

PROJECT MANUAL

**Homewood North Stoops and Courtyard Paving -
AMP-20**

IFB for Contract No. 600-37-19

GENERAL CONSTRUCTION

Bids Due

September 16, 2019
2:00 pm

Procurement Dept. 100
Ross St.
2nd FL. Suite 200
Pittsburgh, PA 15219

Attn:
Mr. Kim Detrick,
Director of
Procurement

CONSULTANT: D&D Engineering, Inc.

Issued: August 12, 2019

Caster D. Binion
Executive Director

Housing Authority of the City of Pittsburgh

Point of Contact: Kim.Detrick@hacp.org
or 412-456-5116 Opt 1



Procurement Department
100 Ross Street, Suite 200
Pittsburgh, PA 15219
Phone: (412) 456-5116
Fax: (412) 456-5007
www.hacp.org

NOTICE TO PROSPECTIVE BIDDERS

August 12, 2019

INVITATION FOR BIDS (IFB)

Homewood North Stoops and Courtyard Paving - AMP-20

The HOUSING AUTHORITY OF THE CITY OF PITTSBURGH will receive separate sealed bids for Homewood North Stoops and Courtyard Paving - AMP-20 ; for the following contracts:

Bid documents will be available on **August 12, 2019** . A Pre-Bid Conference will be held on **August 21, 2019** at **9:00 am** , at 10 Albertice Street, Pittsburgh, PA 15208

A site visit of the property will be conducted thereafter. Bidders shall be prepared to review all aspects of the site necessary to prepare a bid. The last day for submission of written questions will be **September 5, 2019 until 2:00 pm** *Bids will be received at the HACP Procurement Department, 100 Ross Street – Suite 200 (2nd Floor), Pittsburgh, PA, 15219 until 2:00 pm on September 16, 2019, at which time and place all bids will be publicly opened and read aloud.*

The work must be substantially complete within 120 calendar days of the Notice to Proceed.

Point of contact for the Housing Authority is Mr. Kim Detrick at (412) 456-5116 Opt 1.

TO VIEW AND OBTAIN DOCUMENTS

Bid Documents, including the Bid Forms, Project Manual, and Drawings, may be obtained from the Business Opportunities Section of the HACP website, www.hacp.org. Prospective Bidders may register as a vendor on the website and download the documents free of charge. Electronic versions of the Bid Documents may also be obtained in person, Monday through Friday 8:30 a.m. to 4:30 p.m. at the Housing Authority of the City of Pittsburgh's Procurement Department, located at 100 Ross Street, Suite 200, Pittsburgh, PA 15219.

AWARD OF CONTRACT (S):

It is the intention of the Authority to award a contract to the lowest responsive and responsible bidder.

All bids shall remain open for the period specified in the IFB, which in no case shall be less than sixty (60) calendar days from the bid opening.

All bids of \$10,000 or more must be accompanied by a negotiable bid guarantee that shall not be less than 5% of the amount of the bid. No bid guarantee is required for bids under \$10,000. In accordance with 2 CFR 200.318(h) formerly 24 CFR Section 85.36(b)(8), the Authority is permitted to make awards only to responsible bidders possessing the ability to perform successfully under the terms and conditions of the proposed contract. Prior to award of any contract, the Authority shall conduct a pre-contract survey. Consideration will be given to such matters as bidder integrity, compliance with public policy, record of past performance, and financial and technical resources.

All bids must include a completed and signed Form of Agreement (Form 00500) as part of the bid. If the bid is successful and approved by HACP Board of Commissioners (if applicable), HACP will also sign the Form of Agreement thus creating a binding contract.

The successful bidder will be required to furnish an assurance of completion (performance and payment bond) each equal to 100% of the contract price.

The Authority reserves the right to reject any or all bids or to waive any informality in the bidding.

EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENTS:

The Contractor will be required to comply with all applicable Equal Employment Opportunity requirements for Federally-Assisted Construction Contracts. The Contractor must insure that employees and applicants for employment are not discriminated against because of race, color, religion, sexual preference, handicap or national origin.

