designated for receipt of Bids. Bids received after the designated time for the public bid opening will be returned to the Bidder unopened.

C. Bids will be publicly opened and read aloud at the time and place set forth in the Invitation to Bid. Only bid totals will be publicly read at the Bid Opening. Bidders and other interested parties may be present either in person or by representative. Unit prices will be made available after verification by the City. In case of discrepancy between prices in writing and in figures, the writing shall govern. In case of error in the extension of prices in the Bid, unit prices will govern.

13. EXECUTION OF THE CONTRACT:

The form of the Agreement is included with the Bid package as Exhibit B. Changes may be made to the Agreement form at the sole discretion of the City and the Bidder should not rely on an expectation of changes in the Agreement form.

The Bidder to whom the Contract is awarded shall return two copies of the Agreement and such other Documents as required by the Contract Documents properly executed to the City within seven (7) days after the date of issuance of the Notice of Award. The City will execute the Contract within seven (7) days after receipt of the Contractor's executed Contract Form.

Failure by the Bidder to execute the Contract and submit such other Documents as required by the Contract Documents and file acceptable insurance and bonds within the time aforesaid shall be just cause for annulment of the Award. Award may then be made to the next lowest responsible Bidder or the Work may be re-advertised and constructed under Contract or otherwise, as the City may decide.

By executing the Contract, the Bidder represents that it has familiarized itself with, and assumes full responsibility for having familiarized itself with, the nature and extent of the Contract Documents, the work, and the site, and all federal, State and local laws, ordinances, rules, and regulations that may in any manner affect performance of the Work, and represents that it has correlated its study and observations with the requirements of the Contract Documents. The Bidder also represents that it has studied all surveys and investigation reports of subsurface and latent physical conditions referred to in the Contract Documents and made such additional surveys and investigations as it deems necessary for the performance of the Work at the Contract Price in accordance with the requirements of the Contract Documents and that it has correlated the results of all such data with the requirements of the Contract Documents.

14. AFFIDAVIT OF NON-COLLUSION AND NON-CONVICTION:

Pursuant to § 16-311 of the State Finance and Procurement Article of the Annotated Code of Maryland, any person who has (1) been convicted of bribery, attempted bribery or conspiracy to bribe, under laws of any state or of the federal government; (2) been convicted under a State or federal law or statute of any offense enumerated in § 16-203 of this title; or (3) been found civilly liable under a State or federal antitrust statute as provided in § 16-203 of this Title 16 shall be disqualified from entering into a Contract with the Owner.

A Bidder shall complete and submit with its Bid the attached notarized Anti-Bribery Affidavit. The affiant shall also swear or affirm under the penalties of perjury that the Bidder has

not been a party with other Bidders to any agreement to Bid a fixed or uniform price and shall also contain an affirmation that the Bidder shall not knowingly enter into a Contract with the City under which a person or business debarred or suspended under Title 16, Subtitle 3 will provide, directly or indirectly, supplies, services, architectural services, construction related services, leases of real property, or construction.

15. BID SUBMITTAL LIMIT:

A Bidder may submit only one Bid for each Contract. More than one Bid from an individual, firm or partnership, corporation, or association under the same or different names will not be considered, and submission of more than one Bid will be grounds for disqualification of the Bids involved, and rejection of the Bids.

16. GRANT-FUNDED CONTRACTS:

The Contract may be funded, in whole or in part, using federal or State grant funds and may therefore be subject to conditions imposed by regulations of the governmental entity providing such funds. Such funding, if any, will be identified in the description of the Work or Services included with this Request for Bids. It is the Bidder's responsibility to determine the scope and requirements of, and to comply with, the terms of any regulations relating to or governing the use of such grant funds. Such regulations may under certain circumstances include, but are not limited to, payment of prevailing wage rates, the purchase of materials manufactured in the United States, the maintenance of specific records for specific periods of time, and/or approval of subcontracts, among other things.

17. SUBMISSIONS ARE PUBLIC INFORMATION:

The affidavit required by Section 14 of these Instructions to Bidders shall also indicate the Bidder's understanding that all documents, information, and data submitted in its Bid/Proposal shall be treated as public information unless otherwise indicated.

CITY OF WESTMINSTER, MARYLAND GENERAL CONDITIONS

GC 1. Disputes

In cases of disputes as to whether or not an item or service quoted or delivered meets the specifications, the decision of the City shall be final and binding on both parties.

GC 2. Completion of Work

If the Contractor is delayed at any time in the completion of the Services by any act or negligence of the City, or by any act or negligence by separate Contractor employed by the City, or that of any employee of either, or by any changes ordered in the materials or by strike, lockout, fires, unusual delays in transportation, unavoidable casualties or any causes beyond the Contractor's control, or by delay authorized by the City, the City shall decide the permissible extent of such delay.

GC 3. Failure to Deliver

In the event the Contractor fails to deliver the services and materials covered by the Contract and in accordance with the delivery terms stipulated in the Contract, then the City will have the right to purchase on the open market the services and/or materials covered in the Bid Proposal and shall have as damages the cost of obtaining such services and/or materials and any additional costs incurred by the City as a result thereof.

GC 4. Bonds

Performance bond in the amount of one hundred percent (100%) of Contract amount and payment bond in the amount of one hundred percent (100%) of Contract amount are required.

GC 5. Insurance

The Contractor shall maintain insurance coverages, and shall provide Certificates evidencing such insurance as required in Section 7 in the Agreement.

GC 6. Indemnification

The Contractor will be required to indemnify, defend, and hold the City harmless against any and all liability to any person or persons for or by any reason of any condition or malfunction of the materials used, and against any and all claims made or liability to any person or persons by reason of any act or omission or negligence of the Contractor or any of its agents, servants, or employees. This indemnification shall include reasonable attorney's fees incurred by the City in connection with such claim or liability.

GC 7. Inspection.

The City has the right to inspect and test all services and materials called for by the Contract, to the extent practicable at all times and places during the term of the Contract. The City shall perform inspections and tests in a manner that will not unduly delay the work. If any of the services and/or materials do not conform to Contract specifications, the City may require the Contractor to perform the service or again provide a replacement product in conformity with Contract specifications, at no increase in Contract amount.

SUPPLEMENTAL CONDITIONS

SC-01. GENERAL

These Supplemental General Conditions are hereby made a part of the Contract. In case of conflict with other portions of the specifications, these Supplemental General Conditions shall govern. Any references to the Director of any Department of City Government shall be deemed to mean the Director or his or her designee.

Wherever in this Request for Bids the word "State" is used, it shall be construed to mean "City of Westminster." Wherever the word "Administration" is used, it shall be construed to mean "City of Westminster, Department of Public Works." Wherever the words "Chief Engineer", "Assistant Chief Engineer" or "Engineer" are used, they shall be construed to mean "Director of Public Works for the City of Westminster."

SC-02. INTENT OF DRAWINGS AND SPECIFICATIONS

It is the intent of the drawings, specifications, and supplementary documents to provide the Contractor with such information and instructions as may be necessary to complete the contemplated work. The work under the Contract shall be constructed or installed in accordance with the materials, sizes, dimensions, on the lines and slopes, at the depths, with the connections, and in the manner called for by the specifications and as shown on the Contract drawings, or in accordance with such changes as may be approved from time to time during the progress of the work as hereinafter provided. In case of any conflict between the specifications and drawings, the Director of Public Works shall determine which shall govern.

SC-03. WORK TO BE DONE BY THE CONTRACTOR

The Contractor shall do all the work and furnish all the labor, materials, tools, and appliances necessary and proper for performing the work required by the Contract, in the manner called for by the specifications and within the Contract time. It shall complete the entire work, together with such extra work as may be required, at the prices bid or fixed thereby to the satisfaction of the City, and in accordance with the specifications and drawings.

SC-04. PLANS AND SPECIFICATIONS SUPPLEMENTARY

The specifications are intended to supplement and clarify the plans as sometimes work is called for in the specifications that is not shown on the plans and sometimes the plans indicate work that is not mentioned in the specifications. Compliance with both plans and specifications is required to fulfill the Contract requirements; any work called for by either is as binding as though it were called for by both. In case of conflict between drawings and specifications, or doubt as to the true meaning of the specifications, plans, and/or drawings, the decision of the City shall be final and conclusive.

SC-05. PROTECTION OF PROPERTY AND STRUCTURES

The Contractor shall, at its own expense, sustain in their places and protect from direct or indirect injury all pipes, poles, tracks, walls, buildings, and other structures or property in the vicinity of its work whether above or below the ground or that may appear in the trench. It shall at all times have a sufficient quantity of timber and plank, chains, ropes, etc., on the ground and shall use them as necessary for sheeting its excavations and for sustaining or supporting any structures that are uncovered, undermined, endangered, threatened, or weakened. The Contractor shall take all risks attending the presence or proximity of pipes, poles, tracks, walls, buildings, and other structures and property, of every kind and description, in or over its trenches or in the vicinity of its work, whether above or below the surface of the ground and it shall be responsible for all damages and assume all expense for direct injury caused by its work, to any of them, or to any person or property by reason of injury to them, whether such structures are or are not shown on the drawings.

SC-06. OBSTRUCTIONS SHOWN ON DRAWINGS

Certain information regarding the reputed presence, size, character, and location of existing underground structures has been shown on the Contract drawings. The City disclaims any certainty as to the accuracy of this information and it shall be considered by the Contractor in this light. The locations of underground structures shown may be inaccurate and obstructions other than those shown may be encountered. The City is not responsible for the correctness or sufficiency of the information given; the Contractor shall have no claim for delay or extra compensation on account of incorrectness of information given, or on account of the insufficiency, or absence of information regarding obstructions, either revealed or not revealed by the drawings.

SC-07. STORAGE OF MATERIALS

Materials shall be stored so as to ensure the preservation of their quality and fitness for the work. When considered necessary, they shall be placed on wooden platforms, or other hard, clean surfaces and not on the ground, and shall be located so as to facilitate prompt inspection. Lawns, grass plots, or other private or public property shall not be used for storage purposes without written permission of the City or lessee of said property.

SC-08. STRUCTURES TO BE KEPT CLEAN

During the progress of the work, until the completion and final acceptance thereof, all structures, including pipelines and their appurtenances, shall be kept entirely clean throughout. Obstructions or deposits, at any time discovered, shall be removed at once by the Contractor without extra compensation. After completion of the work, the structures, pipelines, and their appurtenances shall be left clean and in good order.

SC-09. FINAL CLEAN UP

Within 10 days after the completion of the work and before final acceptance, the Contractor shall, without charge therefore, tear down and remove all temporary buildings and other structures built

by it, shall remove all rubbish of all kinds from any ground which it has occupied, and shall leave the site of the work in a clean and neat condition.

SC-10. GUARANTEE

The Contractor hereby guarantees all of the work performed under this Contract for a period of one year after the date of final "acceptance" therefore by the City, as follows:

1. Against all faulty or imperfect materials and against all imperfect, careless, and/or unskilled workmanship.

2. That all pipelines and structures shall be watertight and that leakage will not exceed the limits set forth in the specifications.

3. The Contractor agrees to replace with proper workmanship and materials, and to re-execute, correct, or repair without cost to the City, any work which may be found to be improper or imperfect and to restore and maintain all roads, shoulders, ditches, and crossings to their original condition and in accordance with the terms of the appropriate agency permits.

4. No use or acceptance by the City of the work or any part thereof, nor any failure to use the same, nor any repairs, adjustments, replacements, or corrections made by the City due to the Contractor's failure to comply with any of its obligations under the Contract documents, shall impair in any way the guarantee obligations assumed by the Contractor under these documents.

SC-11. GUARANTEE BOND (MAINTENANCE BOND)

A. Before final payment is made by the City, the Contractor shall be required to furnish the City with a Guarantee Bond in the amount of ten percent (10%) of the Contract amount. The bond must be executed by a surety satisfactory to the City and shall be effective for the one-year guarantee period.

B. It is understood and agreed that in the event the Contractor fails to re-execute, correct, or repair any work performed in the construction of the Contract which may be found to be improper or imperfect, or otherwise fails to fulfill the terms of the Guarantee, the City may purchase materials, tools, and equipment and employ labor, or let a Contract, as required to perform the necessary corrective work covered in the Guarantee. All costs and expenses incurred thereby by the City shall be charged against the Guarantee Bond.

SC-12. SUPERVISION AND DIRECTION OF WORK

The work shall be under the general supervision of the City. While it is intended that the Contractor shall be allowed to carry on the Contract in accordance with such general plan as may appear to it most desirable, the City, at its discretion, may from time to time direct the order in which and points at which, the work shall be prosecuted; and, shall exercise such general control over the conduct of the work, at any time or place, as shall be required, in its opinion to safeguard the interests of the City. The Contractor shall have no claim for damages or extra compensation on

account of the fact that it shall have been necessary to carry on the work in different sequence from that which it may have contemplated. The Contractor shall immediately comply with any and all orders and instructions given by the City, but nothing herein contained shall be considered such an assumption of control over the work by the City as to relieve the Contractor of any of its obligations or liabilities under the Contract.

SC-13. DECISIONS AND EXPLANATIONS BY ENGINEER

A. The City shall make all necessary explanations as to the meaning and intent of the specifications and drawings and shall give all orders and directions, either contemplated therein or thereby, or in every case in which a difficult or unforeseen condition arises during the prosecution of the work. Should there be any discrepancies in or between, or should any misunderstanding arise as to the importance of anything contained in the drawings and specifications, the decision of the City shall be final and binding. Any errors or omissions on the drawings or in the specifications may be corrected by the Director of Public Works when such corrections are necessary for the proper fulfillment of their intent as construed by him.

B. The City shall in all cases determine the amount, quality, and acceptability of the work to be paid for under the Contract, and shall decide all questions in relation to said work. Its decision and estimate shall be final and conclusive, and in case any question shall arise between the parties regarding the Contract, such decision and estimate shall be a condition precedent to the right of the Contractor to receive payment under that part of the Contract which is in dispute.

C. Decisions and interpretations will be rendered by the City as promptly as possible, but should delay occur, for any reason, the Contractor shall have thereby no claim for damage or extra compensation.

SC-14. MATERIAL SAMPLES

A. Before any Contract is awarded, the Bidder shall be required to furnish a complete statement of the origin, composition, and manufacturer of any or all materials to be used in the work, together with samples, which samples may be subjected to the tests provided for in these specifications to determine their qualities and fitness for the work.

B. The Contractor shall notify the City where and when it purchases pipe, joining material, etc., for this Contract and such notice shall be given to the City in sufficient time to allow for inspection of such materials at the point of manufacture.

SC-15. COOPERATION OF CONTRACTOR

A. The Contractor will be supplied with three (3) copies of the supplemental attachment and of the specifications. The Contractor shall have available at all times at least one copy of the attachment, and a complete book of the specifications; it shall give the work the constant attention necessary to facilitate the progress thereof, and shall cooperate in every way with the City.

B. The Contractor shall have at all times a competent superintendent or foreman capable of

reading and thoroughly understanding the drawings and specifications onsite to direct the work and to receive instructions from the City. The superintendent or foreman shall have full authority to execute the order or directions of the City without delay and to promptly supply such materials, tools, plant equipment, and labor as may be required. Such superintendent or foreman shall be furnished irrespective of the amount of work. The giving of orders or directions in the manner aforesaid shall be equivalent to their receipt by the Contractor.

C. The Contractor shall furnish the City with every reasonable facility for ascertaining whether or not the work performed and materials used are in accordance with the requirements of the specifications and Contracts.

SC-16. SERVICE OF NOTICES TO CONTRACTOR

The mailing, in a United States post office box, of a written communication, notice, or order, addressed to the Contractor at the business address filed with the City or to its office at the site of the work shall be considered as sufficient service upon the Contractor of such communication, notice or order, and the date of service shall be the date of such mailing.

SC-17. WORKMANSHIP

All materials furnished and all work done shall be of the quality and character required by the drawings and specifications. Where no standard is specified for such work or materials, they shall be of a kind acceptable to the City.

SC-18. ALTERATION OF PLANS AND CHARACTER OF WORK

A. The City reserves the right to make such alteration in the plans or in the character of the work as may be considered necessary or desirable from time to time to complete fully and perfectly the construction of the work, provided such alterations do not materially change the original plans and specifications, and such alterations shall not be considered as a waiver of any condition of the Contract, nor to invalidate any of the provisions thereof. Should such alterations in the plans or in the character of the work be productive of increased cost or result in decreased cost to the Contractor, a fair and equitable sum therefore, to be agreed upon in writing by the Contractor and the City before such work is begun, shall be added to or deducted from the Contract price, as the case may be.

B. No alterations in the plans or in the character of the work shall be made without the previous written approval of the City. Approved change orders are required for alterations or work character modifications costing in excess of \$100.00. This applies to Bid or contingent items and/or negotiated work that may not be covered herein.

SC-19. TESTS OF MATERIAL SAMPLES

All tests of materials shall be made in accordance with the official approved methods as described or designated at a laboratory or testing bureau approved by the City. The cost of testing samples

of materials obtained at the job site shall be paid by the Contractor who shall cooperate and assist in making field tests and in obtaining samples.

SC-20. CARE AND PROTECTION OF WORK

From the commencement of the Contract until its completion, the Contractor shall be solely responsible for the care of the work; and, all injury or damage to the same from whatever cause shall be made good at its own expense before the final payment is made. It shall provide suitable means of protection for all materials intended to be used in the work in progress, as well as for complete work.

SC-21. DEFECTIVE WORK

Neither the inspection or the supervision of the work, nor the presence or absence of any employee or agent of the City during the execution of any part of the work, shall relieve the Contractor of any of its obligations under the Contract or of conforming its work to the lines, grades, and elevations which are required; and, defective work shall be made good and unsuitable material will be rejected, notwithstanding that such work and material may have been previously overlooked and accepted or estimated for payment. If the work or any part thereof shall be found defective within one year of final acceptance or to have been damaged, at any time before the final acceptance of the whole work, the Contractor shall forthwith make good such defect or injury, in a manner satisfactory to the City, without extra compensation therefore, even though said defect or injury may not have been due to any act, default or neglect on the Contractor's part; provided, however, that should such defective work result from inherent flaws in the materials (if any) furnished by the City, the materials to replace same will be furnished by the City, and the cost of removing and replacing said defect will be paid for as extra work. All materials shall be carefully examined by the Contractor for defects, just before placing, and any found defective shall be rejected.

SC-22. CLAIMS FOR DAMAGE

A. If the Contractor shall claim compensation for any damage sustained by reason of the acts of the City, or any official or agent thereof, it shall, within five (5) days after the sustaining of such damage, make a written statement to the City of the nature of the damage sustained, and shall on or before the fifth day of the month succeeding that in which it shall allege that such damage has been sustained, file with the Director of Public Works an itemized statement of the details and amount of such damage. Unless such statement shall be made as thus required, its claim for compensation shall be forfeited and invalidated, and it shall not be entitled to payment on account of any such damage.

B. Whenever it shall appear to the Contractor that due to the urgencies of the work, it is about to incur damage, owing to the neglect or refusal of the Director of Public Works to issue an extra order, or to any other cause whatever, it shall at once notify the City in writing of such fact and state the nature of its possible claim, in order that the Director of Public Works may obtain necessary and authentic information to guide future consideration and action on such claim; and, unless the Contractor shall comply with this requirement, its claim for damage shall be forfeited

and invalidated. Such notification shall not take the place of, but shall be in addition to, the written statement hereinbefore required to be submitted within five (5) days after the occurrence of an alleged cause for damage.

C. In no case shall the City be held liable for claims of damage by or between the Director of Public Works and/or Contractor.

SC-23. UNAUTHORIZED WORK

Work done without lines and grades being given, work done beyond the lines and grades shown on the plans or as given, except as herein provided or any extra work done without written authority, will be considered as unauthorized and at the expense of the Contractor and will not be approved by the City or paid for by the City. Work so done may be ordered removed and replaced by the City at the Contractor's expense.

SC-24. LAWS AND REGULATIONS

In all operations connected with the work, the Contractor shall comply with all applicable federal, state, and local laws and regulations. The Contractor shall protect and indemnify the City and its officers and agents against any claim or liability arising from or based on the violation of any such law or regulation. The Contractor shall pay all taxes required by law.

SC-25. PERMITS, LICENSES, CHARGES, NOTICES

The Contractor shall procure and pay for all permits and licenses, pay all royalties, fees, and charges and give all notice necessary and incidental to the due and lawful prosecution of the work.

SC-26. PATENT RIGHTS

The Contractor shall be responsible for any claims made against the City, its agents and employees for any actual or alleged infringement of patents by the use of any such patented articles, appliances, etc., or any copyright infringement in the construction and/or completion of the work and shall save harmless and indemnify the City, its agents and employees from all costs, expenses, and damages, including solicitor's and attorney's fees, which the City may be obliged to pay by reason of any actual or alleged infringement of patents used in the construction and completion of the work herein specified.

SC-27. WATER SUPPLY

The Contractor shall provide at its own expense such quantities of clean water as may be required for any and all purposes under the Contract. It shall take particular care to furnish its employees with clean and safe drinking water. All sources of water supply to be used by the Contractor in connection with the work shall be subject to the approval of the City, and shall be indicated to the City by the Contractor five (5) days before beginning work, so that examination of said supplies can be made.

SC-28. SANITARY ARRANGEMENTS

A. The Contractor shall provide and maintain approved sanitary facilities for the use of persons employed in connection with the work, properly secluded from public observation, in such manner and at such points as shall be directed by the Engineer, and their use shall be strictly enforced. The facilities shall be cleaned and disinfected daily to the satisfaction of the Engineer and/or removed when and as directed.

B. The Contractor shall provide and maintain in a neat and sanitary condition such accommodations for the use of its employees as may be necessary to comply with the requirements and regulations of the Department of Health or any governmental body having jurisdiction over such matters.

SC-29. INJURY TO PROPERTY

In case any direct or indirect damage is done to public or private property by or because of the work, or in consequence of any act or omission on the part of the Contractor, its employees or agents, the Contractor shall, at its own expense, restore such property to a condition similar or equal to that existing before such damage was done, by repairing, rebuilding, or otherwise shall make good such damage in a satisfactory manner; and, in case of failure on the part of the Contractor to promptly so restore such property, or make good such damage, the City shall, upon forty-eight (48) hours written notice, proceed to repair, rebuild, or otherwise restore such property as may be necessary and the cost thereof will be deducted from any monies due or to become due the Contractor under the Contract; or the City shall deduct from any monies due the Contractor a sum sufficient in the judgment of the City to reimburse the City of the property so damaged.

SC-30. CONTRACT TIME FOR COMPLETION

The Contractor shall schedule its work in such a manner so as to perform the work under this Contract within the number of calendar days stated in the Proposal.

SC-31. EXTENSION OF TIME

A. If the Contractor is delayed or obstructed in the prosecution of the work by any neglect, delay, or default attributable to the City, or by any damage that may happen to the work by fire, unavoidable accident, or any unusual action of the elements, it shall be entitled to such an extension of time for the completion of the work as the Director of Public Works shall certify to the City be just and reasonable; provided, however, that the Contractor shall make a claim in writing for such extension of time within ten (10) days after the date the alleged cause for such extension of time occurred.

B. A reasonable and proper extension of time for the completion of the work may also be allowed by the City because of extra work that may be ordered in accordance with the terms of the Contract.

C. If the satisfactory execution and completion of the Contract shall require work or material

in greater amounts or quantities than those set forth in the Contract, then the Contract time shall be increased in the same proportion with no change to Contract terms.

SC-32. NORMAL WORK WEEK AND HOLIDAYS

A. The City observes the following holidays: New Year's Day, Presidents' Day, Martin Luther King Day, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and the Friday following Thanksgiving, Christmas Eve, and Christmas.

B. The normal work week shall be five (5) days and the Contractor will not be permitted to work on the holidays set forth in subsection A. above or on Saturdays or Sundays unless otherwise authorized by the City in writing.

C. The normal number of working hours per day will be limited to a maximum of eight (8), unless otherwise authorized by the City.

D. In case of an emergency, which may require that work be done on Saturdays, Sundays, holidays, or longer than eight (8) hours per day, the Contractor shall request permission of the City to do so. If in the opinion of the City the emergency is bona fide, it will grant permission to the Contractor to work such hours as may be necessary. Also, if in the opinion of the City, a bona fide emergency exists, it may direct the Contractor to work such hours as may be necessary whether the Contractor requests permission to do so or not. All costs related to overtime wages for inspectors shall be borne by the Contractor provided such overtime is for the convenience of the Contractor.

E. In the event working times exceed those times specified above, for reasons stated above or at the Contractor's request, and the services of inspection personnel are deemed necessary, as determined by the City, the Contractor shall bear the costs for overtime inspection. Such costs shall be deducted from monies due to the Contractor from time to time.

SC-33. RESPONSIBILITY OF THE CONTRACTOR

A. It is the responsibility of the Contractor to construct the work under this Contract so that it will be complete and finished in every detail. If mention has been omitted in the Contract documents of any items of work or materials which are necessary for the completion of, or proper functioning of, the construction, it shall be included without extra payment.

B. If damage is done to any existing work or work placed under this Contract, such as cutting masonry, concrete work, paving, damage to existing utilities, etc., such damage must be repaired and made good without extra payment to the full satisfaction and approval of the City and any agencies having jurisdiction whose work has been affected.

SC-34. SHOP DRAWINGS

A. The Contractor shall submit for the approval of the City, five (5) prints of certified working drawings for all fabricated or manufactured articles to be used in the work. No items requiring

submission of detail drawings shall be manufactured prior to final approval of the drawings.

B. Two (2) prints of each drawing submitted will be returned approved if found correct, or else showing the changes required. Five (5) copies shall be re-submitted after corrections have been made until final approval is given by the City.

C. The approval of the drawings shall not relieve the Contractor from its responsibility to furnish all materials and perform all work as required by the Contract documents. The City will not be responsible for errors or omissions on drawings furnished by the Contractor, even though drawings furnished containing such errors or omissions are inadvertently approved.

SC-35. PAYMENT FOR MATERIAL NOT INCLUDED IN THE WORK

Payment for equipment and materials stored on the site of the work and not actually incorporated in the work will be made on the basis of amounts of paid bills submitted to the Director of Public Works along with the monthly estimate as described under "Current Estimates".

SC-36. USE OF A PORTION OF THE WORK

A. Whenever in the opinion of the City any portion of the work is completed or is in acceptable condition for use, it may be used for its intended purpose as may be directed; and, such use shall not be held to be in any way an acceptance of that portion of the work used or as a waiver of any of the provisions of these Contract documents.

B. Necessary repairs or renewals made in any section of the work under instructions from the City due to defective materials or work, natural causes, or ordinary wear and tear, or otherwise, pending final completion and acceptance of the entire work, shall be performed at the expense of the Contractor.

SC-37. LIENS

Neither the final payment nor any part of the retained percentage shall become due until the Contractor shall deliver to the City a complete release of all liens arising out of this Contract, or receipts in full in lieu thereof and, in either case, an affidavit that so far as it has knowledge or information, the releases and receipts include all the labor and material for which a lien could be filed, but the Contractor may if any subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the City, to indemnify it against any lien. If any lien remains unsatisfied after all payments are made, the Contractor shall refund to the City all monies that the latter may be compelled to pay in discharging such a lien, including all costs and reasonable attorneys' fee.

SC-38. EXECUTION OF WORK

A. The Contractor shall begin work promptly upon issuance of the Notice to Proceed on the Contract and shall diligently execute the Work to completion within the specified number of working days or by the designated completion date. Unless work under the Contract is started

within ten (10) days after the Notice to Proceed on the Contract, the City may terminate the Contract with no liability to the Contractor.

B. If at any time, progress in keeping with the intent of the Contract shall not have been made, the Contractor shall increase the force and supply additional equipment as may be necessary to complete the work at the time and in the manner specified in the Contract. Should the prosecution of the work be suspended by the Contractor, with the consent of the Director of Public Works, the Contractor shall notify the Director of Public Works in writing at least two business days before resuming operations.

C. Notification must be given to the City two business days in advance of any beginning or cessation of work.

SC-39. CHARACTER OF WORKERS AND EQUIPMENT

A. The Contractor shall employ only competent, skillful people to do or supervise the work, and whenever the City shall, in writing, notify the Contractor that any person employed on the work is, in its opinion, incompetent, disobedient, unfaithful, disorderly, discourteous, or otherwise unsatisfactory, such person shall be removed and shall not again be employed on the work.

B. The character, condition, adaptability, and quantity of equipment used by the Contractor shall be such as will be necessary for the proper execution of the work within the specified working time. Power shovels, power cranes, compressors, tampers, power rollers, pavement breaking, material handling, and all other equipment used shall be maintained in good condition and shall be subject to approval of the City prior to and during its use in connection with the work to be performed under the Contract.

SC-40. STRIKES

The Contractor shall resolve all strikes or other labor troubles in a manner that permits timely completion of the Work, and no allowance will be made for delays due to labor disputes in the time limit provided for in the Contract.

SC-41. ABANDONMENT OR DELAY OF WORK

If the work under the Contract shall be abandoned by the Contractor, or if at any time the Director of Public Works shall be of the opinion, and shall so certify in writing to the City that the performance of the Contract is unnecessarily or unreasonably delayed, or that the Contractor is violating any of the provisions of the Contract or is executing the same in bad faith, or if the work is not fully completed within the time named for its completion, together with such extension of time as may have been granted, the City, by written notice, shall order the Contractor to discontinue all work thereunder, or any part thereof; and, thereupon, the Contractor shall discontinue the work, or such part thereof; and, the City shall have the power, by Contract, or otherwise, to complete said work and deduct the entire cost thereof from any monies due or to become due the Contractor under the Contract. For such completion of the work, the City may for itself or its Contractors, take possession of and use or cause to be used any or all materials, tools,

machinery, and appliances found on the line of said work. When any part of the Contract is being carried on by the City, as herein provided, the Contractor shall continue the remainder of the work in conformity with the terms of the Contract, and in such manner as not to interfere with the workers employed by the City.

SC-42. SCOPE OF PAYMENT

The payment of any current, semi-final, or final estimate or the acceptance of any part of the work as provided in the specifications shall in no way or in no degree affect the obligation of the Contractor to repair, correct, renew, or replace, at its own cost and expense, defects, or imperfections in the construction of the work under the Contract, and this payment shall in no way affect this responsibility for all damages due or attributable to such defects or imperfections which may be discovered before the final acceptance of the whole work, the City to be the judge of such defects or imperfections.

SC-43. EXTRA WORK

A. The Contractor shall perform extra work for which there is no provision included in the Contract, whenever, to complete fully the work as contemplated, it is deemed necessary or desirable, by written authority of the Director of Public Works, and such extra work shall be done in accordance with the specifications therefore, or in the best workmanlike manner as directed. This extra work will be paid for at a unit price or lump sum to be agreed upon previously in writing by the Contractor and the City, or where such a price or sum cannot be agreed upon by both parties, or where this method of payment is impracticable, the City shall order the Contractor to do such work on a "Force Account" basis, as hereinafter specified.

B. The City/Director of Public Works, before ordering any extra work done, from time to time shall determine (1) what extra time, if any, will be allowed for said extra work; or, (2) that the extra work is to be done concurrently with the work under the Contract and without allowance of any additional time.

C. Scope of extra work shall be subject to City's approval, and it shall be considered complete only upon City's acceptance.

SC-44. EXTRA WORK AS PART OF CONTRACT

No order for extra work, nor the doing of any extra work at any time or place shall in any manner relieve the Contractor or the Surety of its bond from any of their obligations under the Contract documents; all extra work orders being given and all extra work being done, under and in accordance with the Contract and to be considered a part of the same and subject to each and every one of the terms and requirements of the Contract documents, and fully covered by the bond furnished by the Contractor.

SC-45. FORCE ACCOUNT WORK

A. All work done on a "Force Account" basis will be paid for in the following manner:

1. For all labor and foremen in direct charge of the specific operation, the Contractor shall receive the rates of wage applicable to this Contract, to be agreed upon in writing before starting such work, for each and every hour that said laborers and foremen are actually engaged in such work, to which shall be added an amount equal to fifteen percent (15%) of the sum.

2. For all materials used, the Contractor shall receive the actual cost of such materials, including freight charges, as shown by original receipted bills, to which sum shall be added an amount equal to ten percent (10%) of the sum thereof.

3. For any machine-power tools or equipment, and for any hauling equipment, including fuel and lubricants, which it may be deemed necessary or desirable to use, the Director of Public Works shall allow Contractor reasonable rental price, to be agreed upon in writing before such work is begun, for each and every hour that said tools or equipment are in use on such work, and to which sum no percentage shall be added.

B. The compensation as herein provided shall be received by the Contractor as payment in full for work done on a "Force Account" basis, and shall include superintendence, use of tools and equipment for which no rental is allowed, and profit. The Contractor's representatives and the Director of Public Works shall compare records of work done on a "Force Account" basis at the end of each day. Copies of these records shall be made in duplicate, upon the Director of Public Works' "Force Account" forms provided for this purpose, by the Director of Public Works and signed by both the Director of Public Works and the Contractor's representatives, one copy being forwarded respectively to the Director of Public Works and the Contractor. All claims for work done on a "Force Account" basis shall be submitted to the Director of Public Works by the Contractor upon certified triplicate statements, which shall also include the value of all material used in such work; and, said statements shall be filed not later than the fifteenth (15th) day of the month following that in which the work was performed and shall include all labor charges, etc., and material charges insofar as they can be verified.

C. Should the Contractor refuse or fail to prosecute the work as directed or to submit its claim as required, then the City may withhold payment of all current estimates until the Contractor's refusal or failure is eliminated, or after giving the Contractor due notice, the City may make payment for said work on the basis of a reasonable estimate of the value of the work performed.

D. On work as defined in this Section, the Contractor will be reimbursed for its expenditures for Workers' Compensation Insurance, Public Liability Insurance, Social Security Taxes, and Unemployment Compensation, covering the persons actually engaged upon such work. No percentage will be added to such payments, but the Contractor shall be entitled to receive only the actual amount of money expended for such Workers' Compensation Insurance, Public Liability Insurance, Social Security Taxes, and Unemployment Compensation. Such payments shall be based upon the prevailing standard insurance rates supported by receipted vouchers from the insurance vendors and upon the actual amount of taxes paid for Social Security and Unemployment Compensation as evidenced by proper documents furnished by the Contractor.

SC-46. CURRENT ESTIMATES

A. The Director of Public Works will, except in the month following that during which the work under the Contract is completed, as soon as possible after the first (1st) day of the month, make in writing an estimate such as it shall believe to be just and fair, of the amount of work done under the Contract during the preceding calendar month. Such estimate shall not be required to be made by strict measurement, but may be approximate only and shall be subject to correction in later estimates. Current estimates shall not contain any allowance for materials delivered upon the site of the work, but not incorporated herein, and the Contractor shall not be entitled to receive any payment therefore.

B. Upon the City's approval of each current estimate, the City may pay to the Contractor ninety percent (90%) of the total amount of the estimate; provided, however, that the City may retain out of any such payment any or all sums which by the terms of the Contract, or of any law of the State of Maryland in force at the date of signing of the Contract, it is authorized to retain. Payments on current estimates may be at any time withheld if, in the judgment of the City, the Contractor is not complying with the terms of the Contract.

C. The City may release from the City's surety an amount commensurate with the approved payment to the Contractor, subject to retainage as determined by City.

SC-47. CONDITIONAL ACCEPTANCE AND SEMI-FINAL ESTIMATE

A. When the Director of Public Works shall deem that the Contractor shall have fully completed the work under the Contract, it shall make a written semi-final estimate of the whole amount of authorized work done by the Contractor and of the value thereof under the terms of the Contract, and shall certify to the City the completion of the work and the amount of the semi-final estimate. All current estimates are subject to correction in the semi-final estimate. The Director of Public Works' measurements upon which the semi-final estimate is based shall be deemed to be and shall be final and conclusive.

B. Upon approval of the semi-final estimate, the City will notify the Contractor, in writing, of the conditional acceptance of the work, and transmit to it a copy of the estimate. Out of the amount representing the total of the semi-final estimate, the City shall deduct five percent (5%) which shall be in addition to any and all other amounts which under the Contract it is entitled or required to retain, and shall hold said sum for a period of three (3) months from and after the date of payment of the semi-final estimate, as herein below stipulated. Such part as may be necessary, or all of said retained sum shall be applied to any expense to which the City may be subjected, during said period of three (3) months, in repairing any defects found in the work under the Contract which may be deemed to have been caused by failure of the Contractor to comply with the terms of the Contract, or to any breach of the Contract whatsoever on the part of the Contractor. The City shall be empowered to make any required repairs during said period, with such notice to the Contractor as the City may deem reasonable and feasible under the circumstances if the Contractor shall refuse or neglect to do said required work or make satisfactory progress thereon within such period as the Director of Public Works shall consider necessary or reasonable.

C. Within fifteen (15) days after the approval of the semi-final estimate, the City will pay to the Contractor the amount remaining after deducting from the total amount of the semi-final estimate all such sums as have therefore been paid to the Contractor under the provisions of the Contract and also such amounts as the City is authorized under the Contract to reserve or retain.

SC-48. FINAL INSPECTION, FINAL ESTIMATE, AND FINAL PAYMENT

Upon the expiration of the aforesaid period of three (3) months succeeding the payment of the semi-final estimate, paid as above stipulated, the City will make a final inspection of the work under the Contract. After the City is satisfied that all requirements of the Contract have been met, after all repairs have been made to any defective work which may have become evident during the abovementioned three (3) month period, and after the Guarantee or Maintenance Bond has been furnished, the City will pay (as the final payment) to the Contractor all sums reserved or retained, less such amounts as it is empowered under the provisions of the Contract permanently to retain.

SC-49. EVIDENCE OF PAYMENT

The Contractor shall furnish the City with satisfactory evidence, before or within ten (10) days after the final completion and acceptance of the whole work under the Contract, and the final payment has been made, that all persons, partnerships, and corporations who have done work or furnished materials under the Contract, or in or about the work Contracted for, and who have given written notice to the City of claims against the Contractor on account thereof, have been fully paid or secured. In the event such evidence is not furnished by the Contractor, such amount deemed necessary by the City to pay such claims shall be retained by the City out of any money due the Contractor under the Contract until such claims shall have been fully discharged or such notice withdrawn. The City may also, with the written consent of the Contractor, use any money retained, due or to become due under the Contract, for the purpose of paying for both labor and material for the work, for which claims have not been filed with the City.

SC-50. TERMINATION OF CITY'S LIABILITY

The acceptance by the Contractor of the final payment made as aforesaid, shall operate as and be a release to the City and every officer and agent thereof, from all claims by the liabilities to the Contractor for anything done or furnished for or relating to or affecting the work under the Contract.

SC-51. TELEPHONE NUMBERS

The Contractor shall provide to the City the names, addresses, and telephone numbers of the responsible personnel who may be contacted at all times in the event the Contractor's services may be required for any eventuality or conditions affecting this work.

SC-52. STANDARD SPECIFICATIONS

Whenever standard specifications are referred to, they shall be the latest edition of that specification, and they shall be considered to be a part of these specifications insofar as they apply.

Standard specifications referred to herein and the abbreviations by which they are referred to are as follows:

- AASHO - American Association of State Highway Officials
- ASTM - American Society for Testing and Materials
- AWWA - American Water Works Association
- MSHA - Maryland State Highway Administration
- ACI - American Concrete Institute
- AWA - American Welding Society SSPC - Steel Structures Painting Council
- ANSI - American National Standards Institute
- ASME - American Society of Mechanical Engineers
- FS - Federal Standard Stock Catalog
- CS - Commercial Standards, U.S. Department of Commerce, National Bureau of Standards
- MUTCD - Manual on Uniform Traffic Control Devices

SC-53. SAFETY

In order to protect the lives and health of its employees under the Contract, the Contractor shall comply with all occupational safety laws adopted by any governmental entity with jurisdiction and shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of, and in the course of, employment on work under the Contract. It will erect and maintain, as required by the conditions and progress of the work, all necessary safeguards, including the posting of danger signs and other warnings against hazards. All damage, injury, or loss referred to in the proceeding paragraphs caused directly or indirectly, in whole or in part, by the Contractor, or any subcontractor or anyone employed by them will be remedied by the Contractor. The Contractor alone shall be responsible for the safety, efficiency, and adequacy of its plant, appliances, and methods, and for any damage which may result from their failure or their improper construction, maintenance, or operation.

SC-54. BID PROPOSAL - QUANTITIES, ETC.

All construction items and quantities are contingent and included in the Contract for use when and as directed by the Engineer. The quantities for these items are established for the purpose of obtaining a bid price. The quantities for these items may be increased or decreased without any adjustment to the Contract unit price or the item(s) may be deleted entirely from the Contract by the Engineer without negotiation. The Contractor will not be allowed to submit a claim against the City of Westminster should the item(s) be increased, decreased, or eliminated.

In the event of approved over/under run in quantities and/or conditions, the Contractor shall be paid/reimbursed in accordance with unit prices in Bid Proposal. Quantities and amounts are as accurate as can be determined from available data and information. Contractor shall expect reasonable deviations from proposed quantities, which may be more or less, and total cost of Contract shall be so determined.

SECTION 034100

PRECAST STRUCTURAL CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Precast structural concrete with architectural finish.
- 2. This section includes two options of the base bid. The base bid is a smooth finish, Option 1 is a dyed and stamped concrete, and Option 2 is thin brick.

- B. Related Requirements:

- 1. Section 323200 "Soldier Pile Retaining Wall"

1.3 DEFINITIONS

- A. Design Reference Sample: Sample of approved precast structural concrete color, finish, and texture, preapproved by the City.

1.4 PRE-INSTALLATION MEETINGS

- A. Pre-installation Conference: The Contractor shall conduct a pre-installation conference at location to be determined by the City.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Design Mixtures: For each precast concrete mixture, the Contractor must include compressive strength and, if required, water-absorption tests.
- C. Shop Drawings:

The Contractor shall:

1. Include member locations, plans, elevations, dimensions, shapes and sections, openings, support conditions, and types of reinforcement, including special reinforcement.
2. Detail fabrication and installation of precast structural concrete units, including connections at member ends and to adjoining construction.
3. Indicate joints, reveals, drips, chamfers, and extent and location of each surface finish.
4. Indicate separate face and backup mixture locations and thicknesses.
5. Indicate type, size, and length of welded connections by AWS standard symbols.
6. Detail loose and cast-in hardware, lifting and erection inserts, connections, and joints.
7. Indicate locations, tolerances, and details of anchorage devices to be embedded in or attached to structure or other construction.
8. Weep holes to be cast into precast panels, and shall have a filter fabric on the earth side of the wall. Refer to drawings for more details.
9. Indicate location of each precast structural concrete unit by same identification mark placed on panel.
10. Indicate relationship of precast structural concrete units to adjacent materials.
11. Indicate locations, dimensions, and details of anchors and joint widths.
12. Indicate shim sizes and grouting sequence.
13. Submit design calculations and Shop Drawings. Do not adversely affect the appearance, durability, or strength of units when modifying details or materials and maintain the general design concept.
14. OPTION 2 - Indicate locations, dimensions, and details of thin-brick units, including corner units and special shapes, and joint treatment.

D. Samples:

1. For each type of finish indicated on exposed surfaces of precast structural concrete units with architectural finish, the Contractor shall provide samples, in sets of three, representative of finish, color, and texture variations expected; approximately 12 by 12 by 2 inches.
 - a. Where other faces of precast concrete unit are exposed, the Contractor shall include Samples illustrating workmanship, color, and texture of backup concrete as well as facing concrete.

E. Delegated-Design Submittal: Precast structural concrete must comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1. The Contractor must show precast structural concrete unit types, connections, types of reinforcement, including special reinforcement, and concrete cover on reinforcement. Indicate location, type, magnitude, and direction of loads imposed on the building structural frame from precast structural concrete.
2. The Contractor must submit Samples using one of the following options:

OPTION 1 – The Contractor shall submit samples for dyed concrete and formliner, showing full range of colors and textures.

OPTION 2 – The Contractor may submit samples for each thin-brick unit required, showing full range of color and texture expected. The Samples must show color and texture of joint treatment.

- a. Grout Samples for Initial Selection: Color charts consisting of actual sections of grout showing manufacturer's full range of colors.
- b. Grout Samples for Verification: Showing color and texture of joint treatment.

1.6 INFORMATIONAL SUBMITTALS

The Contractor shall submit the following:

- A. Qualification Data: For installer and fabricator.
- B. Welding certificates.
- C. Material Certificates: For the following:
 1. Cementitious materials.
 2. Reinforcing materials and pre-stressing tendons.
 3. Admixtures.
 4. Bearing pads.
- D. Material Test Reports: For aggregates, by a qualified testing agency.
- E. Preconstruction test reports.
- F. Source quality-control reports.
- G. Field quality-control reports.

1.7 QUALITY ASSURANCE

- A. Fabricator Qualifications: To qualify the fabricator must assume responsibility for engineering precast structural concrete units to comply with performance requirements. The Fabricator must include preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.
 1. The Fabricator must be designated as a PCI-certified plant as follows:
 - a. Group CA, Category C1A - Precast Concrete Products (no pre-stressed reinforcement).

- B. **Installer Qualifications:** The Contractor shall use the services of a precast concrete erector qualified and designated by PCI's Certificate of Compliance, to erect Category S1 - Simple Structural Systems.
- C. **Testing Agency Qualifications:** The Contractor shall use the services of a testing agency qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.
- D. **Quality-Control Standard:** For manufacturing procedures, testing requirements, and quality-control recommendations for types of units required, the Contractor shall comply with PCI MNL 116, "Manual for Quality Control for Plants and Production of Structural Precast Concrete Products."
- E. **Welding Qualifications:** The Contractor shall qualify procedures and personnel in accordance with the following:
 - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
 - 2. AWS D1.4/D1.4M, "Structural Welding Code - Reinforcing Steel."
- F. **Sample Panels:** After sample approval and before fabricating precast structural concrete units with architectural finish, the Contractor shall produce a minimum of two sample panels approximately 16 sq. ft. or larger in area for review by the City. Incorporate full-scale details of architectural features, finishes, textures, and transitions in sample panels.
 - 1. Locate panels where indicated or, if not indicated, as directed by the Engineer.
 - 2. Damage part of an exposed-face surface for each finish, color, and texture, and demonstrate adequacy of repair techniques proposed for repair of surface blemishes.
 - 3. After approval of repair technique, maintain one sample panel at fabricator's plant and one at Project site in an undisturbed condition as a standard for judging the completed Work.
 - 4. Demolish and remove sample panels when directed.
- G. **Mockups for OPTION 1 and OPTION 2:** After sample panel approval but before production of precast structural concrete units with architectural finish, the Contractor shall construct full-sized mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and to set quality standards for materials and execution.

The Contractor shall:

- 1. Build minimum 3'x3' mockup including precast structural concrete units with an architectural finish complete with anchors, connections, flashings, and joint fillers.
- 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Engineer specifically approves such deviations in writing.
- 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 COORDINATION

The Contractor shall furnish loose connection hardware and anchorage items to be embedded in or attached to other construction before starting that Work. Provide locations, setting diagrams, templates, instructions, and directions, as required, for installation.

1.9 DELIVERY, STORAGE, AND HANDLING

The Contractor shall:

- A. Support units during shipment on non-staining shock-absorbing material in same position as during storage.
- B. Store units with adequate bracing and protect units to prevent contact with soil, to prevent staining, and to prevent cracking, distortion, warping or other physical damage.
 - 1. Store units with dunnage across full width of each bearing point unless otherwise indicated.
 - 2. Place adequate dunnage of even thickness between each unit.
 - 3. Place stored units so identification marks are clearly visible, and units can be inspected.
- C. Handle and transport units in a manner that avoids excessive stresses that cause cracking or damage.
- D. Lift and support units only at designated points indicated on Shop Drawings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, the Contractor shall provide products by one of the following or other qualified manufacturer:
 - 1. Narrow Footprint Retaining Wall System by Durisol, or equal, made by qualified manufacturer in accordance with specifications.

2.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: The Contractor shall engage a qualified professional engineer licensed in the State of Maryland, to design precast structural concrete units.
- B. Design Standards: The Contractor shall comply with ACI 318 and with design recommendations in PCI MNL 120, "PCI Design Handbook - Precast and Pre-stressed Concrete," applicable to types of precast structural concrete units indicated.

- C. Structural Performance: Precast structural concrete units and connections shall withstand design loads indicated within limits and under conditions indicated.
- D. Structural Performance: The Contractor shall provide precast structural concrete units and connections capable of withstanding the following design loads within limits and under conditions indicated on the drawings, and loading as provided in geotechnical report.
 - 1. Design precast structural concrete framing system and connections to maintain clearances at openings, to allow for fabrication and construction tolerances, to accommodate live-load deflection, shrinkage and creep of soldier piles, and other movements. Maintain precast structural concrete deflections within limits of ACI 318.
 - a. Thermal Movements: Allow for in-plane thermal movements resulting from annual ambient temperature changes of minus 18 to plus 120 deg F.

2.3 MOLD MATERIALS

- A. Molds: Molds uses by the Contractor shall be constructed of rigid, dimensionally stable, non-absorptive material, warp and buckle free, that provides continuous precast concrete surfaces within fabrication tolerances indicated; nonreactive with concrete and suitable for producing required finishes.
 - 1. Mold-Release Agent: Molds shall be commercially produced form-release agent that does not bond with, stain, or adversely affect precast concrete surfaces and does not impair subsequent surface or joint treatments of precast concrete.
 - a. Basis-of-Design Product: Subject to compliance with requirements, the Contractor shall provide BASF Corporation; MasterFinish Series (Pre-2014: Cast Off and Rheofinish Series) or comparable product.
- B. Form Liners (Option 1): Units of face design, texture, arrangement, and brick shaped configuration from option will be selected by the City from manufacturer's standard form liners. The Contractor shall furnish a manufacturer's recommended form-release agent that does not bond with, stain, or adversely affect precast concrete surfaces and does not impair subsequent surface or joint treatments of precast concrete.
- C. Surface Retarder: The Contractor shall use a chemical set retarder, capable of temporarily delaying setting of newly placed concrete mixture to depth of reveal specified.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, the Contractor shall provide BASF Corporation; MasterFinish Series or comparable product.

2.4 REINFORCING MATERIALS

- A. Recycled steel shall not exceed post -consumer content of 50% or be no less than 25% pre-consumer content.
- B. Reinforcing Bars: ASTM A615/A615M, Grade 60, deformed.
- C. Low-Alloy-Steel Reinforcing Bars: ASTM A706/A706M, deformed.
- D. Epoxy-Coated Reinforcing Bars: ASTM A615/A615M, Grade 60, deformed bars, epoxy coated, with less than 2 percent damaged coating in each 12-inch bar length.
- E. Supports: Suspend reinforcement from back of mold or use bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place in accordance with PCI MNL 116.

2.5 CONCRETE MATERIALS

- A. Portland Cement: ASTM C150/C150M, Type I or Type III, gray, unless otherwise indicated.
 - 1. For surfaces exposed to view in finished structure, use gray or white cement, of same type, brand, and mill source.
- B. Supplementary Cementitious Materials:
 - 1. Fly Ash: ASTM C618, Class C or F, with maximum loss on ignition of three percent (3%).
 - 2. Metakaolin: ASTM C618, Class N.
 - 3. Silica Fume: ASTM C1240, with optional chemical and physical requirement.
 - 4. Slag Cement: ASTM C989, Grade 100 or 120.
- C. Normal-Weight Aggregates: Except as modified by PCI MNL 116, ASTM C33/C33M, with coarse aggregates complying with Class 5S. Stockpile fine and coarse aggregates for each type of exposed finish from a single source (pit or quarry) for Project.
 - 1. Face-Mixture-Coarse Aggregates: Selected, hard, and durable; free of material that reacts with cement or causes staining; to match selected finish sample.
 - a. Gradation: Uniformly graded.
 - 2. Face-Mixture-Fine Aggregates: Selected, natural or manufactured sand compatible with coarse aggregate to match approved finish sample.
- D. Lightweight Aggregates: Except as modified by PCI MNL 116, ASTM C330/C330M, with absorption less than eleven percent (11%).

- E. Water: Potable; free from deleterious material that may affect color stability, setting, or strength of concrete and complying with chemical limits of PCI MNL 116.
- F. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and to not contain intentionally-added chlorides.
 - 1. Air-Entraining Admixture: ASTM C260/C260M.
 - 2. Water-Reducing Admixtures: ASTM C494/C494M, Type A.
 - 3. Mid-Range Water-Reducing Admixture: ASTM C494/C494M, Type A.
 - 4. Retarding Admixture: ASTM C494/C494M, Type B.
 - 5. Accelerating Admixture: ASTM C494/C494M, Type C.
 - 6. Water-Reducing and Retarding Admixture: ASTM C494/C494M, Type D.
 - 7. Water-Reducing and Accelerating Admixture: ASTM C494/C494M, Type E.
 - 8. High-Range, Water-Reducing Admixture: ASTM C494/C494M, Type F.
 - 9. High-Range, Water-Reducing and Retarding Admixture: ASTM C494/C494M, Type G.
 - 10. Plasticizing Admixture: ASTM C1017/C1017M, Type I.
 - 11. Plasticizing and Retarding Admixture: ASTM C1017/C1017M, Type II.
 - 12. Workability-Retaining Admixture: ASTM C494/C494M, Type S shall retain concrete workability without affecting time of setting or early-age strength development.
 - 13. Strength-Enhancing Admixture: ASTM C494/C494M, Type S, liquid crystalline CSH nanoparticle admixture that increases both early- and late-age strength development without affecting concrete setting time.
 - 14. Permeability-Reducing Admixture:
 - a. Shall be a Portland cement-based crystalline capillary waterproofing admixture that reacts in concrete to form insoluble crystalline hydration products in the capillary pores of concrete.
 - b. Shall show a reduction in permeability of concrete compared to an identical concrete mixture without the admixture, when tested in accordance with CRD-C 48 at a pressure of 200 psi.
 - c. Shall reduce or have no penetration of water compared to an identical concrete mixture without the admixture, when tested in accordance with DIN 1048 for a duration of 96 hours.
 - d. Shall be certified to NSF/ANSI 61.
 - 15. Corrosion-Inhibiting Admixture: ASTM C1582/C1582M.
 - 16. Shrinkage-Reducing Admixture: ASTM C494/C494M, Type S.
 - 17. Alkali-Silica Reaction Inhibiting Admixture: ASTM C494/C494M, Type S. Shall contain a nominal lithium nitrate content of thirty percent (30%).
 - 18. Coloring Admixture: ASTM C979/C979M, synthetic or natural mineral-oxide pigments or colored water-reducing admixtures, temperature stable, and nonfading.

2.6 STEEL CONNECTION MATERIALS

Steel connection materials shall conform to the following standards:

- A. Carbon-Steel Shapes and Plates ASTM A36/A36M.
- B. Carbon-Steel-Headed Studs: ASTM A108, Grade 1010 through 1020, cold finished, AWS D1.1/D1.1M, Type A or B, with arc shields and with minimum mechanical properties of PCI MNL 116.
- C. Carbon-Steel Plate: ASTM A283/A283M, Grade C.
- D. Carbon-Steel Castings: ASTM A27/A27M, Grade 60-30.
- E. High-Strength, Low-Alloy Structural Steel: ASTM A572/A572M.
- F. Carbon-Steel Structural Tubing: ASTM A500/A500M, Grade B or Grade C.
- G. Deformed-Steel Wire or Bar Anchors: ASTM A1064/A1064M or ASTM A706/A706M.
- H. Carbon-Steel Bolts and Studs: ASTM A307, Grade A; carbon-steel, hex-head bolts and studs; carbon-steel nuts, ASTM A563; and flat, unhardened steel washers, ASTM F844.
- I. High-Strength Bolts, Nuts, and Washers: ASTM F3125/F3125M, Grade A325, Type 1, heavy-hex steel structural bolts; ASTM A563, Grade DH heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers.
 - 1. Finish: Hot-dip zinc coating.
- J. High-Strength Bolts, Nuts, and Washers: ASTM F3125/F3125M, Grade A490, Type 1, heavy-hex steel structural bolts; ASTM A563, Grade DH heavy-hex carbon-steel nuts; and ASTM F436/F436M, Type 1, hardened carbon-steel washers; all with plain finish.
- K. Zinc-Coated Finish: For exterior steel items, apply zinc coating by hot-dip process in accordance with ASTM A123/A123M or ASTM A153/A153M.
 - 1. For steel shapes, plates, and tubing to be galvanized, limit silicon content of steel to less than 0.03 percent or to between 0.15 and 0.25 percent or limit sum of silicon and 2.5 times phosphorous content to 0.09 percent.
 - 2. Galvanizing Repair Paint: High-zinc-dust-content paint with dry film containing not less than 94 percent zinc dust by weight, and complying with DOD-P-21035B or SSPC-Paint 20.
- L. Welding Electrodes: Comply with AWS standards.
- M. Precast Accessories: Provide clips, hangers, plastic or steel shims, and other accessories required to install precast structural concrete units.