A. Section 3 Participation

The work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C 1701u and with HUD's regulations set forth at 24 CFR Part 135 ("Section 3"). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance shall be directed to low and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

Please describe ways the Bidder will assist HACP to comply with HUD's Section 3 requirements for hiring HACP residents and/or local disadvantaged individuals and businesses by reviewing the Section 3 Clause and by completing **Document 00433 – Section 3 Form**.

Section 3 of the Housing and Urban Development Act of 1968, as amended (12 U.S.C. 1701, et seq.) (the “Act”) requires the Housing Authority of the City of Pittsburgh to ensure that employment and other economic and business opportunities generated by financial assistance from the Department of Housing and Urban Development (“HUD”), to the greatest extent feasible, are directed to public housing residents and other low income persons, particularly recipients of government housing assistance, and business concerns that provide economic opportunities to low and very low income persons.

To comply with the Act HACP requires its contractors to provide equal employment opportunity to all employees and applicants for employment without regard to race, color, religion, sex, national origin, disability, veteran’s or marital status, or economic status and to take affirmative action to ensure that both job applicants and existing employees are given fair and equal treatment.

The goal of this policy is to obtain a reasonable level of success in the recruitment, employment, and utilization of HACP residents and other eligible persons and/or businesses by contractors working on contracts partially or wholly funded with HUD monies. HACP shall examine and consider a contractor’s potential for success in providing employment and business opportunities to those covered under Section 3 prior to acting on any proposed contract award. In response to any RFP, RFQ or IFB HACP will require submission of the Section 3 Opportunities Plan and roster of current employees, and certification that the bidder will comply with the requirements of Section 3 either by hiring Section 3 employees to directly perform under the contract or by committing a dollar amount to HACP’s Section 3 program in an amount consistent with the chart below. Below are the HACP Section 3 Guidelines as listed in the HACP Section 3 Program Manual:

RESIDENT HIRING REQUIREMENTS / RESIDENT HIRING SCALE

TOTAL LABOR DOLLARS USE TOTAL CONTRACT AMOUNT FOR SERVICE CONTRACTS	RESIDENT LABOR AS A % OF TOTAL LABOR A. DOLLARS
Labor dollars \$25,000 but less than \$100,000	10% of the labor dollars
\$100,000, but less than \$200,000	9% of the labor dollars
At least \$200,000, but less than \$300,000	8% of the labor dollars
At least \$300,000, but less than \$400,000	7% of the labor dollars
At least \$400,000, but less than \$500,000	6% of the labor dollars
At least \$500,000, but less than \$1 million	5% of the labor dollars
At least \$1 million, but less than \$2 million	4% of the labor dollars
At least \$2 million, but less than \$4 million	3% of the labor dollars
At least \$4 million, but less than \$7 million	2% of the labor dollars
\$7 million or more	½ to 1 % of the labor dollars

****A copy of HACP’s Section 3 Program Manual is available for download at www.hacp.org**

A copy of HUD's Section 3 requirement is provided herein. If you have any questions regarding the Section 3 Requirements or would like to discuss goals and planning for Section 3 Requirements please contact Mr. Lloyd Wilson, Section 3 Coordinator, by e-mail at lloyd.wilson@hacp.org or by contacting him at the Housing Authority of the City of Pittsburgh, Resident Employment Program located at the Bedford Hope Center, 2305 Bedford Ave, Pittsburgh PA 15219, telephone (412) 395-3950, ext. 1048. Proposals must demonstrate how the Offeror intends to meet or exceed the Authority's Section 3 requirements. Proposals submitted without a Section 3 plan may be deemed nonresponsive. Also, please complete **Section 3 Opportunities Plan** and include with your proposal.

Any bid or proposal received from a contractor that does not contain a Section 3 Opportunities Plan or certification and back-up documentation acceptable to HACP shall be deemed non-responsive by HACP.