2.7 ACCESSORIES

- A. Precast Accessories: The Contractor shall provide clips, hangers, high-density plastic or steel shims, and other accessories required to install structural precast concrete units.

2.8 GROUT MATERIALS

Grout materials shall conform to the following standards:

- A. Sand-Cement Grout: Portland cement, ASTM C150/C150M, Type I, and clean, natural sand, ASTM C144 or ASTM C404. Mix at ratio of 1 part cement to 2-1/2 to 3 parts sand, by volume, with minimum water required for placement and hydration. Water-soluble chloride ion content less than 0.06 percent by weight of cement when tested in accordance with ASTM C1218/C1218M.
- B. Nonmetallic, Non-shrink Grout: Packaged, nonmetallic, noncorrosive, non-staining grout containing selected silica sands, Portland cement, shrinkage-compensating agents, plasticizing and water-reducing agents, complying with ASTM C1107/C1107M, Grade A for dry pack and Grades B and C for flowable grout and of consistency suitable for application within a 30-minute working time. Water-soluble chloride ion content less than 0.06 percent by weight of cement when tested in accordance with ASTM C1218/C1218M.
- C. Nonmetallic, Non-shrink Grout for duct grouting applications of highly stressed steel: Packaged, nonmetallic, noncorrosive, non-staining grout containing selected silica sands, Portland cement, shrinkage-compensating agents, plasticizing and water-reducing agents, complying with the compressive strength and settlement shrinkage requirements of ASTM C1107/C1107M and of a consistency suitable for application. Water soluble chloride ion content less than 0.06 percent by weight of cement when tested in accordance with ASTM C1218/C1218M. Acid soluble chloride ion content less than 0.08 percent by weight of cement when tested in accordance with ASTM C1152/C1152M.
- D. Epoxy-Resin Grout: Two-component, mineral-filled epoxy resin; ASTM C881/C881M, of type, grade, and class to suit requirements.

2.9 CONCRETE MIXTURES

- A. The Contractor shall prepare design mixtures for each type of precast concrete required and shall:
 - 1. Use fly ash, pozzolan, slag cement, and silica fume/metakaolin as needed to reduce the total amount of Portland cement, which would otherwise be used, by not less than forty percent (40%).
 - 2. Limit use of fly ash to twenty percent (20%) replacement of Portland cement by weight and slag cement to fifty percent (50%) of Portland cement by weight; metakaolin and silica fume to ten percent (10%) of Portland cement by weight.

- B. The Contractor shall use design mixtures may be prepared by a qualified independent testing agency or by qualified precast plant personnel at precast structural concrete fabricator's option.
- C. The Contractor shall limit water-soluble chloride ions to maximum percentage by weight of cement permitted by ACI 318 or PCI MNL 116 when tested in accordance with ASTM C1218/C1218M.
- D. Normal-Weight Concrete Mixtures: The Contractor shall proportion face and backup mixtures or full-depth mixtures, at fabricator's option by either laboratory trial batch or field test data methods in accordance with ACI 211.1, with materials to be used on Project, to provide normal-weight concrete with the following properties:
 - 1. Compressive Strength (28 Days): 5000 psi.
 - 2. Maximum Water-Cementitious Materials Ratio: 0.45.
 - 3. Air entrained, with a total air of 5%-8%
- E. Water Absorption: For structural precast concrete with an architectural finish, the Contractor shall limit water absorption to six percent (6%) by weight or fourteen percent (14%) by volume, tested in accordance with ASTM C642, except for boiling requirement.
- F. The Contractor shall add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content complying with PCI MNL 116.
- G. When included in design mixtures, the Contractor shall add other admixtures to concrete mixtures in accordance with manufacturer's written instructions.
- H. Concrete Mix Adjustments: Concrete mix design adjustments may be proposed if characteristics of materials, Project conditions, weather, test results, or other circumstances warrant.

2.10 MOLD FABRICATION

- A. Molds: The Contractor shall accurately construct molds, mortar tight, of sufficient strength to withstand pressures due to concrete-placement operations and temperature changes and for pre-stressing and de-tensioning operations. It shall coat contact surfaces of molds with release agent before reinforcement is placed. It shall void contamination of reinforcement and pre-stressing tendons by release agent.
 - 1. The Contractor shall place form liners accurately to provide finished surface texture indicated. Provide solid backing and supports to maintain stability of liners during concrete placement. Coat form liner with form-release agent.
- B. The Contractor shall maintain molds to provide completed precast structural concrete units of shapes, lines, and dimensions indicated, within fabrication tolerances specified.

1. The Contractor shall form joints are not permitted on faces of structural precast concrete with an architectural finish that is exposed to view in the finished work.
2. Edges and corners shall be uniformly chamfered.

2.11 FABRICATION

- A. Cast-in Anchors, Inserts, Plates, Angles, and Other Anchorage Hardware: The Contractor shall fabricate anchorage hardware with sufficient anchorage and embedment to comply with design requirements. The Contractor shall accurately position for attachment of loose hardware, and secure in place during pre-casting operations. It shall locate anchorage hardware where it does not affect position of main reinforcement or concrete placement.
 1. Weld-headed studs and deformed bar anchors used for anchorage shall comply with AWS D1.1/D1.1M and AWS C5.4, "Recommended Practices for Stud Welding."
- B. The Contractor shall furnish loose hardware items including steel plates, clip angles, seat angles, anchors, dowels, cramps, hangers, and other hardware shapes for securing precast structural concrete units to supporting and adjacent construction.
- C. The Contractor shall cast-in reglets, slots, holes, and other accessories in precast structural concrete units as indicated on the Contract Drawings.
- D. The Contractor shall cast-in openings larger than ten (10) inches in any dimension. The Contractor shall not drill or cut openings or pre-stressing strand without Engineer's approval.
- E. Reinforcement: The Contractor shall comply with recommendations in PCI MNL 116 for fabricating, placing, and supporting reinforcement. The Contractor shall:
 1. Clean reinforcement of loose rust and mill scale, earth, and other materials that reduce or destroy the bond with concrete. When damage to epoxy-coated reinforcement exceeds limits specified in ASTM A775/A775M, repair with patching material compatible with coating material and epoxy coat bar ends after cutting.
 2. Accurately position, support, and secure reinforcement against displacement during concrete-placement and consolidation operations. Completely conceal support devices to prevent exposure on finished surfaces.
 3. Place reinforcing steel and pre-stressing strand to maintain at least 1-1/2 inches minimum concrete cover. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position while placing concrete. Direct wire tie ends away from finished, exposed concrete surfaces.
 4. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one full mesh spacing and wire tie laps, where required by design. Offset laps of adjoining widths to prevent continuous laps in either direction.

- F. The Contractor shall reinforce precast structural concrete units to resist handling, transportation, and erection stresses and specified in-place loads.
- G. The Contractor shall comply with requirements in PCI MNL 116 and in this Section for measuring, mixing, transporting, and placing concrete. After concrete batching, no additional water may be added.
- H. The Contractor shall place face mixture to a minimum thickness after consolidation of the greater of 1 inch or 1.5 times the maximum aggregate size, but not less than the minimum reinforcing cover specified.
- I. The Contractor shall place concrete in a continuous operation to prevent cold joints or planes of weakness from forming in precast concrete units.
 - 1. The Contractor shall Place backup concrete mixture to ensure bond with face-mixture concrete.
- J. The Contractor shall thoroughly consolidate placed concrete by vibration without dislocating or damaging reinforcement and built-in items, and minimize pour lines, honeycombing, or entrapped air voids on surfaces. It shall use equipment and procedures complying with PCI MNL 116.
 - 1. The Contractor shall place self-consolidating concrete without vibration in accordance with PCI TR-6, "Interim Guidelines for the Use of Self-Consolidating Concrete in Precast/Pre-stressed Concrete Institute Member Plants." It shall ensure adequate bond between face and backup concrete, if used.
- K. The Contractor shall comply with PCI MNL 116 procedures for hot- and cold-weather concrete placement.
- L. The Contractor shall identify pickup points of precast structural concrete units and orientation in structure with permanent markings, complying with markings indicated on Shop Drawings. It shall imprint or permanently mark casting date on each precast structural concrete unit on a surface that does not show in finished structure.
- M. The Contractor shall cure concrete, in accordance with requirements in PCI MNL 116, by moisture retention without heat or by accelerated heat curing using live steam or radiant heat and moisture. It shall cure units until compressive strength is high enough to ensure that stripping does not have an effect on performance or appearance of final product.
- N. The Contractor shall discard and replace precast structural concrete units that do not comply with requirements, including structural, manufacturing tolerance, and appearance, unless repairs meet requirements in PCI MNL 116 and meet Engineer's approval.

2.12 FABRICATION TOLERANCES

- A. The Contractor shall fabricate precast structural concrete units to shapes, lines, and dimensions indicated so each finished unit complies with PCI MNL 116 product dimension tolerances as well as position tolerances for cast-in items.

2.13 COMMERCIAL FINISHES

- A. Grade B Finish: The Contractor shall fill air pockets and holes larger than 1/4 inch in diameter with sand-cement paste matching color of adjacent surfaces. The Contractor shall fill air holes greater than 1/8 inch in width that occur more than once per two (2) sq. in. It shall grind smooth form offsets or fins larger than 1/8 inch. It shall repair surface blemishes due to holes or dents in molds. Discoloration at form joints is permitted.
- B. The Contractor shall screed or float finish unformed surfaces. It shall strike off and consolidate concrete with vibrating screeds to a uniform finish. It shall hand screed at projections. Normal color variations, minor indentations, minor chips, and spalls are permitted. Major imperfections, honeycombing, or defects are not permitted.
- C. The Contractor shall smooth, steel trowel finish unformed surfaces. It shall consolidate concrete, bring to proper level with straightedge, float, and trowel to a smooth, uniform finish.

2.14 COMMERCIAL ARCHITECTURAL FINISHES

- A. The Contractor shall manufacture member faces free of joint marks, grain, and other obvious defects with corners, including false joints, uniform and straight. It shall Finish exposed-face surfaces of precast concrete units follows:
 - 1. Design Reference Sample: For dyed concrete (Option 1) with the manufacturer's standard brick or stone liner form liner, provide options to Owner for final selection. Bid to be based on a "brick red" color.
 - 2. Design Reference Sample: For thin brick (Option 2) with the manufacturer's standard brick or stone liner form liner, provide options to Owner for final selection.

2.15 THIN BRICK AND ACCESSORIES (OPTION 2)

- A. Thin brick shall be of a thickness not less than 1/2 inch or more than 1 inch thick, and as follows:
 - 1. Dimensional Tolerances: Plus 0 or minus 1/16 inch for any dimension 8 inches or less and plus 0 or minus 3/32 inch for any dimension more than 8 inches.
 - 2. Out-of-Square Tolerance: Plus or minus 1/16 inch.
 - 3. Warpage Tolerance: Plus 0 or minus 1/16 inch.

4. Variation of Shape from Specified Angle: Plus or minus one degree.
5. Modulus of Rupture: Not less than 250 psi when tested in accordance with ASTM C67.
6. Tensile Bond Strength: Not less than 150 psi when tested before and after freeze-thaw test in accordance with ASTM E488 as modified. Adhere a steel plate with a welded rod on a single thin-brick face with epoxy for each test.
7. 24-Hour Cold-Water Absorption: Not more than six percent (6%) when tested in accordance with ASTM C67.
8. Freeze-Thaw Resistance: No detectable disintegration or separation after 300 freezing-and-thawing cycles when tested in accordance with ASTM C666/C666M, Method B.
9. Chemical Resistance: Tested in accordance with ASTM C650 and rated "not affected."
10. Efflorescence: Tested in accordance with ASTM C67 and rated "not effloresced."
11. Surface Coating: Thin brick with colors or textures applied as coatings shall withstand 50 cycles of freezing and thawing; ASTM C67 with no observable difference in applied finish when viewed from ten (10) feet.
12. Back Surface Texture: Scored, combed, wire roughened, ribbed, keybacked, or dovetailed.

B. Special shapes shall include corners, edge corners, and end edge corners.

C. Face Size shall be 2-1/4 inches high by 7-5/8 inches long.

D. Thin brick shall match the existing brick at the site.

E. Sand-Cement Mortar shall be Portland cement, ASTM C150/C150M, Type I, and clean, natural sand, ASTM C144. Mix at ratio of one (1) part cement to four (4) parts sand, by volume, with minimum water required for placement.

F. Pointing Grout shall be packaged, polymer-modified, sanded grout complying with ANSI A118.7.

1. Colors: The pointing grout for thin brick shall match the repointing grout used in the existing masonry repair.

2.16 SOURCE QUALITY CONTROL

A. Testing: Test and inspect precast structural concrete shall be in accordance with PCI MNL 116 requirements and ASTM C1610/C1610M, ASTM C1611/C1611M, ASTM C1621/C1621M, and ASTM C1712.

1. The Contractor shall test and inspect self-consolidating concrete in accordance with PCI TR-6.

B. Strength of precast structural concrete units is considered deficient if units fail to comply with ACI 318 requirements for concrete strength.

- C. If there is evidence that strength of precast concrete units may be deficient or may not comply with ACI 318 requirements, the Contractor shall employ a qualified testing agency to obtain, prepare, and test cores drilled from hardened concrete to determine compressive strength in accordance with ASTM C42/C42M.
1. A minimum of three representative cores shall be taken from units of suspect strength, from locations directed by the engineer.
 2. The Contractor shall test cores in an air-dry condition or, if units are wet under service conditions, shall test cores after immersion in water in a wet condition.
 3. Strength of concrete for each series of three cores is considered satisfactory if average compressive strength is equal to at least eighty-five percent (85%) of 28-day design compressive strength and no single core is less than seventy-five percent (75%) of 28-day design compressive strength.
 4. The Contractor shall report test results in writing on same day that tests are performed, with copies to Engineer, Contractor, and precast concrete fabricator. Test reports include the following:
 - a. Project identification name and number.
 - b. Date when tests were performed.
 - c. Name of precast concrete fabricator.
 - d. Name of concrete testing agency.
 - e. Identification letter, name, and type of precast concrete unit(s) represented by core tests; design compressive strength; type of failure; compressive strength at failure, corrected for length-diameter ratio; and direction of applied load to core in relation to horizontal plane of concrete as placed.
- D. Patching: If core test results are satisfactory and precast structural concrete units comply with requirements, the Contractor shall clean and dampen core holes and solidly fill with same precast concrete mixture that has no coarse aggregate, and finish to match adjacent precast concrete surfaces.
- E. Defective Units: The Contractor shall discard and replace precast structural concrete units that do not comply with requirements, including strength, manufacturing tolerances, and color and texture range. Chipped, spalled, or cracked units may be repaired, subject to Engineer's approval. Engineer reserves the right to reject precast units that do not match approved samples, sample panels, and mockups. The Contractor shall replace unacceptable units with precast concrete units that comply with requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. The Contractor shall examine supporting structural frame or foundation and conditions for compliance with requirements for installation tolerances, bearing surface tolerances, and other conditions affecting performance of the Work.

- B. The Contractor shall proceed with installation only after unsatisfactory conditions have been corrected.
- C. The Contractor shall not install precast concrete units until supporting, cast-in-place concrete has attained minimum allowable design compressive strength and until supporting steel or other structure is structurally ready to receive loads from precast concrete units.

3.2 INSTALLATION

- A. The Contractor shall install clips, hangers, bearing pads, and other accessories required for connecting precast structural concrete units to supporting members and backup materials.
- B. The Contractor shall erect precast structural concrete level, plumb, and square within specified allowable tolerances. It shall provide temporary structural framing, shoring, and bracing as required to maintain position, stability, and alignment of units until permanent connections are complete. The Contractor shall:
 - 1. Install temporary steel or plastic spacing shims or bearing pads as precast structural concrete units are being erected. Tack weld steel shims to each other to prevent shims from separating.
 - 2. Maintain horizontal and vertical joint alignment and uniform joint width as erection progresses.
 - 3. Remove projecting lifting devices and use plastic patch caps or sand-cement grout to fill voids within recessed lifting devices flush with surface of adjacent precast surfaces when recess is exposed.
- C. The Contractor shall connect precast structural concrete units in position by bolting, welding, grouting, or as otherwise indicated on Shop Drawings. It shall remove temporary shims, wedges, and spacers as soon as practical after connecting and grouting are completed.
- D. Field cutting of precast units is not permitted without approval of Engineer.
- E. Fasteners: The Contractor shall not use drilled or powder-actuated fasteners for attaching accessory items to precast, pre-stressed concrete units.
- F. Welding: The Contractor shall comply with applicable requirements in AWS D1.1/D1.1M and AWS D1.4/D1.4M for welding, welding electrodes, appearance, quality of welds, and methods used in correcting welding work. The Contractor shall:
 - 1. Protect precast structural concrete units and bearing pads from damage by field welding or cutting operations, and provide noncombustible shields as required.
 - 2. Clean weld-affected steel surfaces with chipping hammer followed by brushing, and apply a minimum 4.0-mil- thick coat of galvanized repair paint to galvanized surfaces in accordance with ASTM A780/A780M.

3. Clean weld-affected steel surfaces with chipping hammer followed by brushing, and re-prime damaged painted surfaces.
 4. Visually inspect welds and remove, re-weld, or repair incomplete and defective welds.
- G. At bolted connections, the Contractor shall use lock washers, tack welding, or other approved means to prevent loosening of nuts after final adjustment. The Contractor shall:
1. Where slotted connections are used, verify bolt position and tightness. For sliding connections, properly secure bolt but allow bolt to move within connection slot.
 2. For slip-critical connections, use one of the following methods to assure proper bolt pretension:
 - a. Turn-of-Nut: In accordance with RCSC's "Specification for Structural Joints Using ASTM A325 or A 490 Bolts."
 - b. Calibrated Wrench: In accordance with RCSC's "Specification for Structural Joints Using ASTM A325 or A 490 Bolts."
 - c. Twist-off Tension Control Bolt: ASTM F1852.
 - d. Direct-Tension Control Bolt: ASTM F1852.
 3. For slip-critical connections, use method and inspection procedure approved by Engineer and coordinated with inspection agency.
- H. Grouting or Dry-Packing Connections and Joints: The Contractor shall Grout connections and joints and open spaces at keyways, connections, and joints where required or indicated on Shop Drawings. It shall retain flowable grout in place until hard enough to support itself. Alternatively, it shall pack spaces with stiff dry-pack grout material, tamping until voids are completely filled. The Contractor shall:
1. Place grout and finish smooth, level, and plumb with adjacent concrete surfaces.
 2. Fill joints completely without seepage to other surfaces.
 3. Trowel top of grout joints on roofs smooth and uniform. Finish transitions between different surface levels not steeper than one (1) to twelve (12).
 4. Place grout end cap or dam in voids at ends of hollow-core slabs.
 5. Promptly remove grout material from exposed surfaces before it affects finishes or hardens.
 6. Keep grouted joints damp for not less than twenty-four (24) hours after initial set.

3.3 ERECTION TOLERANCES

- A. The Contractor shall erect precast structural concrete units level, plumb, square, and in alignment without exceeding the noncumulative erection tolerances of PCI MNL 135.
- B. The Contractor shall minimize variations between adjacent slab members by jacking, loading, or other method recommended by fabricator and approved by Engineer.

3.4 FIELD QUALITY CONTROL

- A. Special Inspections: The City will engage a qualified special inspector to perform periodic special inspections of precast structural concrete members.
- B. The City will provide a qualified testing agency to perform tests and inspections.
- C. The Contractor's Inspector will visually inspect field welds and test in accordance with ASTM E165 or to ASTM E709 and ASTM E1444. High-strength bolted connections are subject to inspections.
- D. The Contractor's Inspector will report test results promptly and in writing to Contractor and Engineer.
- E. The Contractor shall repair or remove and replace work where tests and inspections indicate that it does not comply with specified requirements.
- F. The Contractor shall prepare test and inspection reports.

3.5 REPAIRS

- A. The Contractor shall repair precast structural concrete units if permitted by Engineer. Repairs may be permitted if structural adequacy, serviceability, durability, and appearance of units have not been impaired.
- B. The Contractor shall mix patching materials and repair units so cured patches blend with color, texture, and uniformity of adjacent exposed surfaces and show no apparent line of demarcation between original and repaired work, when viewed in typical daylight illumination from a distance of ten (10) feet.
- C. The Contractor shall prepare and repair damaged galvanized coatings with galvanizing repair paint in accordance with ASTM A780/A780M.
- D. The Contractor shall wire brush, clean, and paint damaged prime-painted components with same type of shop primer.
- E. The Contractor shall remove and replace damaged precast structural concrete units that cannot be repaired or when repairs do not comply with requirements as determined by Engineer.

3.6 CLEANING

- A. The Contractor shall clean mortar, plaster, fireproofing, weld slag, and other deleterious material from concrete surfaces and adjacent materials immediately.
- B. The Contractor shall clean exposed surfaces of precast concrete units after erection and completion of joint treatment to remove weld marks, other markings, dirt, and stains.

1. The Contractor shall perform cleaning procedures, if necessary, in accordance with precast concrete fabricator's written recommendations. Protect other work from staining or damage due to cleaning operations.
2. The Contractor shall not use cleaning materials or processes that could change the appearance of exposed concrete finishes or damage adjacent materials.

PART 4 – COMPENSATION

4.1 MEASUREMENT

- A. Precast Retaining Wall Panels (base bid and options 1 and 2) shall be measured on a square foot basis.

4.2 PAYMENT

- A. Payment for “Precast Retaining Wall Panels, materials” shall be made on a per square foot basis on Item 3 on the Schedule of Values. This shall include the engineering, materials and delivery of the precast panels. It will also include repairs to the precast panels. This bid is for plain, smooth finished concrete.
- B. Payment for “Option 1 - Dyed concrete with formliner” Option 1 shall be made on a per square foot basis on item 3A on the Schedule of Values. It shall replace item 3 and include all items covered under item 3 and the cost for the stamped concrete with a dye added to the mixture, and shall include the mock-up.
- C. Payment for “Option 2 – Thin Brick” shall be for the thin brick on the exposed face of the concrete panels. This shall be an add as item No. 3B on the Schedule of Values. It shall replace item 3 and include all items covered under item 3 and the cost for the addition of “Thin Brick” and shall be included in the mock-up.
- D. These items shall include all submittals, materials, as required in this section.

END OF SECTION

SECTION 042000

UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Building (common) brick.
2. Mortar and grout.
3. Ties and anchors.

B. Related Requirements:

1. Section 049000 "Repair of Brick Masonry" for existing wall repair and cleaning.
2. Section 323200 "Soldier Pile Retaining Wall" for new wall.

1.2 ACTION SUBMITTALS

- A. The Contractor shall provide Product Data for each type of product.

1.3 INFORMATIONAL SUBMITTALS

- A. The Contractor shall provide Qualification Data for the testing agency.

- B. The Contractor shall provide Material Certificates for each type and size of the following:

1. Masonry units.
 - a. Include data on material properties.
 - b. For brick, include size-variation data verifying that actual range of sizes falls within specified tolerances.
2. Cementitious materials. Include name of manufacturer, brand name, and type.
3. Mortar admixtures.
4. Pre-blended, dry mortar mixes. Include description of type and proportions of ingredients.
5. Joint reinforcement.
6. Anchors, ties, and metal accessories.

- C. The Contractor shall provide Mix Designs for each type of mortar. It shall include description of type and proportions of ingredients.
 - 1. The Contractor shall include test reports for mortar mixes required to comply with property specification. Test in accordance with ASTM C109/C109M for compressive strength, ASTM C1506 for water retention, and ASTM C91/C91M for air content.
- D. The Contractor shall provide a detailed description of methods, materials, and equipment to be used for cold and hot weather applications to comply with requirements.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. The Contractor shall store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, the Contractor shall not install until they are dry.
- B. The Contractor shall store cementitious materials on elevated platforms, under cover, and in a dry location. The Contractor shall not use cementitious materials that have become damp.
- C. The Contractor shall deliver pre-blended, dry mortar mix in moisture-resistant containers. It shall store pre-blended, dry mortar mix in delivery containers on elevated platforms in a dry location or in covered weatherproof dispensing silos.
- D. The Contractor shall store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.5 FIELD CONDITIONS

- A. Protection of Masonry: During construction, the Contractor shall cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. It shall cover partially completed masonry when construction is not in progress.
 - 1. The Contractor shall extend cover a minimum of twenty-four (24) inches down both sides of walls and hold cover securely in place.
- B. The Contractor shall not place aggregate against wall for three days after completing brick cap.

- C. Cold-Weather Requirements: The Contractor shall not use frozen materials or materials mixed or coated with ice or frost. It shall not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. It shall comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.
 - 1. Cold-Weather Cleaning: The Contractor shall use liquid cleaning methods only when air temperature is forty degrees Fahrenheit (40°F) and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.
- D. Hot-Weather Requirements: The Contractor shall comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations for Masonry Units: The Contractor shall obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.
- B. Source Limitations for Mortar Materials: The Contractor shall obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

2.2 UNIT MASONRY, GENERAL

- A. Masonry Standard: The Contractor shall comply with TMS 602/ACI 530.1/ASCE 6, except as modified by requirements in the Contract Documents.
- B. Defective Units: The Contractor shall referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. It shall not use units where such defects are exposed in the completed Work.

2.3 BRICK

- A. General: The Contractor shall provide shapes indicated and as follows, with exposed surfaces matching finish and color of exposed faces of adjacent units:

1. For ends of sills and caps and for similar applications that would otherwise expose unfinished brick surfaces, provide units without cores or frogs and with exposed surfaces finished.
2. Provide special shapes for applications where stretcher units cannot accommodate special conditions, including those at corners.
3. Provide special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.

B. Building (Common) Brick: ASTM C62, Grade SW.

1. Unit Compressive Strength: The Contractor shall provide units with minimum average net-area compressive strength of 3350 psi
2. Size: The Contractor shall match size of existing brick.
3. Application: The Contractor shall use Building Brick where brick is indicated for concealed locations.

2.4 MORTAR AND GROUT MATERIALS

A. Portland cement shall be ASTM C150/C150M, Type I or II, except Type III may be used for cold-weather construction. The Contractor shall provide natural color or white cement as required to produce mortar color indicated.

1. Alkali content shall not be more than 0.1 percent when tested in accordance with ASTM C114.

B. Hydrated Lime shall be ASTM C207, Type S.

C. Portland Cement-Lime Mix: Packaged blend of Portland cement and hydrated lime containing no other ingredients.

D. Mortar Cement shall be ASTM C1329/C1329M.

E. Aggregate for Mortar shall be ASTM C144. The Contractor shall use:

1. For mortar that is exposed to view, washed aggregate consisting of natural sand or crushed stone.
2. For joints less than 1/4 inch thick, aggregate graded with 100 percent passing the No. 16 sieve.
3. White-Mortar Aggregates: Natural white sand or crushed white stone.
4. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.

- F. Cold-Weather Admixture shall be Non-chloride, noncorrosive, accelerating admixture complying with ASTM C494/C494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.
- G. Water shall be Potable.

2.5 REINFORCEMENT

- A. Masonry-Joint Reinforcement, General shall comply with ASTM A951/A951M, and as follow:
 - 1. Exterior Walls: Hot-dip galvanized carbon steel.
 - 2. Wire Size for Side Rods: 0.148-inch diameter.
 - 3. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than sixteen (16) inches o.c.
 - 4. Provide in lengths of not less than ten (10) feet.
- B. Masonry-Joint Reinforcement for Multiwythe Masonry shall be adjustable (two-piece) type, either ladder or truss design, with one side rod at each face shell of backing wythe and with separate adjustable ties with pintle-and-eye connections having a maximum horizontal play of 1/16 inch and maximum vertical adjustment of 1-1/4 inches. The Contractor shall size ties to extend at least halfway through facing wythe but with at least 5/8-inch cover on outside face.

2.6 MISCELLANEOUS MASONRY ACCESSORIES

2.7 MASONRY CLEANERS

- A. Proprietary Acidic Cleaner shall be manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. The Contractor shall use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

2.8 MORTAR AND GROUT MIXES

- A. General: The Contractor shall not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.

1. The Contractor shall not use calcium chloride in mortar or grout.
 2. For exterior masonry, the Contractor shall use Type N mortar.
- B. Pre-blended, Dry Mortar Mix: The Contractor shall furnish dry mortar ingredients in form of a pre-blended mix. It shall measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. The Contractor shall examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work. The Contractor shall:
1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
 2. Verify that substrates are free of substances that impair mortar bond.
- B. The Contractor shall proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Thickness: The Contractor shall build cavity and composite walls and other masonry construction to full thickness shown.
- B. The Contractor shall use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, it shall cut units with motor-driven saws; provide clean, sharp, unchipped edges. It shall allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- C. Matching Existing Masonry: The Contractor shall match coursing, bonding, color, and texture of existing masonry.
- D. Wetting of Brick: The Contractor shall wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. per minute when tested in accordance with ASTM C67. It shall allow units to absorb water so they are damp but not wet at time of laying.

3.3 TOLERANCES

A. Dimensions and Locations of Elements:

1. Dimensions in cross section or elevation, shall not vary by more than plus 1/2 inch or minus 1/4 inch.
2. The location of elements shown in plan shall not vary from that indicated by more than plus or minus 1/2 inch.
3. The location of elements shown in elevation shall not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2 inch total.

B. Lines and Levels:

1. Bed joints and top surfaces of bearing walls shall not vary from level by more than 1/4 inch in ten (10) feet, or 1/2-inch maximum.
2. Vertical lines and surfaces shall not vary from plumb by more than 1/4 inch in ten (10) feet, 3/8 inch in twenty (20) feet, or 1/2-inch maximum.

C. Joints:

1. Bed joints shall not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch.

3.4 LAYING MASONRY WALLS

A. The Contractor shall lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. It shall avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. The Contractor shall lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 4 inches. It shall bond and interlock each course of each wythe at corners. It shall not use units with less-than-nominal 4-inch horizontal face dimensions at corners or jambs.

C. The Contractor shall stop work by stepping back units in each course from those in course below; it shall not tooth. When resuming work, the Contractor shall clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.

3.5 MORTAR BEDDING AND JOINTING

- A. The Contractor shall lay solid masonry units with completely filled bed and head joints; it shall butter ends with sufficient mortar to fill head joints and shove into place. It shall not deeply furrow bed joints or slush head joints.
- B. The Contractor shall tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

3.6 MASONRY-JOINT REINFORCEMENT

- A. General: The Contractor shall install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of six (6) inches. It shall:
 - 1. Space reinforcement not more than sixteen (16) inches o.c.
 - 2. Space reinforcement not more than eight (8) inches o.c. in foundation walls and parapet walls.
- B. The Contractor shall interrupt joint reinforcement at control and expansion joints unless otherwise indicated.
- C. The Contractor shall cut and bend reinforcing units as directed by manufacturer for continuity at corners, returns, offsets, and other special conditions.

3.7 FIELD QUALITY CONTROL

- A. Testing and Inspecting: The City will engage special inspectors to perform tests and inspections and prepare reports. The Contractor shall allow inspectors access to scaffolding and work areas as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.
- C. Inspections: Special inspections shall be made in accordance with Level B in TMS 402/ACI 530/ASCE 5. The Contractor shall begin masonry construction only after inspectors have verified proportions of site-prepared mortar.

3.8 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. The Contractor shall install new units to

match adjoining units and shall install the units in fresh mortar, pointed to eliminate evidence of replacement.

- B. Pointing: During the tooling of joints, the Contractor shall enlarge voids and holes, except weep holes, and completely fill with mortar. It shall point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. It shall prepare joints for sealant application, where indicated.
- C. In-Progress Cleaning: The Contractor shall clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, the Contractor shall clean exposed masonry as follows:
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 - 2. Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
 - 3. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
 - 4. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
 - 5. Clean masonry with a proprietary acidic cleaner applied in accordance with manufacturer's written instructions.

3.9 MASONRY WASTE DISPOSAL

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.
- B. Excess Masonry Waste: Remove excess clean masonry waste and legally dispose of off Owner's property.

PART 4 - COMPENSATION

4.1 MEASUREMENT

- A. Brick Cap at the new retaining wall shall be measured as a lump sum and included as part of Item No. 6 in the Schedule of Values.

4.2 PAYMENT

- A. Payment for “Brick Cap” shall be made as part of Item No. 6 on the Schedule of Values. See section 323200, 4.2 D for full description of all work included in Item No. 6.

END OF SECTION

SECTION 049000

REPAIR OF BRICK MASONRY

PART 4 - GENERAL

4.1 SCOPE

- A. Section includes maintenance of brick unit masonry and cleaning as follows:
 1. Repairing unit masonry, including replacing units.
 2. Repointing joints.
 3. Preliminary cleaning, including removing plant growth.
 4. Cleaning exposed unit masonry surfaces.

4.2 DEFINITIONS

- A. Very Low-Pressure Spray: Under 100 psi.
- B. Low-Pressure Spray: 100 to 400 psi 4 to 6 gpm.
- C. Medium-Pressure Spray: 400 to 800 psi; 4 to 6 gpm.
- D. High-Pressure Spray: 800 to 1200 psi; 4 to 6 gpm.
- E. Saturation Coefficient: Ratio of the weight of water absorbed during immersion in cold water to weight absorbed during immersion in boiling water; used as an indication of resistance of masonry units to freezing and thawing.

4.3 REFERENCE STANDARDS

- A. All work shall conform to the guidelines set forth by these code references unless directed otherwise by the engineer.

4.4 SUBMITTALS

- A. General: The Contractor shall submit the following.
 1. Product Data: For each type of product indicated. Include recommendations for application and use. Include test data substantiating that products comply with requirements.
 2. Samples of the following for verification:
 - a. Each type of masonry unit to be used for replacing existing units. Include sets of Samples as necessary to show the full range of shape, color, and texture to be expected.
 - b. For each masonry type, provide straps or panels containing at least four bricks. Include multiple straps for brick with a wide range.

3. Each type, color, and texture of pointing mortar in the form of sample mortar strips, six (6) inches long by 1/2 inch wide, set in aluminum or plastic channels.

Include with each Sample a list of ingredients with proportions of each. Identify sources, both supplier and quarry, of each type of sand and brand names of cementitious materials and pigments if any.

4. Each type of masonry patching compound in the form of briquettes, at least three (3) inches long by 1-1/2 inches wide. Document each Sample with manufacturer and stock number or other information necessary to order additional material.

5. Each type of anchor, accessory, and miscellaneous support.

- D. The Contractor shall submit a description of its method of cleaning, repointing, and replacing brick. The method shall include schedule, sequencing, materials, and description of work.

4.5 QUALITY ASSURANCE

- A. Chemical-Cleaner Manufacturer Qualifications: A firm regularly engaged in producing masonry cleaners that have been used for similar applications with successful results, and with factory-trained representatives who are available for consultation and Project-site inspection and assistance at no additional cost.
- B. Source Limitations: The Contractor shall obtain each type of material for masonry restoration (face brick, cement, sand, etc.) from one source with resources to provide materials of consistent quality in appearance and physical properties.
- C. Cleaning and Repair Appearance Standard: Cleaned and repaired surfaces are to have a uniform appearance as viewed from ten (10) feet away by Engineer. The Contractor shall perform additional paint and stain removal, general cleaning, and spot cleaning of small areas that are noticeably different, so that surface blends smoothly into surrounding areas.
- D. Mockups: The Contractor shall prepare mockups of restoration and cleaning to demonstrate aesthetic effects and set quality standards for materials and execution and for fabrication and installation. The Contractor shall:
 1. Masonry Repair: Prepare sample areas for each type of masonry material indicated to have repair work performed. If not otherwise indicated, size each mockup not smaller than two (2) adjacent whole units or approximately forty-eight (48) inches in least dimension. Erect sample areas in existing walls unless otherwise indicated, to demonstrate quality of materials, workmanship, and blending with existing work. Include the following as a minimum:
 - a. Replacement:
 - 1) Two brick masonry units replaced.

2. Repointing: Rake out joints in an area approximately thirty-six (36) inches high by forty-eight (48) inches wide for each type of repointing required and repoint one of the areas.
3. Cleaning: Clean an area approximately twenty-five (25) sq. ft. for each type of masonry and surface condition.
 - a. Test cleaners and methods on samples of adjacent materials for possible adverse reactions. Do not use cleaners and methods known to have deleterious effect.
 - b. Allow a waiting period of not less than seven days after completion of sample cleaning to permit a study of sample panels for negative reactions.
4. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Engineer specifically approves such deviations in writing.
5. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

4.6 DELIVERY, STORAGE, AND HANDLING

- A. The Contractor shall deliver masonry units to Project site strapped together in suitable packs or pallets or in heavy-duty cartons.
- B. The Contractor shall deliver other materials to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of products.
- C. The Contractor shall store cementitious materials on elevated platforms, under cover, and in a dry location. It shall not use cementitious materials that have become damp.
- D. The Contractor shall store hydrated lime in manufacturer's original and unopened containers. It shall discard lime if containers have been damaged or have been opened for more than two days.
- E. The Contractor shall store lime putty covered with water in sealed containers.
- E. The Contractor shall store sand where grading and other required characteristics can be maintained and contamination avoided.

4.7 PROJECT CONDITIONS

- A. Weather Limitations: The Contractor shall proceed with installation only when existing and forecasted weather conditions permit masonry restoration and cleaning work to be performed according to manufacturers' written instructions and specified requirements.
- B. Temperature Limits: The Contractor shall repair masonry units and repoint mortar joints only when air temperature is between sixty (60) and ninety (90) degrees Fahrenheit and is predicted to remain so for at least seven (7) days after completion of the Work unless otherwise indicated.

- C. Cold-Weather Requirements: The Contractor shall comply with the following procedures for masonry repair and mortar-joint pointing unless otherwise indicated:
 - 1. When air temperature is below sixty (60) degrees Fahrenheit, heat mortar ingredients, masonry repair materials, and existing masonry walls to produce temperatures between sixty (60) and one-hundred and twenty (120) degrees Fahrenheit.
 - 2. When mean daily air temperature is below sixty (60) degrees Fahrenheit, provide enclosure and heat to maintain temperatures above thirty-two (32) degrees Fahrenheit within the enclosure for seven (7) days after repair and pointing.
- D. Hot-Weather Requirements: The Contractor shall protect masonry repair and mortar-joint pointing when temperature and humidity conditions produce excessive evaporation of water from mortar and repair materials. It shall provide artificial shade and wind breaks and use cooled materials as required to minimize evaporation. It shall not apply mortar to substrates with temperatures of ninety (90) degrees Fahrenheit and above unless otherwise indicated.
- E. For manufactured repair materials, the Contractor shall perform work within the environmental limits set by each manufacturer.
- F. The Contractor shall clean masonry surfaces only when air temperature is sixty (60) degrees Fahrenheit and above and is predicted to remain so for at least seven (7) days after completion of cleaning.

4.8. SEQUENCING AND SCHEDULING

- A. The Contractor shall perform masonry restoration work in the following sequence:
 - 1. Remove plant growth.
 - 2. Inspect for open mortar joints and repair before cleaning to prevent the intrusion of water and other cleaning materials into the wall.
 - 3. Clean masonry surfaces.
 - 4. Rake out mortar from joints surrounding masonry to be replaced and from joints adjacent to masonry repairs along joints.
 - 5. Repair masonry, including replacing existing masonry with new masonry materials.
 - 6. Rake out mortar from joints to be repointed.
 - 7. Point mortar and sealant joints.
 - 8. After repairs and repointing have been completed and cured, perform a final cleaning to remove residues from this work.
 - 9. Inspect for open mortar joints and repair before cleaning to prevent the intrusion of water and other cleaning materials into the wall.
 - 10. Clean masonry surfaces.
- B. As scaffolding is removed, the Contractor shall patch anchor holes used to attach scaffolding. It shall patch holes in masonry units to comply with "Masonry Unit Patching" Article. It shall patch holes in mortar joints to comply with "Repointing Masonry" Article.

PART 5 – PRODUCTS

3.7 MASONRY MATERIALS

- A. Building Brick: The Contractor shall provide building brick complying with ASTM C 62, of same vertical dimension as face brick, for masonry work concealed from view. It shall:
1. Grade SW where in contact with earth.
 2. Grade SW, MW, or NW for concealed backup.
 3. Emboss in the clay body on an interior surface of each unit in easily read 1/2-inch-high characters, "MADE 2013." Manufacturer's name may also be embossed.
- B. Salvaged Masonry: Salvaged masonry may be reused if free from deficiencies. Clean off residual mortar before reusing.

3.8 MORTAR MATERIALS

- A. Portland cement shall comply with ASTM C 150, Type I or Type II, white or gray or both where required for color matching of exposed mortar.

The Contractor shall provide cement containing not more than 0.60 percent total alkali when tested according to ASTM C 114.

- B. Hydrated Lime shall comply with ASTM C 207, Type S.
- C. Factory-Prepared Lime Putty shall comply with ASTM C 1489.
- D. Quicklime shall comply with ASTM C 5, pulverized lime.
- E. Mortar Sand shall comply with ASTM C 144 unless otherwise indicated. The Contractor shall:
1. Provide natural sand or ground marble, granite, or other sound stone of color necessary to produce required mortar color.
 2. For pointing mortar, provide sand with rounded edges.
 3. Match size, texture, and gradation of existing mortar sand as closely as possible.
 4. Blend several sands if necessary to achieve suitable match.
- F. Mortar Pigments shall use natural and synthetic iron oxides, compounded for mortar mixes. The Contractor shall use only pigments with a record of satisfactory performance in masonry mortars.
- G. Water shall be potable.

3.9 MANUFACTURED REPAIR MATERIALS

- A. Masonry Patching Compound shall be factory-mixed cementitious product that is custom manufactured for patching masonry. The Contractor shall:

1. Use formulation that is vapor- and water permeable (equal to or more than the masonry unit), exhibits low shrinkage, has lower modulus of elasticity than the masonry units being repaired, and develops high bond strength to all types of masonry.
2. Use formulation having working qualities and retardation control to permit forming and sculpturing where necessary.
3. Formulate patching compound used for patching each type of masonry in colors and textures to match each masonry unit being patched. Provide sufficient number of colors to enable matching the color, texture, and variation of each unit.

3.10 CLEANING MATERIALS

- A. Water shall be potable.
- B. Hot Water shall be heated to a temperature of one-hundred forty (140) to one-hundred sixty (160) degrees Fahrenheit.
- C. Job-Mixed Detergent Solution shall be prepared by mixing two (2) cups of tetrasodium polyphosphate, 1/2 cup of laundry detergent, and twenty (20) quarts of hot water for every five (5) gallons of solution required.
- D. Nonacidic Gel Cleaner shall be in manufacturer's standard gel formulation, with pH between 6 and 9, that contains detergents with chelating agents and is specifically formulated for cleaning masonry surfaces.
- E. Nonacidic Liquid Cleaner shall be the manufacturer's standard mildly alkaline liquid cleaner formulated for removing mold, mildew, and other organic soiling from ordinary building materials, including polished stone, brick, aluminum, plastics, and wood.
- F. Mild Acidic Cleaner shall be the manufacturer's standard mildly acidic cleaner containing no muriatic (hydrochloric), hydrofluoric, or sulfuric acid; or ammonium bifluoride or chlorine bleaches.
- G. Acidic Cleaner shall be the manufacturer's standard acidic masonry cleaner composed of hydrofluoric acid or ammonium bifluoride blended with other acids, detergents, wetting agents, and inhibitors.
- H. Two-Part Chemical Cleaner shall be the manufacturer's standard system consisting of potassium or sodium hydroxide-based, alkaline prewash cleaner and acidic afterwash cleaner that does not contain hydrofluoric acid.

3.11 ACCESSORY MATERIALS

- A. Liquid Strippable Masking Agent shall be the manufacturer's standard liquid, film-forming, strippable masking material for protecting glass, metal, and polished stone surfaces from damaging effects of acidic and alkaline masonry cleaners.

- B. Masonry Repair Anchors, Rod/Screen Tube Type shall be stainless-steel screen tube with or without Type 304 or Type 316 stainless-steel rod, adhesive installed by injection with manufacturer's standard epoxy adhesive, complete with other devices required for installation.
- C. Setting Buttons shall be resilient plastic buttons, non-staining to masonry, sized to suit joint thicknesses and bed depths of masonry units without intruding into required depths of pointing materials.
- D. Masking Tape shall be non-staining, nonabsorbent material, compatible with pointing mortar, joint primers, sealants, and surfaces adjacent to joints; that will easily come off entirely, including adhesive.
- E. Miscellaneous Products: The Contractor shall select materials and methods of use based on the following, subject to approval of a mockup:
 - 1. Previous effectiveness in performing the work involved.
 - 2. Little possibility of damaging exposed surfaces.
 - 3. Consistency of each application.
 - 4. Uniformity of the resulting overall appearance.
 - 5. Do not use products or tools that could do the following:
 - a. Remove, alter, or in any way harm the present condition or future preservation of existing surfaces, including surrounding surfaces not in contract.
 - b. Leave a residue on surfaces.

3.12 MORTAR MIXES

- A. Preparing Lime Putty: The Contractor shall slake quicklime and prepare lime putty according to appendix to ASTM C 5 and manufacturer's written instructions.
- B. Measurement and Mixing: The Contractor shall measure cementitious materials and sand in a dry condition by volume or equivalent weight. It shall not measure by shovel; it shall use known measure. The Contractor shall mix materials in a clean, mechanical batch mixer.
 - 1. Mixing Pointing Mortar: The Contractor shall:
 - a. Thoroughly mix cementitious materials and sand together before adding any water.
 - b. Then mix again adding only enough water to produce a damp, unworkable mix that will retain its form when pressed into a ball.
 - c. Maintain mortar in this dampened condition for 15 to 30 minutes.
 - d. Add remaining water in small portions until mortar reaches desired consistency.
 - e. Use mortar within one hour of final mixing; do not re-temper or use partially hardened material.
- C. Colored Mortar: Produce mortar of color required by using specified ingredients. Do not alter specified proportions without Engineer's approval.

1. Mortar Pigments: Where mortar pigments are indicated, do not exceed a pigment-to-cement ratio of 1:10 by weight.
- D. Do not use admixtures in mortar unless otherwise indicated.
- E. Mortar Proportions: The Contractor shall mix mortar materials in the following proportions:
 1. Pointing Mortar for Brick: 1 part Portland cement, 2 parts lime, and 6 parts sand.
 - a. Add mortar pigments to produce mortar colors required.
 2. Rebuilding (Setting) Mortar: Same as pointing mortar.

3.13 CHEMICAL CLEANING SOLUTIONS

- A. Dilution Generally: The Contractor shall dilute chemical cleaners with water to produce solutions not exceeding concentration recommended by chemical-cleaner manufacturer.
- B. Acidic Cleaner Solution for Masonry: The Contractor shall dilute with water to produce hydrofluoric acid content of 3 percent or less, but not greater than that recommended by chemical-cleaner manufacturer for the type of masonry.
- C. Acidic Cleaner Solution for Glazed Masonry: The Contractor shall dilute with water to concentration demonstrated by testing that does not etch or otherwise damage masonry surface, but not greater than that recommended by chemical-cleaner manufacturer for the type of masonry.

PART 4 - EXECUTION

4.1 PROTECTION

- A. The Contractor shall protect persons, motor vehicles, surrounding surfaces of building being restored, building site, plants, and surrounding buildings from harm resulting from masonry restoration work.
 1. The Contractor shall erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during course of restoration and cleaning work.
- B. The Contractor shall comply with chemical-cleaner manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products. It shall prevent chemical-cleaning solutions from coming into contact with people, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact. The Contractor shall:
 1. Cover adjacent surfaces with materials that are proven to resist chemical cleaners used unless chemical cleaners being used will not damage adjacent surfaces. Use materials that contain only waterproof, UV-resistant adhesives. Apply masking agents to comply with manufacturer's written instructions. Do not apply liquid

masking agent to painted or porous surfaces. When no longer needed, promptly remove masking to prevent adhesive staining.

2. Keep wall wet below area being cleaned to prevent streaking from runoff.
 3. Do not clean masonry during winds of sufficient force to spread cleaning solutions to unprotected surfaces.
 4. Neutralize and collect alkaline and acid wastes for disposal off the Administration's property.
 5. Dispose of runoff from cleaning operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
- C. The Contractor shall prevent mortar from staining face of surrounding masonry and other surfaces. The Contractor shall:
1. Cover sills, ledges, and projections to protect from mortar droppings.
 2. Keep wall area wet below rebuilding and pointing work to discourage mortar from adhering.
 3. Immediately remove mortar in contact with exposed masonry and other surfaces.
 4. Clean mortar splatters from scaffolding at end of each day.
- D. The Contractor shall remove downspouts adjacent to masonry and store during masonry restoration and cleaning. It shall reinstall when masonry restoration and cleaning are complete.
1. The Contractor shall provide temporary rain drainage during work to direct water away from building.

4.2 MASONRY REMOVAL AND REPLACEMENT

- A. At locations indicated, The Contractor shall remove masonry that is damaged, spalled, or deteriorated or are to be reused. It shall carefully demolish or remove entire units from joint to joint, without damaging surrounding masonry, in a manner that permits replacement with full-size units.
1. When removing single units, the Contractor shall remove material from center of unit and work toward outside edges.
- B. The Contractor shall support and protect remaining masonry that surrounds removal area. It shall maintain flashing, reinforcement, lintels, and adjoining construction in an undamaged condition.
- C. The Contractor shall notify Engineer of unforeseen detrimental conditions including voids, cracks, bulges, and loose units in existing masonry backup, rotted wood, rusted metal, and other deteriorated items.
- D. The Contractor shall remove in an undamaged condition as many whole bricks as possible. The Contractor shall:
1. Remove mortar, loose particles, and soil from brick by cleaning with hand chisels, brushes, and water.

2. Remove sealants by cutting close to brick with utility knife and cleaning with solvents.
 3. Store brick for reuse. Store off ground, on skids, and protected from weather.
 4. Deliver cleaned brick not required for reuse to the Administration unless otherwise indicated.
- E. The Contractor shall clean bricks surrounding removal areas by removing mortar, dust, and loose particles in preparation for replacement.
- F. The Contractor shall replace removed damaged brick with other removed brick and salvaged brick in good quality, where possible, or with new brick matching existing brick, including size. It shall not use broken units unless they can be cut to usable size.
- G. The Contractor shall install replacement brick into bonding and coursing pattern of existing brick. If cutting is required, it shall use a motor-driven saw designed to cut masonry with clean, sharp, unchipped edges. The Contractor shall:
1. Maintain joint width for replacement units to match existing joints.
 2. Use setting buttons or shims to set units accurately spaced with uniform joints.
- H. The Contractor shall lay replacement brick with completely filled bed, head, and collar joints. It shall butter ends with sufficient mortar to fill head joints and shove into place. It shall wet both replacement and surrounding bricks that have ASTM C 67 initial rates of absorption (suction) of more than 30 g/30 sq. in. per min. It shall use wetting methods that ensure that units are nearly saturated but surface is dry when laid. The Contractor shall:
1. Tool exposed mortar joints in repaired areas to match joints of surrounding existing brickwork.
 2. Rake out mortar used for laying brick before mortar sets and point new mortar joints in repaired area to comply with requirements for repointing existing masonry, and at same time as repointing of surrounding area.
 3. When mortar is sufficiently hard to support units, remove shims and other devices interfering with pointing of joints.

4.3 REANCHORING VENEERS

- A. The Contractor shall install masonry repair anchors in horizontal mortar joints and according to manufacturer's written instructions. It shall install at not more than sixteen (16) inches o.c. vertically and thirty-two (32) inches o.c. horizontally unless otherwise indicated. It shall install at locations to avoid penetrating flashing.
- B. The Contractor shall recess anchors at least 5/8 inch from surface of mortar joint and fill recess with pointing mortar.

4.4 MASONRY UNIT PATCHING

- A. The Contractor shall remove and replace existing patches unless otherwise indicated or approved by Engineer. The Contractor shall:
 - 1. Remove loose material from masonry surface.
 - 2. Remove deteriorated material by sounding gently with a small hammer.
 - 3. Carefully remove additional material so patch will not have feathered edges but will have square or slightly undercut edges on area to be patched and will be at least 1/4 inch thick, but not less than recommended by patching compound manufacturer.
- B. The Contractor shall mask adjacent mortar joint or rake out for repointing if patch will extend to edge of masonry unit. It shall mix patching compound in individual batches to match each unit being patched. Combine one or more colors of patching compound, as needed, to produce exact match.
- C. The Contractor shall rinse surface to be patched and leave damp, but without standing water.
- D. The Contractor shall brush-coat surfaces with slurry coat of patching compound according to manufacturer's written instructions.
- E. The Contractor shall place patching compound in layers as recommended by patching compound manufacturer, but not less than 1/4 inch or more than 2 inches thick. Roughen surface of each layer to provide a key for next layer.
- F. The Contractor shall trowel, scrape, or carve surface of patch to match texture and surrounding surface plane or contour of the masonry unit. It shall shape and finish surface before or after curing, as determined by testing, to best match existing masonry unit.
- G. The Contractor shall keep each layer damp for seventy-two (72) hours or until patching compound has set.

4.5 CLEANING MASONRY, GENERAL

- A. The Contractor shall proceed with cleaning in an orderly manner; work from top to bottom of each scaffold width and from one end of each elevation to the other. It shall ensure that dirty residues and rinse water will not wash over cleaned, dry surfaces.
- B. The Contractor shall use only those cleaning methods indicated for each masonry material and location.
 - 1. The Contractor shall not use wire brushes or brushes that are not resistant to chemical cleaner being used. It shall not use plastic-bristle brushes if natural-fiber brushes will resist chemical cleaner being used.
 - 2. The Contractor shall use spray equipment that provides controlled application at volume and pressure indicated, measured at spray tip. It shall adjust pressure and volume to ensure that cleaning methods do not damage masonry.

- a. It shall equip units with pressure gauges.
 3. For chemical-cleaner spray application, the Contractor shall use low-pressure tank or chemical pump suitable for chemical cleaner indicated, equipped with cone-shaped spray tip.
 4. For water-spray application, The Contractor shall use fan-shaped spray tip that disperses water at an angle of twenty-five (25) to fifty (50) degrees.
 5. For high-pressure water-spray application, the Contractor shall use fan-shaped spray tip that disperses water at an angle of at least forty (40) degrees.
 6. For heated water-spray application, the Contractor shall use equipment capable of maintaining temperature between one-hundred forty (140) and one-hundred sixty (160) degrees Fahrenheit at flow rates indicated.
 7. For steam application, the Contractor shall use steam generator capable of delivering live steam at nozzle.
- C. The Contractor shall perform each cleaning method indicated in a manner that results in uniform coverage of all surfaces, including corners, moldings, and interstices, and that produces an even effect without streaking or damaging masonry surfaces.
- D. Water Application Methods:
1. Water-Soak Application: The Contractor shall soak masonry surfaces by applying water continuously and uniformly to limited area for time indicated. It shall apply water at low pressures and low volumes in multiple fine sprays using perforated hoses or multiple spray nozzles. It shall erect a protective enclosure constructed of polyethylene sheeting to cover area being sprayed.
 2. Water-Spray Applications: Unless otherwise indicated, the Contractor shall hold spray nozzle at least 6 inches from surface of masonry and apply water in horizontal back and forth sweeping motion, overlapping previous strokes to produce uniform coverage.
- E. Steam Cleaning: The Contractor shall apply steam to masonry surfaces at the very low pressures indicated for each type of masonry material. The Contractor shall hold nozzle at least six (6) inches from surface of masonry and apply steam in horizontal back and forth sweeping motion, overlapping previous strokes to produce uniform coverage.
- F. Chemical-Cleaner Application Methods: The Contractor shall apply chemical cleaners to masonry surfaces to comply with chemical-cleaner manufacturer's written instructions; use brush or spray application. The Contractor shall not spray apply at pressures exceeding fifty (50) psi. It shall not allow chemicals to remain on surface for periods longer than those indicated or recommended by manufacturer.
- G. The Contractor shall rinse off chemical residue and soil by working upward from bottom to top of each treated area at each stage or scaffold setting. Periodically during each rinse, the Contractor shall test pH of rinse water running off of cleaned area to determine that chemical cleaner is completely removed.
1. The Contractor shall apply neutralizing agent and repeat rinse if necessary to produce tested pH of between 6.7 and 7.5.

- H. After cleaning is complete, the Contractor shall remove protection no longer required and shall remove tape and adhesive marks.

4.6 PRELIMINARY CLEANING

- A. Removing Plant Growth: The Contractor shall completely remove visible plant, moss, and shrub growth from masonry surfaces. It shall carefully remove plants, creepers, and vegetation by cutting at roots and allowing to dry as long as possible before removal. It shall remove loose soil and debris from open masonry joints to whatever depth they occur.
- B. Preliminary Cleaning: Before beginning general cleaning, the Contractor shall remove extraneous substances that are resistant to cleaning methods being used. Extraneous substances include paint, caulking, asphalt, and tar. The Contractor shall:
 - 1. Carefully remove heavy accumulations of material from surface of masonry with a sharp chisel. Do not scratch or chip masonry surface.
 - 2. Remove paint and caulking with alkaline paint remover.
 - a. Comply with requirements in "Paint Removal" Article.
 - b. Repeat application up to two times if needed.
 - 3. Remove asphalt and tar with solvent-type paint remover.
 - a. Comply with requirements in "Paint Removal" Article.
 - b. Apply paint remover only to asphalt and tar by brush without prewetting.
 - c. Allow paint remover to remain on surface for ten (10) to thirty (30) minutes.
 - d. Repeat application if needed.

4.7 CLEANING MASONRY

- A. Cold-Water Soak: The Contractor shall:
 - 1. Apply cold water by intermittent spraying to keep surface moist.
 - 2. Use perforated hoses or other means that will apply a fine water mist to entire surface being cleaned.
 - 3. Apply water in cycles with at least thirty (30) minutes between cycles.
 - 4. Continue spraying until surface encrustation has softened sufficiently to permit its removal by water wash, as indicated by cleaning tests.
 - 5. Continue spraying for seventy-two (72) hours.
 - 6. Remove soil and softened surface encrustation from masonry with cold water applied by low-pressure spray.
- B. Cold-Water Wash: The Contractor shall use cold water applied by low-pressure spray.
- C. Hot-Water Wash: The Contractor shall use hot water applied by low-pressure spray.
- D. Steam Cleaning: The Contractor shall apply steam at very low pressures not exceeding thirty (30) psi. The Contractor shall remove dirt softened by steam with wood scrapers, stiff-nylon or -fiber brushes, or cold-water wash, as indicated by cleaning tests.
- E. Detergent Cleaning: The Contractor shall:

1. Wet masonry with water applied by low-pressure spray.
 2. Scrub masonry with detergent solution using medium-soft brushes until soil is thoroughly dislodged and can be removed by rinsing. Use small brushes to remove soil from mortar joints and crevices. Dip brush in solution often to ensure that adequate fresh detergent is used and that masonry surface remains wet.
 3. Rinse with water applied by low-pressure spray to remove detergent solution and soil.
 4. Repeat cleaning procedure above where required to produce cleaning effect established by mockup.
- F. Mold, Mildew, and Algae Removal: The Contractor shall:
1. Wet masonry with water applied by low-pressure spray.
 2. Apply mold, mildew, and algae remover by brush or low-pressure spray.
 3. Scrub masonry with medium-soft brushes until mold, mildew, and algae are thoroughly dislodged and can be removed by rinsing. Use small brushes for mortar joints and crevices. Dip brush in mold, mildew, and algae remover often to ensure that adequate fresh cleaner is used and that masonry surface remains wet.
 4. Rinse with water applied by low-pressure spray to remove mold, mildew, and algae remover and soil.
 5. Repeat cleaning procedure above where required to produce cleaning effect established by mockup.
- G. Nonacidic Gel Chemical Cleaning: The Contractor shall:
1. Wet masonry with water applied by low-pressure spray.
 2. Apply nonacidic gel cleaner in 1/8-inch thickness by brush, working into joints and crevices. Apply quickly and do not brush out excessively so area will be uniformly covered with fresh cleaner and dwell time will be uniform throughout area being cleaned.
 3. Let cleaner remain on surface for period indicated below:
 - a. As recommended by chemical-cleaner manufacturer.
 4. Remove bulk of nonacidic gel cleaner by squeegeeing into containers for disposal.
 5. Rinse with water applied by low-pressure spray to remove chemicals and soil.
 6. Repeat cleaning procedure above where required to produce cleaning effect established by mockup. Do not repeat more than once. If additional cleaning is required, use steam cleaning.
- H. Nonacidic Liquid Chemical Cleaning: The Contractor shall:
1. Wet masonry with water applied by low-pressure spray.
 2. Apply cleaner to masonry by brush or low-pressure spray. Let cleaner remain on surface for period indicated below:
 - a. As recommended by chemical-cleaner manufacturer.
 3. Rinse with water applied by low-pressure spray to remove chemicals and soil.
 4. Repeat cleaning procedure above where required to produce cleaning effect established by mockup. Do not repeat more than once. If additional cleaning is required, use steam cleaning.

- I. Mild Acidic Chemical Cleaning: The Contractor shall:
 - 1. Wet masonry with cold water applied by low-pressure spray.
 - 2. Apply cleaner to masonry by brush. Let cleaner remain on surface for period indicated below:
 - a. As recommended by chemical-cleaner manufacturer.
 - 3. Rinse with cold water applied by low-pressure spray to remove chemicals and soil.
 - 4. Repeat cleaning procedure above where required to produce cleaning effect established by mockup. Do not repeat more than once. If additional cleaning is required, use a steam cleaning.

- J. Two-Part Chemical Cleaning: The Contractor shall:
 - 1. Wet masonry with water applied by low-pressure spray.
 - 2. Rinse with water applied by medium-pressure spray to remove chemicals and soil.
 - 3. Apply acidic afterwash cleaner to masonry, while surface is still wet, using low-pressure spray equipment, deep-nap roller or soft-fiber brush. Let neutralizer remain on surface for period recommended by manufacturer unless otherwise indicated.
 - 4. Rinse with cold water applied by medium-pressure spray to remove chemicals and soil.
 - 5. Repeat cleaning procedure above where required to produce cleaning effect established by mockup. Do not repeat more than once. If additional cleaning is required, use steam cleaning.

4.8 REPOINTING MASONRY

The Contractor shall rake out and repoint all joints in areas indicated.

- A. The Contractor shall Rake out joints as follows, according to procedures demonstrated in approved mockup:
 - 1. Remove mortar from joints to depth of 2-1/2 times joint width, but not less than 1/2 inch or not less than that required to expose sound, un-weathered mortar.
 - 2. Remove mortar from masonry surfaces within raked-out joints to provide reveals with square backs and to expose masonry for contact with pointing mortar. Brush, vacuum, or flush joints to remove dirt and loose debris.
 - 3. Do not spall edges of masonry units or widen joints. Replace or patch damaged masonry units as directed by Engineer.
 - a. Cut out mortar by hand with chisel and resilient mallet. Do not use power-operated grinders without Engineer's written approval based on approved quality-control program.
 - b. Cut out center of mortar bed joints using angle grinders with diamond-impregnated metal blades. Remove remaining mortar by hand with chisel and resilient mallet. Strictly adhere to approved quality-control program.

- B. The Contractor shall notify Engineer of unforeseen detrimental conditions including voids in mortar joints, cracks, loose masonry units, rotted wood, rusted metal, and other deteriorated items.

- C. Pointing with Mortar: The Contractor shall:
1. Rinse joint surfaces with water to remove dust and mortar particles. Time rinsing application so, at time of pointing, joint surfaces are damp but free of standing water. If rinse water dries, dampen joint surfaces before pointing.
 2. Apply pointing mortar first to areas where existing mortar was removed to depths greater than surrounding areas. Apply in layers not greater than 3/8 inch until a uniform depth is formed. Fully compact each layer thoroughly and allow it to become thumbprint hard before applying next layer.
 3. After low areas have been filled to same depth as remaining joints, point all joints by placing mortar in layers not greater than 3/8 inch. Fully compact each layer and allow to become thumbprint hard before applying next layer. Where existing masonry units have worn or rounded edges, slightly recess finished mortar surface below face of masonry to avoid widened joint faces. Take care not to spread mortar beyond joint edges onto exposed masonry surfaces or to featheredge the mortar.
 4. When mortar is thumbprint hard, tool joints to match original appearance of joints as demonstrated in approved mockup. Remove excess mortar from edge of joint by brushing.
 5. Cure mortar by maintaining in thoroughly damp condition for at least seventy-two (72) consecutive hours including weekends and holidays.
 - a. Acceptable curing methods include covering with wet burlap and plastic sheeting, periodic hand misting, and periodic mist spraying using system of pipes, mist heads, and timers.
 - b. Adjust curing methods to ensure that pointing mortar is damp throughout its depth without eroding surface mortar.
 6. Hairline cracking within the mortar or mortar separation at edge of a joint is unacceptable. Completely remove such mortar and repoint.
- D. Where repointing work precedes cleaning of existing masonry, allow mortar to harden at least thirty (30) days before beginning cleaning work.

4.9 FINAL CLEANING

- A. After mortar has fully hardened, the Contractor shall thoroughly clean exposed masonry surfaces of excess mortar and foreign matter; use wood scrapers, stiff-nylon or -fiber brushes, and clean water, spray applied at low pressure.
1. The Contractor shall not use metal scrapers or brushes.
 2. The Contractor shall not use acidic or alkaline cleaners.
- B. The Contractor shall wash adjacent woodwork and other non-masonry surfaces. The Contractor shall use detergent and soft brushes or cloths.
- C. The Contractor shall clean mortar and debris from roof; remove debris from gutters and downspouts. The Contractor shall rinse off roof and flush gutters and downspouts

- D. The Contractor shall sweep and rake adjacent pavement and grounds to remove mortar and debris. Where necessary, it shall pressure wash pavement surfaces to remove mortar, dust, dirt, and stains.

PART 4 – COMPENSATION

4.1 MEASUREMENT

- A. Brick replacement shall be measured on a per each basis.
- B. Masonry Cleaning shall be measured on a square foot basis.
- C. Masonry Repointing shall be measured on a square foot basis.

4.2 PAYMENT

- A. Payment for “Replace Brick”, shall be made at the Unit Price Bid per brick under Item No. 7 on the Schedule of Values. This item shall include all submittals, materials, and labor, as required in this section.
- B. Payment for “Clean Brick” complete in place, shall be made at the Unit Price Bid per square foot under Item No. 8 on the Schedule of Values, based preliminary cleaning, and the cold water and algae removal cleaning method, and a final cleaning. This item shall include all labor and materials, as well as preparation and submittals required, as required in this section.
- C. Payment for “Masonry Repointing”, shall be made at the Unit Price Bid per brick under Item No. 9 on the Schedule of Values. This item shall include all submittals, materials, and labor, as required in this section.
- D. The above total price shall include all the work described in this Section and shown on the Contract Drawings including all labor, material, services and equipment necessary to complete the work in every respect to the satisfaction of the Engineer.

END OF SECTION

SECTION 323200
SOLDIER PILE RETAINING WALL

PART 1: GENERAL

1.1 SUMMARY

- A. This Section includes requirements for design, supply and installation of soldier piles and precast concrete panels retaining wall, complete with attachment brackets as shown on drawings, as specified and as required for complete and proper installation.
- B. This section includes a base bid option of galvanized piles and miscellaneous metals, as well as Option 3, which is a high performance coating instead of galvanized steel.
- C. Design and Furnish retaining wall is to include the following:
 - 1. Structural Steel Soldier Piles
 - 2. Precast Concrete Panels
 - 3. Precast Concrete Cap
- D. As part of the work included in this Specification the General Contractor shall install the following:
 - 1. Implement and comply with all of the erosion and sediment control measures according to local codes.
 - 2. Remove and store items noted on plan and selectively remove asphalt paving.
 - 3. Drill and concrete in the steel soldier piles
 - 4. Install and place and compact stone shown on the construction drawings including the #57 stone and the #8 stone.
 - 5. Install bricks at top of existing retaining wall
 - 6. Install 6" precast cap at the top of the wall
 - 7. Restore soil to existing grade.

1.2 RELATED REQUIREMENTS

- A. Section 03 41 00 – Precast Structural Concrete
- B. Section 04 20 00 – Unit Masonry
- C. Section 04 90 00 – Repair of Brick Masonry

1.3 REFERENCES

- A. American Society for Testing and Materials (ASTM):

1. ASTM A123/A123M-12, Standard Specification for Zinc (Hot-Dipped Galvanized) Coating or Iron and Steel Products
 2. ASTM A36 for steel plates and angles
 3. ASTM A449-10, Standard Specification for Hex Cap Screws, Bolts and Studs, Steel, Heat Treated, 120/105/90 ksi Minimum Tensile Strength, General Use
 4. ASTM A563-07a, Standard Specification for Carbon and Alloy Steel Nuts
 5. ASTM A992/A992M-11, Standard Specification for Structural Steel Shapes
 6. ASTM A1011/A1011M-12b, Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with improved Formability, and Ultra-High Strength
 7. ASTM C939-10, Standard Test Method for Flow of Grout for Preplaced Aggregate Concrete (Flow Cone Method)
 8. ASTM C1107/C1107M-11, Standard Specification for Packaged Dry, Hydraulic Cement Grout (Non-shrink)
 9. ASTM F436-11, Standard Specification for Hardened Steel Washers
- B. American National Standards Institute/American Welding Society:
1. ANSI/AWS D1.1, Structural Welding Code - Steel.
- C. American Association of State Highway and Transportation Officials (AASHTO)
1. AASHTO- Bridge Design Specifications
- D. American Society of Civil Engineers (ASCE)
1. ASCE 7-16, Minimum Design Loads for Buildings and Other Structures

1.4 SUBMITTALS

- A. Action Submittals: The Contractor shall provide the following submittals before starting any work of this Section:
1. Product Data:
 - a. Drainage stone
 - b. Steel soldier piles
 - c. OPTION 3 – TNEMIC PRODUCTS, SAMPLE COLORS TO BE APPROVED BY OWNER
 2. Shop Drawings:
 - a. The Contractor shall submit shop drawings of wall system components, substrate materials, layout, corner and edge details, base plate anchorage details, foundation details and accessories to the City’s consulting engineer for review.
 3. Delegated Design Submittals: The Contractor shall furnish complete design

calculations and details, fabrication and erection shop drawings and site review for sound barriers, bearing the seal of a Professional Engineer registered in Maryland, in accordance with applicable Building Code and Contract Documents.

4. Samples: The Contractor shall submit for approval 12” long sample lengths of each sound barrier wall component, for verification of finish, color and texture, prior to fabrication.
5. Geotechnical report: The Contractor shall provide a copy of the geotechnical report to the Engineer and Owner for records.

1.5 QUALITY ASSURANCE

- A. Qualifications: The Contractor shall provide proof of qualifications when requested by Consultant:
 1. Manufacturer / Supplier: The Contractor shall obtain materials from one source with resources to provide products from the same production run for each contiguous area of consistent quality in appearance and physical properties.
 - a. The Precast Concrete Manufacturer must have a minimum of ten (10) years’ experience in the manufacturing of wall panels.
 - b. Design of Soldier Pile Retaining Wall System must be performed by a professional engineer licensed in the jurisdiction of the project and in accordance with local code requirements with a minimum of three (3) years’ experience with similar project.
 2. Installers:
 - a. The Contractor shall execute Work of this Section using qualified personnel skilled in installation of work of this Section, having a minimum of three (3) years proven experience of installations similar in material, design, and extent to that indicated for this Project.
 - b. The installers shall conform to all local and provincial licensing and bonding requirements.
 - c. The installers shall be certified by the sound barrier manufacturer to have completed installation training for products listed in this Section.

1.6 MOCK-UPS

- A. Mock-ups for OPTION 1 and OPTION 2: The Contractor shall construct mock-ups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution and as follows:

1. The Contractor shall build a minimum 3'x3' mock-up of typical wall section, incorporating the panel and finish, support framing and anchoring.
- B. The Contractor shall notify the City's consulting engineer a minimum of seven (7) days prior to mock-up construction.
- C. The Contractor's review and acceptance of mock-ups does not constitute approval of deviations from the Contract Documents contained in mock-ups unless the City's consulting engineer specifically notes such deviations in writing.
- D. Once reviewed by the City's consulting engineer, an acceptable mock-up can form a permanent part of the Work, and will form the basis for acceptance for the remainder of the project.
- E. The Contractor shall remove and replace materials found not acceptable at no cost to City or the City's consulting engineer.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Delivery: The Contractor shall deliver materials in manufacturer's original, unopened, undamaged containers packaging with identification labels intact.
 1. At the time of delivery, the Contractor shall visually inspect all materials for damage. It shall note any damaged boxes, crates, or louver sections on the receiving ticket and immediately report to the shipping company and the material manufacturer.
 2. The Contractor shall coordinate delivery and pier/anchor construction schedule to minimize interference with normal use of buildings adjacent to the project.
- B. Storage: The Contractor shall store precast barrier materials raised off the ground and cover with a weather proof sheeting or tarpaulin.
- C. Handling:
 1. Materials shall be handled in accordance with sensible material handling practices and in such a way as to minimize bending and panel damage.
 2. The Contractor shall hoist panels as recommended by precast panel manufacturer.

1.8 SITE CONDITIONS

- A. Geotechnical Investigation: The Contractor shall perform a geotechnical investigation to obtain soil properties for use in final design of retaining wall system. It shall provide a copy of the geotechnical report to the Engineer and Owner

for records.

- B. Site Measurements: The Contractor shall verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings where precast panels are indicated.
- C. Utilities: The Contractor shall locate and mark below grade utilities prior to beginning construction. It shall provide temporary protection of utilities as required.

1.9 WARRANTY

- A. The Contractor shall warrant the work of this section in accordance with manufacturer's warranty for a period of two (2) year from date of the project substantial completion acceptance and agree to repair or replace faulty materials, including the paint system, which become evident during the warranty period without cost to the City and at the City's convenience.

PART 2: PRODUCTS

2.1 MANUFACTURER

- A. Materials Manufacturer: Subject to compliance with requirements, the Contractor shall provide products by the following or other qualified manufacturer:
 - 1. Narrow Footprint Retaining Wall System by Durisol, or equal, made by qualified manufacturer in accordance with specifications.

2.2 MATERIALS

- A. Soldier Piles
 - 1. Soldier Piles/H-Piles shall comply with ASTM A690 or ASTM A992 Grade 50 shapes of sizes indicated in delegated design. The Contractor shall provide soldier piles or H-piles of sizes required to contain concrete panels by the Contractor's delegated design engineer.
- B. Structural Steel Sections and Steel Plate shall be new stock (not weathered or rusted); conform to ASTM A992 Grade 50, hot rolled wide flange structural sections in accordance with shapes, sizes, details and method of connection as shown on drawings.

All steel components (not to receive a high performance coating as part of Option 3) are to be hot dipped galvanized after fabrication in accordance with ASTM A123.

- C. Fasteners:
 - 1. Anchor Rods and Bolts shall conform to ASTM A449 or ASTM F1554.
 - 2. Heavy Hex Nuts shall conform to ASTM A563.
 - 3. Hardened Washers shall conform to ASTM F436.

4. All fasteners shall be galvanized.
- D. Reinforced Concrete Panels: See Specification 034100 for requirements.
 - E. Welding Materials shall conform to American Welding Society AWS D1.1.
 - F. Zinc Rich Paint for Touch-up of Galvanized Metals shall be ready mixed, zinc-rich primer conforming to ASTM A123.
 - G. Woven Geotextile Fabric shall conform to AASHTO M-288-06 Class 3 for Separation
 - H. Fill Behind Wall shall conform to either
 1. AASHTO #57 Stone
 2. AASHTO #8 Stone
 - I. OPTION 3 – Tnemec System, or approved equal:
 1. The Contractor shall prepare surface per manufacturer's recommendations
 2. Primer shall be Tnemec Series 94-H2O Hydro-Zinc
 3. Intermediate Coat shall be Tnemec Series 27WB Typoxy
 4. Finish (2 Coats) shall be Tnemec Series 1095 Endura-Shield

2.3 COMPONENTS

- A. Structural Requirement: The Contractor shall design components to soil loads, traffic surcharge, and wind maximum positive and negative pressures according to AASHTO and ASCE 7-16.
- B. The Contractor shall make provisions to accommodate thermal and structural movement, including building structural framing deflection and creep, in component parts of system and fastenings without detrimental effects.

PART 3: EXECUTION

3.1 EXAMINATION

- A. Verification of Conditions: The Contractor shall examine areas to receive work and surrounding adjacent surfaces for conditions affecting installation. Coordinate with related sections providing supporting structure to ensure proper dimensions are maintained.
- B. Verification of Dimensions: The Contractor shall verify dimensions of supporting structure by accurate field measurements so that work will be accurately designed, fabricated and fitted to the structure. Notify Engineer and Owner in writing of any conditions that are not acceptable. Proceed with installation after verification and

correction of surface conditions acceptable to manufacturer.

3.2 INSTALLATION

A. Preparation

1. The Contractor shall protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazard.
2. The Contractor shall prepare the subgrade for earthwork operations include removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface.
3. The Contractor shall protect and maintain erosion and sedimentation controls.
4. The Contractor shall perform a survey of any buildings and walls within ten (10) feet of the work. It shall take photographs of structures, document any existing cracks in length and thickness

B. Dewatering

1. The Contractor shall prevent surface water and ground water from entering work area and from ponding.
2. The Contractor shall protect subgrades from softening, undermining, washout, and damage by rain or water accumulation. Reroute surface water away from excavation.

C. Installation of Soldier Piles and Precast Panels

1. The Contractor shall provide pre-bored holes for soldier piles adequate to accommodate pile section indicated. Contractor is responsible for having soil conditions verified prior to placing piles and grouting.
2. After a pile has been seated plumb in the pre-bored hole, the Contractor shall encase it with concrete from the bearing tip to level of adjacent sub grade excavation. The method shall be in a manner that will properly consolidate the concrete and provide a minimum of three (3) inches of cover on the piles. Concrete shall be a minimum of 4,000 psi concrete and have reached seventy-five percent (75%) capacity prior to loading with panels and/or backfill.
3. The Contractor shall provide reinforced precast concrete members, secured in place to soldier piles, contained in the recesses between the H-flanges.

D. Backfilling of Retaining Wall

1. Fill Placement. The Contractor shall:

- a. Place geotextile fabric eight (8) inches below grade at retaining prior to placing stone backfill.
 - b. Place stone backfill between panel and existing wall and below panel on subgrade free of free standing water, mud, frost, snow, and ice.
 - c. Place clean stone in eight (8) inches max lifts and tamp with a manual steel tamper.
- E. OPTION 3 – The Contractor shall prepare surface of exposed soldier pile in accordance with manufacturer. It shall apply coating as recommended by manufacturer, in the shop. It shall touch up surface in the field, as recommended by manufacturer.

3.3 TOLERANCES

- A. Centerline of sound wall shall not be more than 3/8" from indicated plan location.
- B. Beams shall be plumb within 3/8" of required location.
- C. Panels shall be stacked, with a vertical tolerance of 1/4".

3.4 CLEANING

- A. Progress Cleaning: The Contractor shall leave work area clean at the end of each workday.
- B. Final Cleaning: At completion of installation, the Contractor shall clean all surfaces so they are free of foreign matter using cleaners recommended by sound barrier manufacturer.
- C. The Contractor shall remove and replace panels and beam covers damaged during installation and construction so no evidence remains of corrective work, at no additional cost to the City.
- D. Waste Management: The Contractor shall coordinate recycling of waste materials and packaging at appropriate facility, diverting waste from landfill. A certified installer shall be responsible for ensuring waste management efforts are practiced.

PART 4 – COMPENSATION

4.1 MEASUREMENT

- A. Geotechnical Report shall be measured on a lump sum basis.
- B. Steel Piles, materials, shall be measured per pound.

- C. Pile Installation shall be measure per foot that is installed below grade.
- D. Miscellaneous wall materials and installation shall be measured as a per each.
- E. Option 3 for coating shall be measured on per pound of steel pile, angle, and bent plate material.

4.2 PAYMENT

- A. Payment for “Geotechnical Report” shall be made on a per each basis on Item No. 2 on the Schedule of Values, and shall include sampling, testing, preparation of report, and all other items required in the specification.
- B. Payment for “Soldier Piles, materials” shall be made at the Unit Price Bid per pound under Item No. 4 on the Schedule of Values. It shall also include repair of the galvanized surface and other miscellaneous metals, including angles and bent plates.
- C. Payment for “Soldier Piles, Installation, Below grade” shall be made on a per foot unit price under Item No. 5 on the Schedule of Values.
- D. Payment for “Miscellaneous wall materials and installation” shall be on a per each basis made on Item No. 6 on the Schedule of Values. The price shall include all the work described in this Section and the precast concrete panel section 03 41 00 and shown on the Contract Drawings including all labor, material, services and equipment necessary to complete the work in every respect to the satisfaction of the Engineer. It shall include all items not mentioned in the bid items, including, but not limited to, installation of panels, repair of panel finish, precast cap material and installation, brick material and installation at the brick cap (as described in section 04 20 00), above grade pile installation, ties, gravel, weep holes, brackets, and anchors. Price for Options 1 and 2 shall include the cost of mock-ups per specification.
- E. Payment for “Option 3- High Performance Coating on Soldier Piles”, shall be a per pound unit price made on Item 4A of the Schedule of Values. This price shall include the additional cost to paint the steel, with a deduction for the galvanizing of the metals. It shall include preparing, coating, and retouching the coating after installation.

END OF SECTION

BID FORM
RFB #21-12/CONTRACT #R-285-C
DIFFENDAL PARKING LOT RETAINING WALL CONTRACT

The Bidder declares that it has carefully examined and understands the specifications and form of Contract; that it has made such careful examination as is necessary to become informed as to the character and extent of the work required; and that it agrees, if the proposal is accepted, to Contract with the City of Westminster, in the form of Contract hereto attached, to do the required work in the manner set forth in the specifications.

The undersigned acknowledges receipt of Addenda numbers _____ through _____, and this Bid reflects the modifications therein.

The Bidder proposes to furnish all materials and labor, requisite and proper, and to provide all necessary machinery, tools, apparatus, and means for performing the work, and the doing of all the above-mentioned work, in the manner set forth, described, and shown in the specifications and on the Contract drawings and within the time shown on the proposal for the following lump sums and/or unit prices: See Attached Schedule of Values Sheet.

All work shown on the Contract drawings and included in the specifications to make a complete and workable installation is to be paid for under the total prices Bid for the various items of work. **The absence from the Proposal form of specified bid items for any work included in the specifications means that the cost of any such work contemplated by the specifications must be included in the total prices bid.**

The Bidder must sign here, and the Bidder's address must be given. In the case of firms, the firm's name must be signed and subscribed to by at least one member. In the case of corporations, the corporate name must be signed by some authorized officer or agent thereof, who shall also subscribe its name and office. The seal of the corporation shall be affixed and duly attested by its secretary or other authorized officer.

Bidder, Firm, or Corporate Name

Address

By _____ (SEAL)
Bidder, Firm Member

Signature

ATTEST:

Title _____
Date _____

SCHEDULE OF VALUES

1. Unit Prices:

Bidder shall insert unit prices in the space provided under the column titled “Unit Price” and insert the calculated value of the “Total Price” by multiplying the proposed unit price by the quantity stated.

The stipulated, lump sum bid price stated above **includes** the following unit costs:

Base Bid				
Item No.	Approximate Quantities (for bid only)	Description of Items	Unit Price Dollars.Cents	Amount Dollars.Cents
1	Lump Sum	Mobilization and Demobilization	/EA	
2	Lump Sum	Geotechnical Report	/EA	
3	800 SF	Precast Retaining Wall Panels	/SF	
4	8,460 LB	Soldier Piles, materials	/LB	
5	128 LF	Soldier Piles, Installation, below grade	/LF	
6	1 EA	Miscellaneous wall materials and installation	/EA	
7	20/EA	Replace Bricks	/EA	
8	512 SF	Masonry Cleaning	/SF	
9	512 SF	Masonry Repointing	/SF	
Total for Items 1 through 9*				
Add Alternates				
3A	800 SF	Option 1 - Dyed concrete with formliner (Deduct Item No. 3, Add Item 3A)	/SF	
3B	800 SF	Option 2 - Thin Brick (Deduct Item No. 3, Add Item 3B)	/SF	
4A	8640 LB	Option 3- High performance coating on soldier piles (Deduct Item No. 4, Add Item 4A)	/EA	

***Note: All quantities are for bid purpose only.**

**TOTAL PROJECT BASE BID PRICE
(ITEM NOS. 1 – 9)**

Bid must be written and shown numerically as well. In case of a discrepancy, the written amount shall supersede.

\$ _____
(written numerically)

_____ DOLLARS
(written in words)

EXPERIENCE RECORD (Cont.)

Have you ever defaulted on a construction project? Yes _____ No _____

If yes, give Name of Owner, Name of Bonding Company and circumstance:

Contractor

By: _____

Title: _____

Date: _____

REFERENCES

The Bidder shall furnish a representative list of three (3) references involving work as specified herein. Failure to submit the required information with the Proposal may be cause for rejection of the Proposal.

The City may make such investigation, as it deems necessary to determine the ability of the Bidder to furnish the services, and the Bidder shall furnish to the City all such information and data for this purpose as the City may request. The City reserves the right to reject any proposal if the evidence submitted by or investigation of such Bidder fails to satisfy the City that such Bidder is properly qualified to carry out the obligations of the contract and deliver the service herein.

Client Name: _____

Address: _____

Contact Person: _____ Phone: _____

Email: _____ Contract Value: _____

Dates of Service: _____

Client Name: _____

Address: _____

Contact Person: _____ Phone: _____

Email: _____ Contract Value: _____

Dates of Service: _____

Client Name: _____

Address: _____

Contact Person: _____ Phone: _____

Email: _____ Contract Value: _____

Dates of Service: _____

CITY OF WESTMINSTER, MARYLAND

VENDOR RESPONSIBILITY FORM

1. Summarize briefly your experience in providing the commodities or service outlined in the attached specifications:

2. List the name and address of one bank or other institution that can provide the City with an adequate credit reference:

3. State of Maryland General Contractor License No.: _____

4. Have you ever refused to sign a contract at your original bid price? Yes _____ No _____

5. Have you ever defaulted on a contract? Yes _____ No _____

Federal I.D. #

Name of Bidder: _____

Address: _____

Telephone #:

By: _____
Signature

Typed Name and Title

BIDDER: _____

CITY OF WESTMINSTER, MARYLAND

Equal Opportunity Employer

I HEREBY AFFIRM THAT THIS COMPANY DOES NOT DISCRIMINATE IN ANY MANNER AGAINST ANY EMPLOYEE OR APPLICANT FOR EMPLOYMENT BECAUSE OF AGE, RACE, NATIONAL ORIGIN OR ETHNICITY, SEX, PREGNANCY, GENDER IDENTITY, FAMILY STATUS, CREED OR RELIGION.

Bidder: _____
Type/Print Name of Firm

Address: _____

City/State: _____
Zip Code

By: _____
Signature of Person Authorized to Sign Bid

Type/Print Name and Title of Person
Authorized to Sign Bid

CITY OF WESTMINSTER, MARYLAND
AFFIDVAVIT OF NON-COLLUSION AND NON-CONVICTION

The bidder represents, and it is a condition of the acceptance of this bid, that the bidder has not been a party with other bidders to any agreement to bid a fixed or uniform price or to manipulate the outcome of the competitive bidding process in any way. The bidder also represents that none of its officers, directors, partners, or employees who are directly involved in obtaining or performing contracts with any public bodies has:

- (1) been convicted of bribery, attempted bribery, or conspiracy to bribe, under the laws of any state or of the federal government;
- (2) been convicted under a State or federal law or statute of any offense enumerated in Md. Code Ann., State Fin. and Proc. §16-203; or
- (3) been found civilly liable under a State or federal antitrust statute as provided in Md. Code Ann., State Fin. and Proc., §16-203.

The Contractor warrants that it has not been debarred or suspended under Md. Code Ann., State Fin., and Proc., Title 16 Subtitle 3 and that it shall not knowingly enter into a contract with a public body under which a person or business debarred or suspended under Md. Code Ann., State Fin., and Proc., Title 16, Subtitle 3 will provide, directly or indirectly, supplies, services, architectural services, construction related services, leases of real property, or construction.

The Bidder/Offeror and/or any person signing on its behalf acknowledges that all documents, information and data submitted in its Bid/Proposal shall be treated as public information unless otherwise indicated.

ATTEST/WITNESS

Name of Bidder-Type/Print

_____ By: _____
Signature of Person Authorized to Sign

Name and Title of Signatory (Type or Print)

STATE OF _____

COUNTY OF _____, TO WIT:

On this ____ day of _____ 20 ____, before the undersigned officer, personally appeared _____, known to me or satisfactorily proven to be the person whose name is subscribed on the foregoing instrument for the purposes therein contained.

Notary Public My Commission Expires: _____

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting*, later, for further information.

Note: If you are a U.S. person and a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien;
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States;
- An estate (other than a foreign estate); or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

In the cases below, the following person must give Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States.

- In the case of a disregarded entity with a U.S. owner, the U.S. owner of the disregarded entity and not the entity;
- In the case of a grantor trust with a U.S. grantor or other U.S. owner, generally, the U.S. grantor or other U.S. owner of the grantor trust and not the trust; and
- In the case of a U.S. trust (other than a grantor trust), the U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person or the U.S. branch of a foreign bank that has elected to be treated as a U.S. person, do not use Form W-9. Instead, use the appropriate Form W-8 or Form 8233 (see Pub. 515, *Withholding of Tax on Nonresident Aliens and Foreign Entities*).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items.

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.
4. The type and amount of income that qualifies for the exemption from tax.
5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity, give the requester the appropriate completed Form W-8 or Form 8233.

Backup Withholding

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 24% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, payments made in settlement of payment card and third party network transactions, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,
2. You do not certify your TIN when required (see the instructions for Part II for details),
3. The IRS tells the requester that you furnished an incorrect TIN,
4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or
5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See *Exempt payee code*, later, and the separate Instructions for the Requester of Form W-9 for more information.

Also see *Special rules for partnerships*, earlier.

What is FATCA Reporting?

The Foreign Account Tax Compliance Act (FATCA) requires a participating foreign financial institution to report all United States account holders that are specified United States persons. Certain payees are exempt from FATCA reporting. See *Exemption from FATCA reporting code*, later, and the Instructions for the Requester of Form W-9 for more information.

Updating Your Information

You must provide updated information to any person to whom you claimed to be an exempt payee if you are no longer an exempt payee and anticipate receiving reportable payments in the future from this person. For example, you may need to provide updated information if you are a C corporation that elects to be an S corporation, or if you no longer are tax exempt. In addition, you must furnish a new Form W-9 if the name or TIN changes for the account; for example, if the grantor of a grantor trust dies.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of \$50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a \$500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Line 1

You must enter one of the following on this line; **do not** leave this line blank. The name should match the name on your tax return.

If this Form W-9 is for a joint account (other than an account maintained by a foreign financial institution (FFI)), list first, and then circle, the name of the person or entity whose number you entered in Part I of Form W-9. If you are providing Form W-9 to an FFI to document a joint account, each holder of the account that is a U.S. person must provide a Form W-9.

a. **Individual.** Generally, enter the name shown on your tax return. If you have changed your last name without informing the Social Security Administration (SSA) of the name change, enter your first name, the last name as shown on your social security card, and your new last name.

Note: ITIN applicant: Enter your individual name as it was entered on your Form W-7 application, line 1a. This should also be the same as the name you entered on the Form 1040/1040A/1040EZ you filed with your application.

b. **Sole proprietor or single-member LLC.** Enter your individual name as shown on your 1040/1040A/1040EZ on line 1. You may enter your business, trade, or "doing business as" (DBA) name on line 2.

c. **Partnership, LLC that is not a single-member LLC, C corporation, or S corporation.** Enter the entity's name as shown on the entity's tax return on line 1 and any business, trade, or DBA name on line 2.

d. **Other entities.** Enter your name as shown on required U.S. federal tax documents on line 1. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on line 2.

e. **Disregarded entity.** For U.S. federal tax purposes, an entity that is disregarded as an entity separate from its owner is treated as a "disregarded entity." See Regulations section 301.7701-2(c)(2)(iii). Enter the owner's name on line 1. The name of the entity entered on line 1 should never be a disregarded entity. The name on line 1 should be the name shown on the income tax return on which the income should be reported. For example, if a foreign LLC that is treated as a disregarded entity for U.S. federal tax purposes has a single owner that is a U.S. person, the U.S. owner's name is required to be provided on line 1. If the direct owner of the entity is also a disregarded entity, enter the first owner that is not disregarded for federal tax purposes. Enter the disregarded entity's name on line 2, "Business name/disregarded entity name." If the owner of the disregarded entity is a foreign person, the owner must complete an appropriate Form W-8 instead of a Form W-9. This is the case even if the foreign person has a U.S. TIN.

Line 2

If you have a business name, trade name, DBA name, or disregarded entity name, you may enter it on line 2.

Line 3

Check the appropriate box on line 3 for the U.S. federal tax classification of the person whose name is entered on line 1. Check only one box on line 3.

IF the entity/person on line 1 is a(n) . . .	THEN check the box for . . .
• Corporation	Corporation
• Individual • Sole proprietorship, or • Single-member limited liability company (LLC) owned by an individual and disregarded for U.S. federal tax purposes.	Individual/sole proprietor or single-member LLC
• LLC treated as a partnership for U.S. federal tax purposes, • LLC that has filed Form 8832 or 2553 to be taxed as a corporation, or • LLC that is disregarded as an entity separate from its owner but the owner is another LLC that is not disregarded for U.S. federal tax purposes.	Limited liability company and enter the appropriate tax classification. (P= Partnership; C= C corporation; or S= S corporation)
• Partnership	Partnership
• Trust/estate	Trust/estate

Line 4, Exemptions

If you are exempt from backup withholding and/or FATCA reporting, enter in the appropriate space on line 4 any code(s) that may apply to you.

Exempt payee code.

- Generally, individuals (including sole proprietors) are not exempt from backup withholding.
- Except as provided below, corporations are exempt from backup withholding for certain payments, including interest and dividends.
- Corporations are not exempt from backup withholding for payments made in settlement of payment card or third party network transactions.
- Corporations are not exempt from backup withholding with respect to attorneys' fees or gross proceeds paid to attorneys, and corporations that provide medical or health care services are not exempt with respect to payments reportable on Form 1099-MISC.

The following codes identify payees that are exempt from backup withholding. Enter the appropriate code in the space in line 4.

- 1—An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2)
- 2—The United States or any of its agencies or instrumentalities
- 3—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities
- 4—A foreign government or any of its political subdivisions, agencies, or instrumentalities
- 5—A corporation
- 6—A dealer in securities or commodities required to register in the United States, the District of Columbia, or a U.S. commonwealth or possession
- 7—A futures commission merchant registered with the Commodity Futures Trading Commission
- 8—A real estate investment trust
- 9—An entity registered at all times during the tax year under the Investment Company Act of 1940
- 10—A common trust fund operated by a bank under section 584(a)
- 11—A financial institution
- 12—A middleman known in the investment community as a nominee or custodian
- 13—A trust exempt from tax under section 664 or described in section 4947

The following chart shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 13.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 7
Broker transactions	Exempt payees 1 through 4 and 6 through 11 and all C corporations. S corporations must not enter an exempt payee code because they are exempt only for sales of noncovered securities acquired prior to 2012.
Barter exchange transactions and patronage dividends	Exempt payees 1 through 4
Payments over \$600 required to be reported and direct sales over \$5,000 ¹	Generally, exempt payees 1 through 5 ²
Payments made in settlement of payment card or third party network transactions	Exempt payees 1 through 4

¹ See Form 1099-MISC, Miscellaneous Income, and its instructions.

² However, the following payments made to a corporation and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, gross proceeds paid to an attorney reportable under section 6045(f), and payments for services paid by a federal executive agency.

Exemption from FATCA reporting code. The following codes identify payees that are exempt from reporting under FATCA. These codes apply to persons submitting this form for accounts maintained outside of the United States by certain foreign financial institutions. Therefore, if you are only submitting this form for an account you hold in the United States, you may leave this field blank. Consult with the person requesting this form if you are uncertain if the financial institution is subject to these requirements. A requester may indicate that a code is not required by providing you with a Form W-9 with "Not Applicable" (or any similar indication) written or printed on the line for a FATCA exemption code.

A—An organization exempt from tax under section 501(a) or any individual retirement plan as defined in section 7701(a)(37)

B—The United States or any of its agencies or instrumentalities

C—A state, the District of Columbia, a U.S. commonwealth or possession, or any of their political subdivisions or instrumentalities

D—A corporation the stock of which is regularly traded on one or more established securities markets, as described in Regulations section 1.1472-1(c)(1)(i)

E—A corporation that is a member of the same expanded affiliated group as a corporation described in Regulations section 1.1472-1(c)(1)(i)

F—A dealer in securities, commodities, or derivative financial instruments (including notional principal contracts, futures, forwards, and options) that is registered as such under the laws of the United States or any state

G—A real estate investment trust

H—A regulated investment company as defined in section 851 or an entity registered at all times during the tax year under the Investment Company Act of 1940

I—A common trust fund as defined in section 584(a)

J—A bank as defined in section 581

K—A broker

L—A trust exempt from tax under section 664 or described in section 4947(a)(1)

M—A tax exempt trust under a section 403(b) plan or section 457(g) plan

Note: You may wish to consult with the financial institution requesting this form to determine whether the FATCA code and/or exempt payee code should be completed.

Line 5

Enter your address (number, street, and apartment or suite number). This is where the requester of this Form W-9 will mail your information returns. If this address differs from the one the requester already has on file, write NEW at the top. If a new address is provided, there is still a chance the old address will be used until the payor changes your address in their records.

Line 6

Enter your city, state, and ZIP code.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN.

If you are a single-member LLC that is disregarded as an entity separate from its owner, enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note: See *What Name and Number To Give the Requester*, later, for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local SSA office or get this form online at www.SSA.gov. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at www.irs.gov/Businesses and clicking on Employer Identification Number (EIN) under Starting a Business. Go to www.irs.gov/Forms to view, download, or print Form W-7 and/or Form SS-4. Or, you can go to www.irs.gov/OrderForms to place an order and have Form W-7 and/or SS-4 mailed to you within 10 business days.

If you are asked to complete Form W-9 but do not have a TIN, apply for a TIN and write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note: Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: A disregarded U.S. entity that has a foreign owner must use the appropriate Form W-8.

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if item 1, 4, or 5 below indicates otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). In the case of a disregarded entity, the person identified on line 1 must sign. Exempt payees, see *Exempt payee code*, earlier.

Signature requirements. Complete the certification as indicated in items 1 through 5 below.

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983. You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983. You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

3. Real estate transactions. You must sign the certification. You may cross out item 2 of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments made in settlement of payment card and third party network transactions, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), ABLE accounts (under section 529A), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account) other than an account maintained by an FFI	The actual owner of the account or, if combined funds, the first individual on the account ¹
3. Two or more U.S. persons (joint account maintained by an FFI)	Each holder of the account
4. Custodial account of a minor (Uniform Gift to Minors Act)	The minor ²
5. a. The usual revocable savings trust (grantor is also trustee)	The grantor-trustee ¹
b. So-called trust account that is not a legal or valid trust under state law	The actual owner ¹
6. Sole proprietorship or disregarded entity owned by an individual	The owner ³
7. Grantor trust filing under Optional Form 1099 Filing Method 1 (see Regulations section 1.671-4(b)(2)(i)(A))	The grantor*
For this type of account:	Give name and EIN of:
8. Disregarded entity not owned by an individual	The owner
9. A valid trust, estate, or pension trust	Legal entity ⁴
10. Corporation or LLC electing corporate status on Form 8832 or Form 2553	The corporation
11. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
12. Partnership or multi-member LLC	The partnership
13. A broker or registered nominee	The broker or nominee

For this type of account:	Give name and EIN of:
14. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity
15. Grantor trust filing under the Form 1041 Filing Method or the Optional Form 1099 Filing Method 2 (see Regulations section 1.671-4(b)(2)(i)(B))	The trust

¹ List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

² Circle the minor's name and furnish the minor's SSN.

³ You must show your individual name and you may also enter your business or DBA name on the "Business name/disregarded entity" name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

⁴ List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships*, earlier.

*Note: The grantor also must provide a Form W-9 to trustee of trust.

Note: If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Secure Your Tax Records From Identity Theft

Identity theft occurs when someone uses your personal information such as your name, SSN, or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

If your tax records are affected by identity theft and you receive a notice from the IRS, respond right away to the name and phone number printed on the IRS notice or letter.

If your tax records are not currently affected by identity theft but you think you are at risk due to a lost or stolen purse or wallet, questionable credit card activity or credit report, contact the IRS Identity Theft Hotline at 1-800-908-4490 or submit Form 14039.

For more information, see Pub. 5027, Identity Theft Information for Taxpayers.

Victims of identity theft who are experiencing economic harm or a systemic problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes.

Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to phishing@irs.gov. You may also report misuse of the IRS name, logo, or other IRS property to the Treasury Inspector General for Tax Administration (TIGTA) at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at spam@uce.gov or report them at www.ftc.gov/complaint. You can contact the FTC at www.ftc.gov/idtheft or 877-IDTHEFT (877-438-4338). If you have been the victim of identity theft, see www.IdentityTheft.gov and Pub. 5027.

Visit www.irs.gov/IdentityTheft to learn more about identity theft and how to reduce your risk.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons (including federal agencies) who are required to file information returns with the IRS to report interest, dividends, or certain other income paid to you; mortgage interest you paid; the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, Archer MSA, or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation and to cities, states, the District of Columbia, and U.S. commonwealths and possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to the payer. Certain penalties may also apply for providing false or fraudulent information.

BID BOND

BOND NO. _____

BID REQUEST NO. _____

KNOW ALL PERSONS BY THESE PRESENTS, That we, _____ hereinafter called the Principal, as Principal, and of _____ a Corporation duly organized and existing under the laws of the State of _____ and authorized to do business in the State of Maryland, hereinafter called the Surety, as Surety, are held and firmly bound unto, the Mayor and Common Council of Westminster, hereinafter called the Obligee, in the sum of _____ Dollars (\$ _____ .00), good and lawful money of the United States of America, to be paid upon demand of the Obligee, for payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH THAT, Whereas, the Principal has submitted to the Obligee a Bid for furnishing all labor, materials, equipment and incidentals thereto necessary for work generally described as:

This Bid Bond shall be governed by and construed in accordance with the laws of the State of Maryland and any reference herein to Principal or Surety in the singular shall include all entities in the plural who or which are signatories under the Principal or Surety heading below.

NOW, THEREFORE, if the Obligee shall accept the Bid of the Principal and the Principal shall enter into a written agreement with the Obligee in accordance with the terms, conditions and price(s) set forth therein, and furnish such insurance and give such bond or bonds as may be specified in the Bidding or Contract Documents with good and sufficient surety for the faithful performance of such Agreement and for the prompt payment of labor and materials furnished in the prosecution thereof, then this obligation shall become null and void; otherwise, it shall remain in full force and effect; and the Surety shall, upon failure of the Principal to comply with any or all of the foregoing requirements immediately pay to the Obligee, upon demand, the amount hereof in good and lawful money of the United States of America, not as a penalty, but as liquidated damages.

Provided, however, that the Surety shall not be liable to the Obligee on this bond for any amount in excess of the principal amount hereof.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its Bond shall in no way be impaired or affected by any extension of the time within which the owner may accept such proposal, and said Surety hereby waives notice of any such extension.

IN TESTIMONY WHEREOF, the Principal and Surety have caused these presents to be duly signed and sealed this _____ day of _____, 20__.

Principal

By _____ (Seal)

Official Title

Surety

By _____
Attorney-in-Fact

By _____
Maryland Agent

(Accompany this bond with Attorney-in-Fact's authority from Surety Company certified to include the date of the bond)

BOND NO: _____

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS, that on this _____ day of _____, 20____, we (“the Contractor”) _____ as Principal, and (Bonding Company) _____ as Surety, are held and firmly bound unto the Mayor and Common Council of Westminster (“the City”), in the penal sum of _____ Dollars (\$_____) for payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

WHEREAS, the Principal entered into a Contract (“the Contract”) with the City dated _____ 20__ concerning the _____ (the “Project”).

NOW, THEREFORE, the proceeds of this bond may be drawn upon by the City, in whole or in part, for the purpose of (1) performing, on its own or through a contractor, any work required by the Contract that has been left unperformed by the Principal more than thirty (30) days past the date on which the Principal is notified by the City of the failure or performing any of the other undertakings, covenants, terms, conditions and agreements imposed by the Contract terms that the Principal fails timely to perform or (2) holding the City harmless from any damages growing out of negligence of the Principal, or its agents, servants, or employees.

The condition of this obligation is such that if the Contractor shall in all respects well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of said Contract and the Project during the term of said Contract and any extension thereof granted by the City, and during the life of any guaranty required under the Contract, and 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 and shall save harmless the City from any expense incurred through the failure of the Principal, its agents and servants, to complete the work as required by the Contract, or any authorized modifications thereof, or from any damages growing out of negligence of the Principal, or its agents, servants, or employees then this obligation shall be null and void and otherwise to be and shall remain in full force and effect until the requirements of the Contract and the Project have been fully completed and approved or accepted by the City.

Any modification made by agreement by and between Principal and City in terms of the Contract or the nature or scope of the work for the Project, or the giving to Principal or its officers, employees, agents, successors or assigns any extension of time on the part of Principal to be performed or any forbearance on the part of City to Principal, or its officers, employees, agents, successors or assigns, shall not in any way release Principal or Surety in this Bond. This Payment Bond will be held by the City until the expiration of three (3) years after the date of final acceptance of the work under the Contract, or earlier upon receipt of a release of liens in a form satisfactory to the City. There shall be no reduction or release of this Payment Bond until all claims by laborers and material suppliers have been paid and a release of claims has been provided to the City.

Notice to the Surety shall be sufficient if sent by certified mail to the individual named below at the following address:

Name and Title

Address

Address

IN TESTIMONY WHEREOF, Principal has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its duly authorized officers and Surety has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its Attorney-in-fact, duly authorized hereunto so to do, the day and year first above written.

Principal (Typed Name)

(SEAL)

Witness/Principal

Principal

(SEAL)

Witness/Surety

Corporate Surety

By: _____
Attorney in Fact

Provide Name, Address, and telephone number of Branch Office or Resident agent to be contacted in the event action is required on the Bonds supplied, together with signature of Resident Agent.

Firm Name: _____

Address: _____

Telephone w/Area Code _____

Signature/Resident Agent: _____

Date: _____ Registration No. _____

Note: A certified copy of Power of Attorney of the person signing for Surety Company must be filed with the bond. A corporate acknowledgement is required when a principal is a corporation.

BOND NO: _____

PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS, that on this _____ day of _____, 20_____, we _____ (Contractor) _____ as Principal, and _____ (Bonding Company) _____ as Surety, are held and firmly bound unto the Mayor and Common Council of Westminster (“the City”), in the penal sum of _____ Dollars (\$_____) for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

WHEREAS, the Principal entered into a Contract (“the Contract”) with the City dated _____ 20_____, concerning the _____ (the “Project”).

NOW, THEREFORE, the proceeds of this bond may be drawn upon by the City, in whole or in part, for the purpose of paying any contractors, subcontractors or material suppliers left unpaid by the Principal more than thirty (30) days past the date of the first invoice from the contractor, subcontractor or material supplier to the Principal, absent bona fide cause to contest the invoice.

If the Principal shall promptly make proper payment to all persons supplying labor, equipment and materials used in the prosecution of the work provided for in said Contract and the Project, and any and all duly authorized modifications of said Contract that may hereafter be made, notice of which modification to the Surety being hereby waived, then this obligation will be void; otherwise it will remain in full force and effect.

The condition of this obligation is such that if the Contractor shall in all respects well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of said Contract and the Project during the term of said Contract and any extension thereof granted by the City, and during the life of any guaranty required under the Contract, and 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 and shall save harmless the City from any expense incurred through the failure of the Principal, its agents and servants, to complete the work as required by the Contract, or any authorized modifications thereof, or from any damages growing out of negligence of the Principal, or its agents, servants, or employees then this obligation shall be null and void and otherwise to be and shall remain in full force and effect until the requirements of the Contract and the Project have been fully completed and approved or accepted by the City.

Any modification made by agreement by and between Principal and City in terms of the Contract or the nature or scope of the Project, or the giving to the Principal or its officers, agents, employees, successors or assigns any extension of time on the part of Principal to be performed or any forbearance on the part of the City to Principal, its officers, employees, successors and assigns shall not in any way release Principal or Surety in this Bond.

Notice to the Surety shall be sufficient if sent by certified mail to the individual named below at the following address:

Name and Title

Address

Address

IN TESTIMONY WHEREOF, Principal has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its duly authorized officers and Surety has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its Attorney-in-fact, duly authorized hereunto so to do, the day and year first above written.

Principal (Typed Name)

Witness/Principal

Principal

(Seal)

Witness/Surety

Corporate Surety

(Seal)

By:

Attorney in Fact

Provide Name, Address and telephone number of Branch Office or Resident agent to be contacted in the event action is required on the Bonds supplied, together with signature of Resident Agent.

Firm Name _____

Address _____

Telephone w/Area Code _____

Signature/Resident Agent _____

Date: _____ Registration No. _____

Note: A certified copy of Power of Attorney of the person signing for Surety Company must be filed with the bond. A corporate acknowledgement is required when a principal is a corporation.

NOTICE OF AWARD

To: _____

Attn: _____

Project Description: _____

You are hereby notified that your Bid for _____, as outlined in the Specifications and other Contract Documents, has been accepted in the amount of (\$_____). You are required to execute the Agreement and furnish certificates of insurance within ten (10) calendar days from the date of this Notice of Award provided to you.

If you fail to execute the Agreement and to furnish the same within ten (10) days from the date of this Notice of Award, the City will be entitled to consider all your rights arising out of the City's acceptance of your bid as abandonment and as a forfeiture of your bid bond. The City will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this Notice of Award to the City.

Dated this _____ day of _____, 2020.

The Mayor and Common Council of Westminster
Owner

By: _____
Jeffery D. Glass, Director of Public Works

ACCEPTANCE OF NOTICE OF AWARD

Receipt of the above NOTICE OF AWARD is hereby acknowledged:

By: _____

Title: _____

This _____ day of _____, 2020

NOTICE TO PROCEED

To: _____

Date: _____

Project: _____

Contract No. _____

You are hereby notified to commence WORK in accordance with the AGREEMENT dated on or before _____ and to complete the WORK by June 30, 2021

The Mayor and Common Council of Westminster
Owner

By: _____
Jeffery D. Glass, Director of Public Works

ACCEPTANCE OF NOTICE TO PROCEED

Receipt of the above NOTICE TO PROCEED is hereby acknowledged:

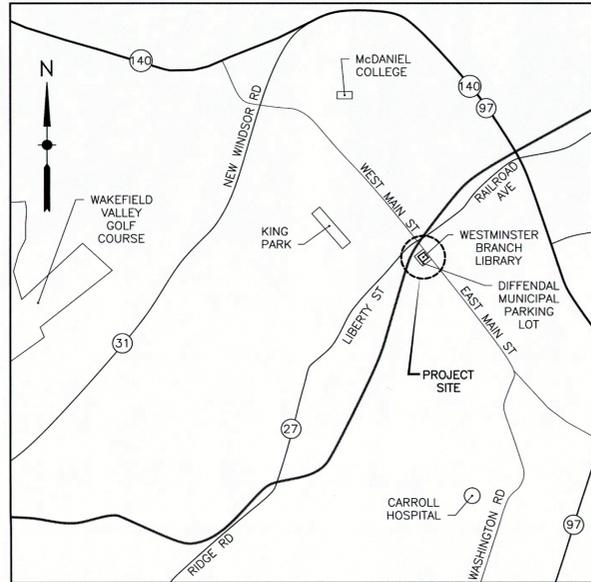
By: _____

Title: _____

This _____ day of _____, 2020

CITY OF WESTMINSTER CARROLL COUNTY, MARYLAND REPAIR/RECONSTRUCTION OF BRICK MASONRY WALLS SURROUNDING CCPL (DIFFENDAL LOT)

R-289-C



LOCATION MAP
NOT TO SCALE



FOR UTILITY LOCATIONS
CALL AT LEAST 48 HOURS
BEFORE BEGINNING CONSTRUCTION

MAYOR AND COMMON COUNCIL
Joe Dominick, Mayor
Gregory Pecoraro, President
Dr. Mona Becker
Tony Chiavacci
Benjamin Yingling
Gregory Pecoraro

DIRECTOR OF PUBLIC WORKS
Jeffrey Glass

ENGINEER
Michael Matov

CTY ATTORNEY
Elissa Levan

INDEX OF DRAWINGS		
DRAWING No.	SHEET TITLE	SHEET No.
T001	COVER SHEET	1 OF 5
S001	GENERAL STRUCTURAL NOTES	2 OF 5
S100	RETAINING WALL PART PLAN	3 OF 5
S101	RETAINING WALL PART PLAN	4 OF 5
S301	SECTIONS	5 OF 5

OWNER'S CERTIFICATION
I/WE HEREBY CERTIFY THAT ALL PROPOSED WORK SHOWN ON THESE CONSTRUCTION DRAWING(S) HAS BEEN REVIEWED BY ME/US AND THAT I/WE FULLY UNDERSTAND WHAT IS NECESSARY TO ACCOMPLISH THIS WORK AND THAT THE WORK WILL BE CONDUCTED IN STRICT ACCORDANCE WITH THESE PLANS. I/WE ALSO UNDERSTAND THAT ANY CHANGES TO THESE PLANS WILL REQUIRE AN AMENDED PLAN TO BE REVIEWED AND APPROVED BY THE CARROLL COUNTY PLANNING AND ZONING COMMISSION BEFORE ANY CHANGE IN THE WORK IS MADE.

BY: Jeffrey D. Glass
DIRECTOR OF PUBLIC WORKS
SIGNED: [Signature] DATE: 8-14-20

APPROVED FOR CONSTRUCTION BY

SIGNED: [Signature] DATE: 8-14-20
JEFFREY D. GLASS, DIRECTOR OF PUBLIC WORKS

REVISIONS	BY



Professional Certification:
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland License No. 23393 Expiration Date: 06/25/2020.

CITY OF WESTMINSTER
CARROLL COUNTY, MARYLAND
REPAIR/RECONSTRUCTION OF BRICK MASONRY WALLS
SURROUNDING CCPL (DIFFENDAL LOT)
COVER SHEET

ALBRECHT ENGINEERING INC.
3500 BOSTON STREET SUITE 329 MS-12
BALTIMORE, MD 21224
410-522-5870

DATE	AUGUST, 2020
SCALE	AS NOTED
DESIGNED	RET
DRAWN	KAP
CHECKED	RLA
JOB	2019-033
SHEET	T001

FOR CONSTRUCTION

GENERAL

- A. ALL ELEVATIONS ARE REFERENCED TO MSL. SEE CIVIL DWG FOR FINISHED FLOOR ELEV. ALL ELEVATIONS SHOWN ON PLANS ARE REFERENCED TO THIS DATUM UNLESS NOTED.
- B. THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO FABRICATION OR START OF CONSTRUCTION.
- C. NO STRUCTURAL MEMBER SHALL BE CUT, NOTCHED OR OTHERWISE REDUCED IN STRENGTH WITHOUT THE PRIOR NOTIFICATION OF THE STRUCTURAL ENGINEER.
- D. THE GENERAL CONTRACTOR SHALL COORDINATE ALL OTHER DISCIPLINES FOR ANY ITEMS WHICH EFFECT THE STRUCTURAL DRAWINGS.
- E. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING, GUY WIRES, ETC., WHERE NECESSARY TO ADEQUATELY RESIST ALL CONSTRUCTION LOADS.

DESIGN CRITERIA

A. STRUCTURAL DESIGN SHALL BE IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF THE FOLLOWING CODE, STANDARDS AND SPECIFICATIONS:

- INTERNATIONAL BUILDING CODE (IBC) 2018
- ASCE 7-16 MIN. DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES.
- ACI 318-14 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.
- ACI 530-13 BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES.
- AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, 14th EDITION.
- AWS D1.1 STRUCTURAL WELDING CODE - STEEL.

B. RETAINING WALL DESIGN LOADS:

SURCHARGE LOAD = 250 PSF FROM ROADWAY/BUILDING BEHIND WALL

SOIL LOAD PER GEOTECHNICAL REPORT

ASCE 7-16: RISK CATEGORY = II

WIND LOADS:

ULTIMATE DESIGN SPEED: 115 MPH

EXPOSURE: B

SNOW LOADS:

GROUND SNOW LOAD (Pg): 30 PSF

SNOW EXPOSURE FACTOR (Ce): 10

SNOW THERMAL FACTOR (Ct): 1.2

SNOW LOAD IMPORTANCE FACTOR (Is): 1.0

EXISTING CONSTRUCTION

A. ALL MEMBER SIZES AND DIMENSIONS AND ELEVATIONS OF EXISTING STRUCTURES SHOWN ON THE DRAWINGS ARE OBTAINED FROM AVAILABLE SOURCES, AND ARE NOT GUARANTEED TO BE TRUE AND EXACT. THE CONTRACTOR SHALL VERIFY THESE DIMENSIONS AND ELEVATIONS BY ACTUAL FIELD MEASUREMENTS PRIOR TO FABRICATION OF ANY MATERIALS AND START OF WORK, AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

B. THE CONTRACTOR SHALL PROVIDE BRACING AS REQUIRED TO SUPPORT THE EXISTING WALL DURING CONSTRUCTION. THE CONTRACTOR SHALL EXAMINE THE EXISTING STRUCTURE TO DETERMINE THE EXTENT OF THE NECESSARY BRACING. THE CAPACITY AND METHOD FOR BRACING SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

DEMOLITION

A. REMOVE EXISTING SITE FEATURES AS SHOWN ON PLANS. SEE PLANS FOR EXTENT OF ITEMS TO BE REMOVED.

B. EXISTING BRICK RETAINING WALL SHALL REMAIN UNLESS SPECIFICALLY NOTED ON PLAN TO BE REMOVED.

C. IF FIELD CONDITIONS DIFFER FROM THOSE SHOWN ON DRAWINGS, NOTIFY ENGINEER BEFORE PROCEEDING.

D. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE THE EXISTING WALL DURING THE COURSE OF CONSTRUCTION AND IMMEDIATELY NOTIFY THE ENGINEER OF ANY AREAS WHERE THE STRUCTURE EXHIBITS DISTRESS OR FAILURE.

E. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE LOCATION OF ANY UTILITIES IN THE IMMEDIATE VICINITY OF CONSTRUCTION SO AS TO PREVENT DAMAGE TO THEM. SHOULD ANY DAMAGE TO SUCH UTILITIES OCCUR THE CONTRACTOR SHALL BE REQUIRED TO REPAIR SUCH DAMAGE AT THE CONTRACTOR'S OWN COST AND TO THE SATISFACTION OF THE OWNER.

POST AND PANEL RETAINING WALL

A. THE POST AND PANEL RETAINING WALL IS A DELEGATED DESIGN ITEM. CONTRACTOR IS RESPONSIBLE FOR DESIGNING THE SYSTEM INCLUDING SIZING THE SOLDIER PILES, THE PRECAST PANELS, CONCRETE CAP, END BRACKET DESIGN AND ANCHORAGE TO EXISTING WALL, AND ACCESSORIES ASSOCIATED WITH THE RETAINING WALL.

B. PRELIMINARY SIZES AND SPACING ARE SHOWN FOR THE PROPOSAL. CONTRACTOR RESPONSIBLE FOR FINAL DESIGN AND SPACING/SIZES SHOWN IS NOT INTENDED TO LIMIT THE CONTRACTOR IN THEIR DESIGN.

C. THE CONTRACTOR SHALL SUBMIT FOR REVIEW SIGNED AND SEALED SHOP DRAWINGS AND CALCULATIONS SHOWING DETAILS OF THE PROPOSED SYSTEMS TO BE USED.

D. THE DESIGN SHALL INCLUDE ALL LOADS INCLUDING SUPERIMPOSED SURCHARGE FROM ADJACENT LOADS AS SHOWN ON THE DRAWINGS.

E. GEOTECHNICAL INVESTIGATION HAS NOT BEEN PERFORMED FOR SITE. CONTRACTOR RESPONSIBLE FOR CONDUCTING A GEOTECHNICAL INVESTIGATION AND OBTAINING A GEOTECHNICAL REPORT TO BE SUBMITTED AND AN INFORMATIONAL SUBMITTAL. BASE FINAL POST AND PANEL RETAINING WALL DESIGN ON GEOTECHNICAL REPORT.

CONCRETE

A. ALL CONCRETE SHALL CONFORM TO THE PROVISIONS OF ACI BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-14) AND ACI SPECIFICATIONS FOR STRUCTURAL CONCRETE IN BUILDINGS (ACI 301-10).

B. ALL CONCRETE AND GROUT SHALL BE NORMAL WEIGHT CONCRETE, HAVING A DESIGN COMPRESSIVE STRENGTH AT 28 DAYS AS FOLLOWS:

FOOTINGS, PILE CAPS, GRADE BEAMS AND PIERS: 4,000 PSI

C. NO CONCRETE SHALL BE PLACED UNTIL CONCRETE DESIGN MIXES HAVE BEEN SUBMITTED FOR EACH CLASS OF CONCRETE AND HAVE BEEN REVIEWED BY THE ENGINEER.

D. USE A WATER REDUCING ADMIXTURE IN ALL CONCRETE.

E. SLUMP SHALL BE AS REQUIRED BY ACI 302 - LATEST EDITION.

F. AIR ENTRAIN ALL CONCRETE EXPOSED TO WEATHER 5% ±1%.

G. EXCAVATIONS SHALL BE KEPT FREE OF WATER. NO CONCRETE SHALL BE PLACED IN WATER.

H. SEE SPECIFICATIONS FOR SPECIAL INSPECTION REQUIREMENTS.

REINFORCEMENT

A. ALL DEVELOPMENT AND SPLICES OF REINFORCEMENT SHALL CONFORM TO THE PROVISIONS OF ACI BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318-LATEST EDITION).

B. REINFORCING STEEL SHALL BE DEFORMED BARS OF INTERMEDIATE GRADE NEW BILLET STEEL CONFORMING TO CURRENT REQUIREMENTS OF ASTM A615 GRADE 60 EXCEPT TIES MAY BE GRADE 40. ALL HOOKS SHALL BE STANDARD HOOKS, UNLESS OTHERWISE NOTED.

C. WELDED WIRE FABRIC (W.W.F.) SHALL CONFORM TO ASTM A185 (LATEST EDITION).

D. ALL WELDED WIRE FABRIC SHALL BE SPLICED SO THAT THE OVERLAP OF THE OUTERMOST CROSS WIRES OF EACH ADJOINING SHEET IS NOT LESS THAN THE SPACING OF THE CROSS WIRES PLUS TWO INCHES, UNLESS NOTED OTHERWISE.

E. REINFORCING BAR SUPPORTS AND SPACERS SHALL CONFORM TO ACI 315-(LATEST EDITION) DETAILING MANUAL.

F. SHOP DRAWINGS SHOWING ALL NECESSARY SECTIONS AND DETAILS FOR THE PROPER POSITIONING OF ALL REINFORCING STEEL SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER FOR REVIEW BEFORE FABRICATION OR PLACEMENT OF THE STEEL.

G. ALL REINFORCEMENT SHALL HAVE 3" COVER UNLESS OTHERWISE NOTED.

FOUNDATION AND FILL

A. TAKE PRECAUTIONS TO AVOID SOIL WASHOUT FROM UNDER EXISTING WALL. FILL ALL VOIDS UNDER EXISTING RETAINING WALL WITH LEAN CONCRETE FILL.

B. CONTRACTOR IS RESPONSIBLE FOR CONDUCTING A GEOTECHNICAL INVESTIGATION AND OBTAINING A GEOTECHNICAL REPORT TO BE SUBMITTED.

C. STONE FILL BETWEEN EXISTING RETAINING WALL AND PANELS SHALL BE PLACED IN 8" LIFTS AND TAMPED TO CONSOLIDATE.

CONCRETE MASONRY

A. DESIGN CRITERIA: ACI 530-11/ASCE 5-11

B. MORTAR: ASTM C270, TYPE S, MIN. 1800 PSI @ 28 DAYS, 3/8" FULL BEDDING. REMOVE MORTAR PROTRUDING INTO CELL CAVITIES TO BE REINFORCED AND GROUTED.

C. ANCHOR TO EXISTING BRICK WALL USING HILTI HIT-HY 270 OR SIMILAR.

STRUCTURAL STEEL

A. ALL STRUCTURAL STEEL SHALL CONFORM TO THE AISC SPECIFICATIONS FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS

B. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:

- STRUCTURAL STEEL W-SHAPES: A992 HAVING A MINIMUM YIELD STRENGTH OF 50 KSI.
- STRUCTURAL STEEL CHANNELS, ANGLES, BARS & PLATES: A36 HAVING A MINIMUM YIELD STRENGTH OF 36 KSI.
- SQUARE AND RECTANGULAR TUBING: A500, GRADE B HAVING MINIMUM YIELD STRENGTH OF 46 KSI.
- ROUND PIPE: A53, GRADE B HAVING A MINIMUM YIELD STRENGTH OF 35 KSI.

C. BOLTS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS: HIGH STRENGTH BOLTS: (SS) F593 ANCHOR BOLTS: A307 A36

D. ALL BOLTS SHALL BE 3/4" DIAMETER, OPEN HOLES 13/16" DIAMETER, UNLESS OTHERWISE SHOWN OR NOTED.

E. WELDING SHALL BE IN ACCORDANCE WITH AWS STRUCTURAL WELDING CODE (AWS D1.1) AND SHALL BE PERFORMED BY CERTIFIED WELDERS. ALL WELDS SHALL BE MADE WITH AWS A5.1 E-70XX ELECTRODES.

F. NO PENETRATIONS ARE PERMITTED THROUGH STRUCTURAL STEEL MEMBERS UNLESS INDICATED ON STRUCTURAL DRAWINGS OR APPROVED BY ARCHITECT/ENGINEER.

G. APPROVAL OF THE ENGINEER SHALL BE MANDATORY FOR THE USE OF CUTTING TORCH IN THE FIELD.

H. STRUCTURAL STEEL SHALL BE INSPECTED IN THE FIELD BY AN INDEPENDENT TESTING AGENCY APPROVED BY THE ARCHITECT AND PAID FOR BY THE OWNER.

I. ALL STEEL & CONNECTIONS EXPOSED TO WEATHER SHALL BE HOT-DIPPED GALVANIZED ACCORDING TO ASTM A123. OPTION 3 SHALL HAVE A HIGH PERFORMANCE COATING. OMIT GALVANIZING OF PILES IF OPTION TO PAINT STEEL IS SELECTED. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION REGARDING THIS OPTION.

SUBMITTALS

A. BEFORE SUBMISSION OF SHOP DRAWINGS, THE CONTRACTOR SHALL HAVE DETERMINED AND VERIFIED ALL QUANTITIES, DIMENSIONS, SPECIFIED PERFORMANCE CRITERIA, INSTALLATION REQUIREMENTS, MATERIALS, CATALOG NUMBERS AND SIMILAR DATA AND SHALL HAVE COORDINATED EACH SHOP DRAWING WITH OTHER SHOP DRAWINGS AND THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

B. PRIOR TO SUBMISSIONS, THE CONTRACTOR SHALL STAMP OR PROVIDE A SIMILAR WRITTEN INDICATION THAT THE CONTRACTOR HAS REVIEWED THE SUBMISSION AND IS SATISFIED THE CONTENTS ARE IN COMPLIANCE WITH THE CONTRACT DRAWINGS.

C. REPRINTS OF THE CONTRACT DRAWINGS WILL NOT BE ACCEPTED.

D. NO DIMENSIONAL INFORMATION MAY BE OBTAINED BY DIRECT SCALING OF THE DRAWINGS.

SPECIAL INSPECTION

A. SPECIAL INSPECTIONS ARE REQUIRED BY THE 2018 INTERNATIONAL BUILDING CODE (IBC). SPECIAL INSPECTIONS SHALL BE COORDINATED BY THE CONTRACTOR AND PAID FOR BY THE OWNER.

B. SPECIAL INSPECTIONS 1704.2

C. STEEL CONSTRUCTION 1705.2

D. CONCRETE CONSTRUCTION 1705.3

E. MASONRY CONSTRUCTION (LEVEL 1) 1705.4

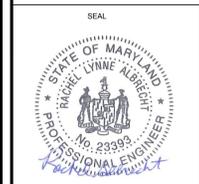
F. SOILS 1705.6

G. CAST IN PLACE DEEP FOUNDATIONS 1705.8

ABBREVIATIONS

∠	ANGLE
⊙	AT
⊕	CENTERLINE
∅	DIAMETER
⌒	PLATE
ADD'L	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
ALUM	ALUMINUM
ARCH	ARCHITECTURAL
BOT	BOTTOM
BRG	BEARING
CIP	CAST-IN-PLACE
CJ	CONTROL JOINT
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
CONT	CONTINUOUS
COORD	COORDINATE
DEG	DEGREE
DIA	DIAMETER
DIM	DIMENSION
DTL	DETAIL
DWG(S)	DRAWING(S)
EA	EACH
EE	EACH END
EF	EACH FACE
ELEV	ELEVATION
EMBED	EMBED(MENT)
EQ	EQUAL
EX	EXISTING
EW	EACH WAY
EXP	EXPANSION
FF	FINISHED FLOOR
FTG	FOOTING
FV	FIELD VERIFY
FRP	FIBER REINFORCED PLASTIC
GALV	GALVANIZED
HD GALV	HOT-DIPPED GALVANIZED
HORIZ	HORIZONTAL
HSS	HOLLOW STRUCTURAL SECTION
JT	JOINT
KSI	KIPS/SQUARE INCH
LLH	LONG LEG HORIZONTAL
LONG	LONGITUDINAL
MANUF	MANUFACTURER
MAX	MAXIMUM
MECH	MECHANICAL
MIN	MINIMUM
MISC	MISCELLANEOUS
MRWR	MID RANGE WATER REDUCER
NO	NUMBER
OC	ON CENTER
PCF	POUNDS/CUBIC FOOT
PLWD	PLYWOOD
PSF	POUNDS/SQUARE FOOT
PSI	POUNDS/SQUARE INCH
REINF	REINFORCEMENT
RTU	ROOF TOP UNIT
SCH	SCHEDULE
SECT	SECTION
SF	SQUARE FOOT
SIM	SIMILAR
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
T&B	TOP & BOTTOM
T&G	TONGUE & GROOVE
TOS	TOP OF SLAB
TS	TUBE STEEL
TRANSV	TRANSVERSE
TYP	TYPICAL
T/RET WALL	TOP OF RETAINING WALL
T/WALL	TOP OF WALL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
VIF	VERIFY IN FIELD
W/	WITH
W/C	WATER TO CEMENT RATIO
W/IN	WITHIN
W/O	WITHOUT
WWF	WELDED WIRE FABRIC

REVISIONS	BY



Professional Certification:
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland License No. 23393
Expiration Date: 08/25/2020.

CITY OF WESTMINSTER
 CARROLL COUNTY, MARYLAND
 REPAIR/RECONSTRUCTION OF BRICK MASONRY WALLS
 SURROUNDING CCPL (DIFFENDAL LOT)
 GENERAL STRUCTURAL NOTES

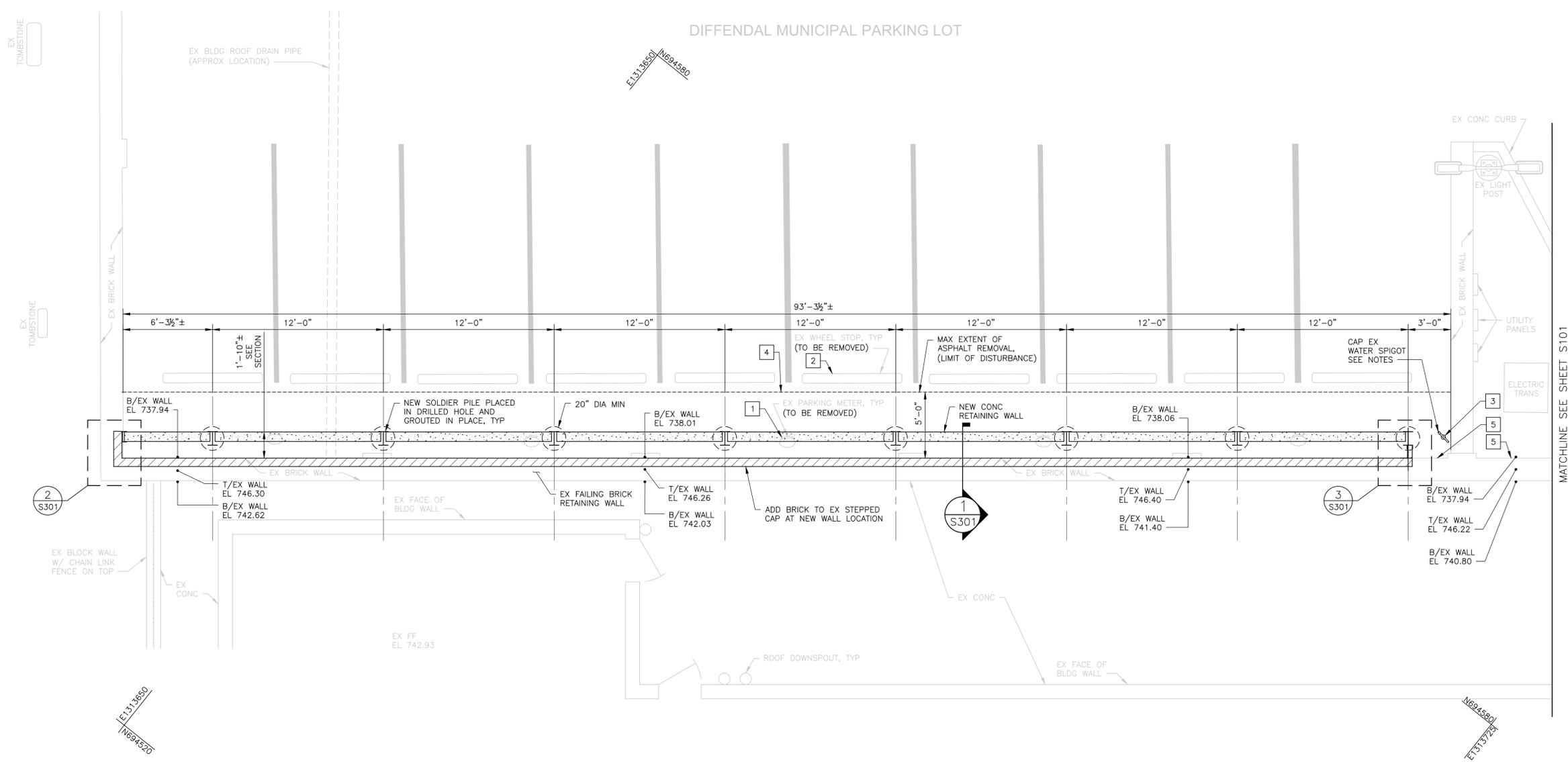
3600 BOSTON STREET SUITE 329 MS-12
 BALTIMORE, MD 21224
 410-522-5870

DATE	AUGUST, 2020
SCALE	AS NOTED
DESIGNED	RET
DRAWN	KAP
CHECKED	RLA
JOB	2019-033
SHEET	S001

FOR CONSTRUCTION S001

LEGEND

- 1 CITY WILL REMOVE EXISTING PARKING METERS AT NEW WALL PRIOR TO START OF CONSTRUCTION. [REMOVAL AND REINSTALLATION NOT IN SCOPE OF WORK]
- 2 CITY WILL REMOVE EXISTING WHEEL STOPS AT NEW WALL PRIOR TO START OF CONSTRUCTION. [REMOVAL AND REINSTALLATION NOT IN SCOPE OF WORK]
- 3 CAP EXISTING WATER LINE AT A MINIMUM OF 2' BELOW GRADE AND REMOVE EXISTING WATER SPIGOT. [PART OF BID ITEM 6]
- 4 REMOVE AND DISPOSE OF EXISTING ASPHALT PAVING AS REQUIRED TO INSTALL NEW WALL. AFTER INSTALLATION IS COMPLETE, RE-ESTABLISH FINISHED GRADE WITH SOIL COMPACTED IN LIFTS. REINSTALLATION OF ASPHALT NOT IN SCOPE OF WORK. [PART OF BID ITEM 6]
- 5 REPAIR EXISTING BRICK WALL ON DIFFENDAL PARKING LOT SIDE THAT WILL NOT BE COVERED WITH PANELS. REMOVE AND REPLACE SPALLED AND / OR CRACKED BRICKS. CLEAN MASONRY AND REPOINT ENTIRE FACE OF WALL. [PART OF BID ITEMS 7, 8 AND 9]



DIFFENDAL MUNICIPAL PARKING LOT

E1313850 N694580

REVISIONS	BY



Professional Certification:
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland License No. 23393 Expiration Date: 08/25/2020.

CITY OF WESTMINSTER
CARROLL COUNTY, MARYLAND
REPAIR/RECONSTRUCTION OF BRICK MASONRY WALLS
SURROUNDING CCPL (DIFFENDAL LOT)
RETAINING WALL PART PLAN

ALBRECHT
ENGINEERING INC
3600 BOSTON STREET SUITE 329 MS-12
BALTIMORE, MD 21224
410-522-5870

A RETAINING WALL PART PLAN
S100 SCALE: 1/4"=1'-0"

NOTE:
ELEVATIONS SHOWN BASED ON SURVEY BY LEON A. PODOLAK AND ASSOCIATES, LLC ON DECEMBER 27, 2019, AND IS BASED ON THE MARYLAND GRID SYSTEM ESTABLISHED FROM THE FOLLOWING TWO CARROLL COUNTY SURVEY CONTROL NETWORK STATIONS:
LIBRARY - N 694748.92 E 1313426.94 EL. 724.164 (CONCRETE MONUMENT)
LIBRARY AZI - N 694269.49 E 1313825.24 EL. 771.969 (RAILROAD SPIKE)

FOR CONSTRUCTION

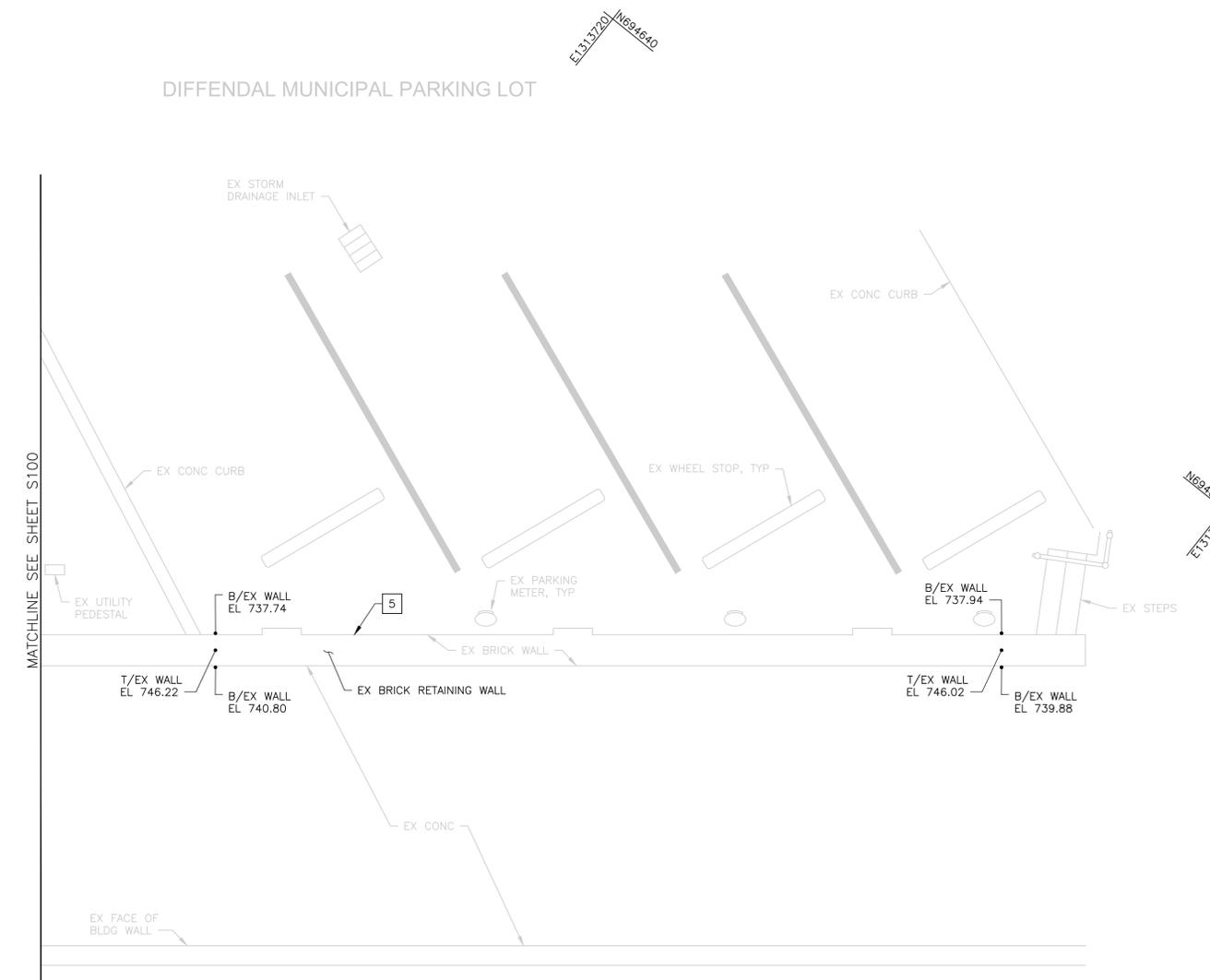
S100

REVISIONS	BY

- LEGEND**
- 1 CITY WILL REMOVE EXISTING PARKING METERS AT NEW WALL PRIOR TO START OF CONSTRUCTION. [REMOVAL AND REINSTALLATION NOT IN SCOPE OF WORK]
 - 2 CITY WILL REMOVE EXISTING WHEEL STOPS AT NEW WALL PRIOR TO START OF CONSTRUCTION. [REMOVAL AND REINSTALLATION NOT IN SCOPE OF WORK]
 - 3 CAP EXISTING WATER LINE AT A MINIMUM OF 2' BELOW GRADE AND REMOVE EXISTING WATER SPIGOT. [PART OF BID ITEM 6]
 - 4 REMOVE AND DISPOSE OF EXISTING ASPHALT PAVING AS REQUIRED TO INSTALL NEW WALL. AFTER INSTALLATION IS COMPLETE, RE-ESTABLISH FINISHED GRADE WITH SOIL COMPACTED IN LIFTS. REINSTALLATION OF ASPHALT NOT IN SCOPE OF WORK. [PART OF BID ITEM 6]
 - 5 REPAIR EXISTING BRICK WALL ON DIFFENDAL PARKING LOT SIDE THAT WILL NOT BE COVERED WITH PANELS. REMOVE AND REPLACE SPALLED AND / OR CRACKED BRICKS. CLEAN MASONRY AND REPOINT ENTIRE FACE OF WALL. [PART OF BID ITEMS 7, 8 AND 9]



Professional Certification:
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland License No. 23393 Expiration Date: 06/25/2020.



B RETAINING WALL PART PLAN
S101 SCALE: 1/4"=1'-0"

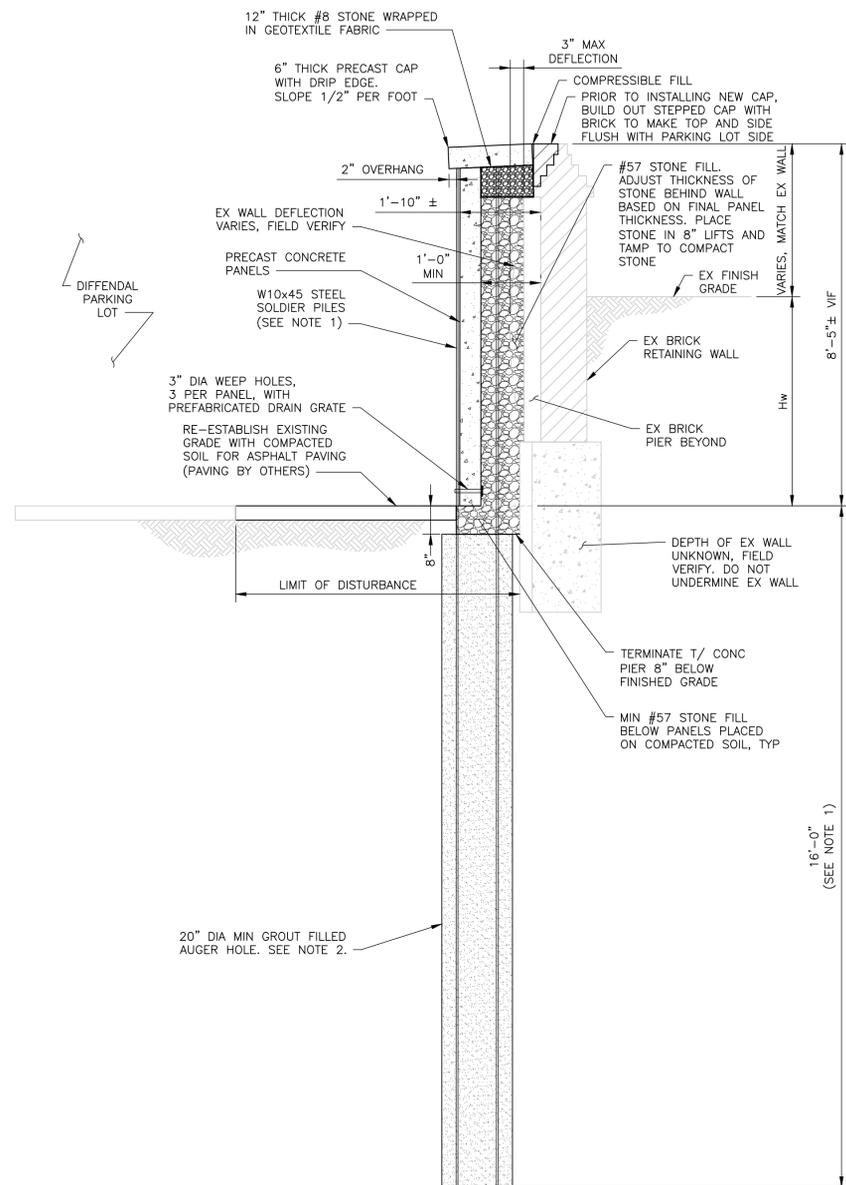
NOTE:
ELEVATIONS SHOWN BASED ON SURVEY BY LEON A. PODOLAK AND ASSOCIATES, LLC ON DECEMBER 27, 2019, AND IS BASED ON THE MARYLAND GRID SYSTEM ESTABLISHED FROM THE FOLLOWING TWO CARROLL COUNTY SURVEY CONTROL NETWORK STATIONS:
LIBRARY - N 694748.92 E 1313426.94 EL. 724.164 (CONCRETE MONUMENT)
LIBRARY AZ1 - N 694269.49 E 1313825.24 EL. 771.969 (RAILROAD SPIKE)

CITY OF WESTMINSTER
CARROLL COUNTY, MARYLAND
REPAIR/RECONSTRUCTION OF BRICK MASONRY WALLS
SURROUNDING CCPL (DIFFENDAL LOT)
RETAINING WALL PART PLAN

ALBRECHT
ENGINEERING INC
3600 BOSTON STREET SUITE 329 MS-12
BALTIMORE, MD 21224
410-522-5870

DATE	AUGUST, 2020
SCALE	AS NOTED
DESIGNED	RET
DRAWN	KAP
CHECKED	RLA
JOB	2019-033
SHEET	S101

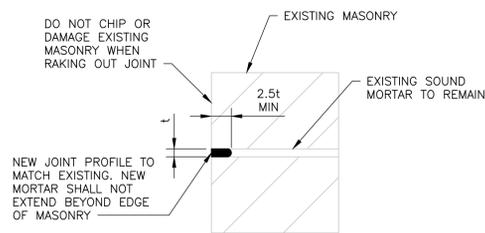
FOR CONSTRUCTION



1 SECTION - RETAINING WALL
S301 SCALE: 1/2"=1'-0"

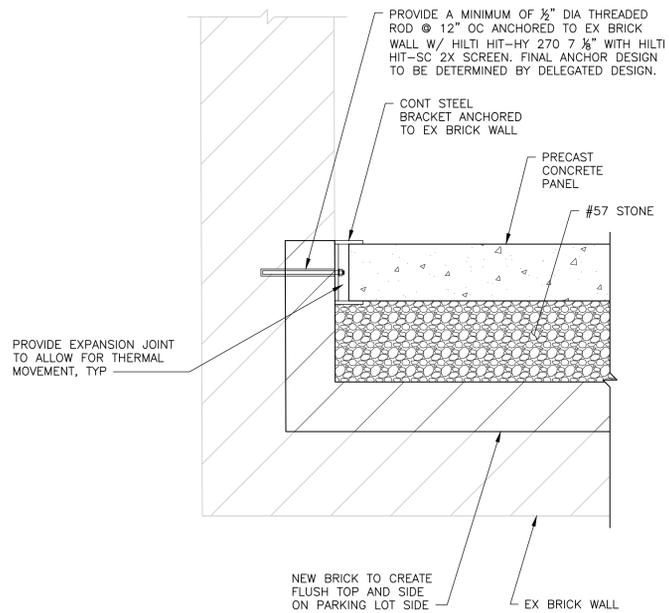
NOTE:

1. DEPTH AND SOLDIER PILE SIZE ARE GIVEN FOR CONTRACTORS USE IN PREPARING PROPOSAL. FINAL DEPTH AND SIZES SHALL BE DETERMINED BY THE DELEGATED DESIGNER OF THE POST AND PANEL SYSTEM.
2. DIAMETER OF AUGER HOLE FILLED WITH GROUT SHALL BE DETERMINED BY THE DELEGATED DESIGNER BUT NOT LESS THAN SHOWN. GROUT SHALL PROVIDE A MINIMUM OF 3" COVER FOR THE STEEL PILE.

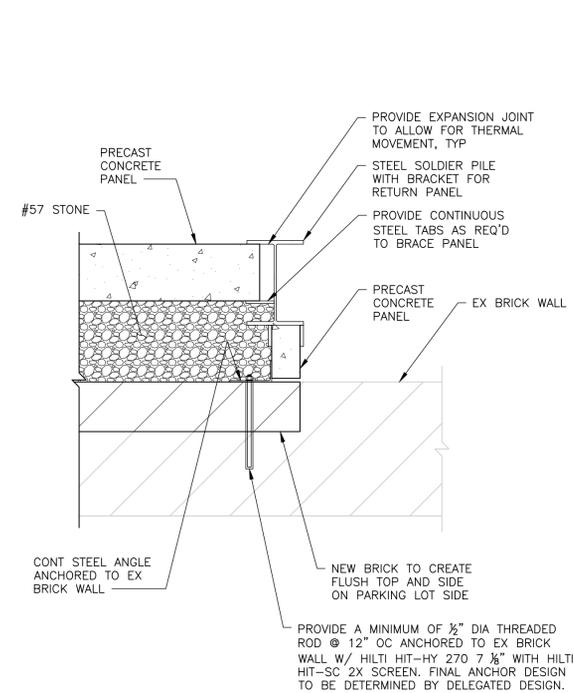


NOTE:
CUT BACK JOINT AT LEAST 2 1/2 TIMES ITS THICKNESS (1" MINIMUM), OR CONTINUE TO SOUND MORTAR. CLEAN JOINT AND POINT WITH SELECTED POINTING MORTAR.

A DETAIL - TYPICAL BRICK REPOINTING
S301 SCALE: 3/4"=1'-0"

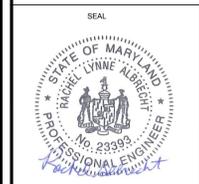


2 ENLARGED PLAN - END OF RETAINING WALL
S301 SCALE: 1"=1'-0"



3 ENLARGED PLAN - END OF RETAINING WALL
S301 SCALE: 1"=1'-0"

REVISIONS	BY



Professional Certification:
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland License No. 23393
Expiration Date: 08/25/2020.

CITY OF WESTMINSTER
CARROLL COUNTY, MARYLAND
REPAIR/RECONSTRUCTION OF BRICK MASONRY WALLS
SURROUNDING CCPL (DIFFENDAL LOT)

ALBRECHT
ENGINEERING INC
3600 BOSTON STREET SUITE 329 MS-12
BALTIMORE, MD 21224
410-522-5870

DATE	AUGUST, 2020
SCALE	AS NOTED
DESIGNED	RET
DRAWN	KAP
CHECKED	RLA
JOB	2019-033
SHEET	S301

FOR CONSTRUCTION S301

EXHIBIT B

AGREEMENT

THIS AGREEMENT is entered into this _____ day of _____, 2020, by the Mayor and Common Council of Westminster (“the City”), a municipal corporation of the State of Maryland, and _____ (“the Contractor”) with its principal offices at _____.

In consideration of the mutual covenants and obligations contained herein, the sufficiency of which is hereby acknowledged, the City and the Contractor hereby agree as follows:

1. Services Provided:

A. The Contractor shall provide the following services for the City: Diffendal Parking Lot Retaining Wall (“the Services”). The Services shall be provided as detailed in the following enumerated documents which form the Contract, and they are incorporated herein as if attached thereto, except that the Contractor’s Proposal is incorporated only as to the scope of work, the pricing proposal, and any warranties or representations about the nature or quality of the services or equipment to be provided contained therein. The listed documents, together with this Agreement, constitute the entire understanding of the parties and supersede any prior proposals or agreements.

- 1) Request for Bids, dated October 16, 2020
- 2) Contractor’s Bid, dated _____
- 3) Instructions to Bidders
- 4) General Conditions
- 5) Supplemental Conditions
- 6) Equal Opportunity Employer Form
- 7) Affidavit of Non-Collusion and Non-Conviction
- 8) Vendor Responsibility Form
- 9) Reference List
- 10) Performance Bond
- 11) Payment Bond
- 12) Notice of Award (when issued)
- 13) Insurance Certificate
- 14) Notice to Proceed (when issued)

B. The Contractor agrees to initiate work within ninety (90) days from date of the Notice to Proceed. The Contractor further acknowledges that the City retains the right to reduce the scope of the Services in order to accomplish the project within the City’s established budget and schedule. It is understood by the parties hereto that time is of the essence in the completion of this contract. All work must be completed by June 30, 2021.

C. The Contractor will furnish all equipment needed to perform the Services (the

“Contractor’s Equipment”).

2. Fees: The City hereby agrees to pay the Contractor as full consideration for the Contractor’s satisfactory performance of its obligations under this Agreement the sum of _____ Dollars (\$) payable monthly upon submission of invoices in accordance with the Supplemental Conditions.

3. Binding Effect of Agreement: This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

4. Political Contributions: If this contract involves cumulative consideration of at least \$200,000, the Contractor shall file with the State Board of Elections a statement under oath containing: (i) the name of each candidate, if any, to whom one or more applicable contributions in a cumulative amount of \$500 or more were made during the reporting period; (ii) the office sought by each candidate; (iii) the amount of aggregate contributions made to each candidate; (iv) the name of each unit of a governmental entity with which the person did public business during the reporting period; (v) the nature and amount of public business done with the City; and, (vi) if the contract or the contribution is attributed to another person who is filing the statement, the name of the contracting entity or the person who made the contribution, and the relationship of that person to the person filing the statement. The Contractor’s initial statement shall be filed at that time of the inception of the contract, and shall cover the preceding 24 months, and the Contractor shall thereafter file a semi-annual statement, for the six (6) months ending on January 31 or July 31 of every year, for each reporting period during which performance remains uncompleted on the contract, and shall be filed within five (5) days after the end of the applicable reporting period.

5. Notices: All notices or other communications required or permitted hereunder shall be in writing and delivered either (a) by hand or (b) by fax and by mail, postage prepaid, certified or registered return receipt requested, addressed as follows:

To the City: Barbara B. Matthews, City Administrator
56 W. Main Street, Suite 1
Westminster, Maryland 21157
Fax: (410) 857-7476
bmatthews@westgov.com

With a copy to: Elissa D. Levan, Esquire
City Attorney
Funk & Bolton, P.A.
100 Light Street, Suite 1400
Baltimore, MD 21202
Fax: (410) 659-7773

elevan@fblaw.com

To: _____

With a copy to: _____

6. Other Payments, Taxes, Expenses: Except as may be specifically agreed upon by the parties in writing, the Contractor shall be entitled to no fees, bonuses, contingent payments, or any other amount in connection with the services to be rendered or materials provided hereunder. The parties hereto further agree that the City shall have no obligation to reimburse, pay directly or otherwise satisfy any expenses of the Contractor in connection with the performance of its obligations under this Agreement, including, but not limited to, the cost of any insurance or license fees.

It is expressly understood and acknowledged by the parties hereto that the fees payable hereunder shall be paid in gross amount, without reduction for any Federal or State withholding or other payroll taxes, or any other governmental taxes or charges. The parties hereto further recognize that the Contractor is an independent contractor of the City and is therefore responsible for directly assuming and remitting any applicable Federal or State withholding taxes, estimated tax payments, or any other fees, taxes, or expenses whatsoever. In the event that the Contractor is deemed not to be an independent contractor by any local, state or federal government agency, the Contractor agrees to indemnify and hold harmless the City for any and all fees, costs, and expenses, including, but not limited to, attorneys' fees, incurred thereby.

7. Insurance: The Contractor agrees to maintain the insurance coverages set forth herein for the full term of the Contract and, in the case of construction contracts, for a period of one year after the completion of the Services. The Contractor further agrees to provide Certificates of Insurance upon signing this Agreement and such Certificates shall be on an occurrences basis and shall either (a) provide that the City shall be given at least thirty (30) days prior written notice of the cancellation of, intention not to renew, or material change in the coverage, or (b) provide that the City shall be given such notice of the cancellation of, intention not to renew, or material change in the coverage as is required by the terms of the Contractor's policy or policies of insurance. In the case of construction contracts, insurance shall include completed operations and contractual

liability coverage. All Certificates must name the City as an additional insured.

Provision of any insurance required herein does not relieve the Contractor of any of the responsibilities or obligations assumed by the Contractor in the contract awarded, or for which the Contractor may be liable by law or otherwise.

A. Workers' Compensation Insurance: The Contractor shall comply with the requirements and benefits established by the State of Maryland for the provision of Workers' Compensation Insurance and must submit an insurance certificate as proof of coverage prior to contract approval. If the Contractor is a corporation or a limited liability corporation or other entity eligible to elect an exemption for officers under any provisions of the Maryland Workers' Compensation Act, Md. Code Ann., Lab. & Emp. Art., §9-101 et seq., the Contractor shall provide the City with a copy of the relevant election form filed with the Maryland Workers' Compensation Commission together with proof of filing.

B. Comprehensive General Liability Insurance: The Contractor shall provide general liability insurance, including X, C, and U, in the following amounts and shall submit an insurance certificate as proof of coverage prior to contract approval:

1. Personal injury liability insurance with a limit of \$1,000,000.00 for each occurrence and \$ 2,000,000.00 aggregate, where insurance aggregates apply;
2. Property damage liability insurance with limits of \$250,000.00 for each occurrence and \$500,000.00 aggregate, where aggregates apply.

C. Automobile Liability Insurance: Motor vehicle insurance meeting the requirements of Maryland law and covering every vehicle and driver involved in providing the services, in the following amounts:

1. Bodily injury liability with limits of \$500,000.00 each person and \$1,000,000.00 each accident;
2. Property damage liability with a limit of \$100,000 each accident.

8. Doing Business in Maryland: The Contractor warrants and represents that it has paid all taxes, fees, and charges owed by it to any governmental entity. In addition, it warrants and represents that any parent or subsidiary or other business entity with which it is affiliated or has been affiliated has paid all taxes, fees, and charges owed by it to any governmental agency accrued during any period during which the Contractor was affiliated with the entity. The Contractor warrants and represents that it (1) is either (a) incorporated in Maryland, or (b) registered or qualified by the Maryland State Department of Assessments and Taxation (SDAT) as required by the Maryland Annotated Code, Corps. & Assocs. Article, to do business in Maryland, and (2) is in good standing

with SDAT.

9. Performance and Payment Bonds: Performance bond in the amount of 100% of contract amount and payment bond in the amount of 100% of contract amount are required.

10. Maintenance Bond: The Contractor will be required to issue a Maintenance Bond in the amount of 10% of the Contract amount for a period of one year from the date of substantial completion. Such bond will designate the City as the Obligee and the Contractor as the Principal. The Bond shall be executed by the Contractor and a corporate bonding company licensed to transact such business in the State of Maryland. The expense of this Bond shall be borne by the Contractor. If at any time a Surety on any such Bond is declared bankrupt or loses its right to do business in the State of Maryland, the Contractor shall, within ten (10) days after notice from the Surety Company, substitute an acceptable Bond in such form and sum and signed by such other surety or sureties as may be satisfactory to the City. The premiums on such Bond shall be paid by the Contractor. No further payments shall be deemed due or shall be made until the new surety or sureties shall have furnished an acceptable Bond to the City. Should the Contract price be increased by 25% or more before Final Acceptance, the amount of the Maintenance Bond shall be increased accordingly.

11. Compliance with Laws: The Contractor shall, without any additional expense to the City, be responsible for complying with any and all applicable laws, codes, and regulations in connection with the services provided by the Contractor, including, but not limited to, obtaining any licenses required by the Contractor to perform the Services.

12. Indemnification: The Contractor shall be responsible for and indemnify, defend, and hold the City harmless from and against any and all claims for loss, personal injury, and/or other forms of damage that may be suffered as a result of the Contractor's negligence or willful misconduct in the Contractor's performance of the Services, or that of its officers, employees, agents, subcontractors, and invitees, or for any failure of the materials supplied under this contract or for any failure by the Contractor to perform the obligations of this Agreement, including, but not limited to, attorneys' fees, and any other cost incurred by the City in defending any such claim. The Contractor shall be responsible for and shall indemnify and hold the City harmless against any claim for loss, howsoever arising or incurred, for damage that may occur to the Contractor's property or property of third parties that is being stored at the construction site and/or maintained/used by the Contractor in delivery of the Services.

13. Not Assignable: The Contractor shall not assign, transfer, or subcontract any interest, obligation, or claim under this Agreement except as may be agreed upon and authorized in writing

by the City and no contract shall be made by the Contractor with any other party for furnishing any of the Services without the prior approval of the City.

14. Relief: In the event of a breach or a threatened breach by the Contractor of any provision of the Agreement, the Contractor recognizes the substantial and immediate harm that a breach or threatened breach will impose upon the City, and further recognizes that in such event monetary damages will be inadequate to fully protect the City. Accordingly, in the event of a breach or threatened breach of this Agreement, the Contractor consents to the City's entitlement to such ex parte, preliminary, interlocutory, temporary, or permanent injunctive, or any other equitable relief, protecting and fully enforcing the City's rights hereunder and preventing the Contractor from further breaching any of its obligations set forth herein. The Contractor expressly waives any requirement based on any statute, rule of procedure, or other source, that the City post a bond as a condition of obtaining any of the above-described remedies. Nothing herein shall be construed as prohibiting the City from pursuing any other remedies available to the City by law or in equity for such breach or threatened breach, including the recovery of damages from the Contractor.

15. City's Right to Terminate: The Services may be terminated immediately by the City upon written notice in whole or in part, when the City, in its sole and absolute discretion, determines such action to be in its best interests and shall be terminated whenever adequate funds have not been appropriated by the City Council in the annual budget for the purpose set forth herein. The Contractor is advised that the City does not guarantee the appropriation of funds for any subsequent fiscal year (beginning July 1). The Contractor shall not perform services in any fiscal year following the current fiscal year without verification from the Director of Public Works that adequate funds have been appropriated for that purpose in the budget for the relevant fiscal year. Upon termination, the City shall be liable to the Contractor only for payment for services actually provided prior to the effective date of the termination.

16. Entire Understanding: This Agreement contains the entire understanding between the parties, and any additions or modifications hereto may only be made in writing, executed by both parties.

17. Liquidated Damages: It is acknowledged that the Contractor's failure to complete the Services within the time provided for in the Contract Documents will cause the City to incur economic and non-economic damages and losses of types and in amounts that are impossible to compute and ascertain with certainty and accuracy so as to be a basis for recovery by the City of actual damages, and that the liquidated damages set forth herein represent a fair, reasonable, and appropriate estimate thereof. Accordingly, in lieu of actual damages for such delay, the Contractor

agrees that liquidated damages may be assessed and recovered by the City against the Contractor and its Surety, in the event of delayed completion and without the City being required to present any evidence of the amount or character of actual damages sustained by reason of the delay. The Contractor shall be liable to the City for payment of liquidated damages in the amount of \$150.00 per day for each day that the Services are delayed beyond the time for performance set forth in the Contract Documents. Such liquidated damages are intended to represent estimated actual damages and are not intended as a penalty and the Contractor shall pay them to the City without limiting the City's right to terminate the Agreement for default as provided elsewhere herein.

18. Applicable Law: This Agreement shall be interpreted in accordance with the laws of the State of Maryland. Any suit to enforce the terms hereof or for damages or other remedy for breach or anticipated breach hereof shall be brought exclusively in the courts of the State of Maryland for Carroll County, and the parties expressly acknowledge that venue is proper therein and consent to the jurisdiction thereof and waive any right that they may otherwise have to bring such action in or transfer or remove such suit in or to the courts of any other jurisdiction.

19. Conflict of Interest: The person executing this Agreement on behalf of the Contractor certifies that he understands the provisions of the City Charter and Code dealing with conflicts of interest and the prohibition of the solicitation or acceptance of gifts.

20. Set-Off: In the event that the Contractor shall owe an obligation of any type whatsoever to the City at any time during the term hereof, or after the termination of the relationship created hereunder, the City shall have the right to offset any amount so owed the Contractor against any compensation due to the Contractor for the provision of the Services.

21. Severability: If any term or provision of this Agreement shall be held invalid or unenforceable to any extent, the remainder of this Agreement shall not be affected thereby, and each term and provision of this Agreement shall be enforced to the fullest extent permitted by law.

22. Record Retention, Audits, and Inspections: The Contractor shall:

A. Retain all financial and programmatic records for a period of three (3) years from the date of issuance of final payment hereunder.

B. Permit the City to have access to any and all records, including all subcontracts covered by this Agreement for the purpose of making audits, examinations, reproductions, excerpts, and transcripts. Access shall be available at any time during normal business hours and as often as deemed necessary by the City.

IN WITNESS WHEREOF, on the date hereinabove set forth, the parties hereto have executed this Agreement in two duplicate originals, any one of these shall be adequate proof of

this Agreement without locating or accounting for the other.

WITNESS:

[CONTRACTOR]

_____ By: _____
[Insert name and title of signatory]

WITNESS:

MAYOR AND COMMON COUNCIL OF
WESTMINSTER

_____ By: _____
Shannon Visocsky, City Clerk Joe Dominick, Mayor

Approved for form and legal sufficiency
this ____ day of _____, 2020

Elissa D. Levan, City Attorney