B. MBE/WBE Participation Plan

HACP MBE and WBE Goals. It is the policy of HACP to ensure that Minority Business Enterprises (MBEs) and Women-owned Businesses (WBEs) are provided maximum opportunity to participate in contracts let by HACP. In accordance with Executive Order 11625, HACP has established a minimum threshold of eighteen percent (18%) of the total dollar amount for MBE utilization in this contract. HACP has established a seven percent (7%) minimum threshold for participation of WBEs, and, HACP strongly encourages and affirmatively promotes the use of MBEs and WBEs in all HACP contracts. For these purposes, an MBE is defined as "any legal entity other than a joint venture, organized to engage in commercial transactions, that is at least fifty-one percent (51%) owned and controlled by one or more minority persons." Also, a minority person is defined as a member of a socially or economically disadvantaged minority group, which includes African-Americans, Hispanic-Americans, Native-Americans, and Asian-Americans. A WBE/MBE is defined as "any legal entity other than a joint venture, organized to engage in commercial transactions, that is at least fifty-one percent (51%) owned and controlled by a female.

Bids or proposals submitted in response to this solicitation MUST include an MBE/WBE participation plan which, at a minimum demonstrates "Best Efforts" have been taken to achieve compliance with MBE/WBE goals. HACP's Procurement Policy defines "Best Efforts" in compliance with MBE/WBE goals to mean that the contractor must certify and document with its bid or proposal that it has contacted in writing at least ten (10) certified MBE and ten (10) certified WBE subcontractors to participate in the proposed contract with or lesser number if the contractor provides documentation that ten (10) certified MBE/WBE contractors could not be identified. Each contractor shall certify as to same under penalty of perjury and shall submit the back-up documentation with its bid or proposal. Any bid or proposal received from a contractor that does not contain such certification and back-up documentation acceptable to HACP may be deemed non-responsive by HACP.

If you have any questions regarding the HACP MBE/WBE goals please contact Mr. Kim Detrick, Director of Procurement / Chief Contracting Officer, by e-mail at kim.detrick@hacp.org or by contacting him at the Procurement Department, Housing Authority of the City of Pittsburgh, 100 Ross Street, Suite 200 Pittsburgh PA 15219, telephone (412) 456-5116 opt.1. Bids or proposals must demonstrate how the Offeror intends to meet or exceed these goals.

The Authority's Minority and Woman Business (MBE/WBE) participation goals are as follows:

- MBE Goal: 18%
- WBE Goal: 7%

Additionally, please be advised that participation credit will be applied in accordance with the following classifications, as follows:

- Broker: 10% of contract face value
- Supplier: 60% of contract face value
- Bona Fide Contractor: 100% of contract face value
- All Professional Service Firms: 100% of contract face value

Vendor definitions for the above classifications are to be referenced in either the respective vendor MBE/WBE certifications or as defined in 49 CFR Part 26.

Please describe ways the Bidder will utilize MBE/WBE businesses to meet the goals above by completing **Document 00434 – MBE/WBE Solicitation & Commitment Record**.

Caster D. Binion
Executive Director
Housing Authority of the City of Pittsburgh



Development & Modernization
100 Ross Street, Suite 200
Pittsburgh, PA 15219
(412) 456-5020
www.hacp.org

SPECIAL PROVISIONS

NOTICE TO ALL PROSPECTIVE BIDDERS

Homewood North Stoops and Courtyard Paving - AMP-20

CONTRACT NO. 600-37-19

Each successful bidder(s) shall be required to comply with the following special provisions:

A. Required Documents/Information

After bid opening and determination of the responsive and responsible bidder, but prior to Notice to Proceed each successful bidder for this project shall provide the following documents/information to HACP within ten (10) business days of receiving written notice thereof:

- (1) Insurance
- (2) Payment and Performance Bonds
- (3) Construction Schedule
- (4) Submittal Log and Corresponding Submittals

Please accept these special provisions by completing the information requested below:

Signature of Authorized Officer: _____ Date: _____

Name of Contractor: _____

Address: _____

Telephone Number: _____

Homewood North Stoops and Courtyard Paving - AMP-20

IFB CONTRACT NO. 600-37-19

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH
DEVELOPMENT & MODERNIZATION DEPARTMENT

100 Ross Street, Suite 200

Pittsburgh, PA 15219

Phone: (412) 456-5020

Fax: (412) 456-5591

Issued: August 12, 2019

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH
Homewood North Stoops and Courtyard Paving - AMP-20

HACP Contract No. 600-37-19

**PROJECT MANUAL
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HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

Homewood North Stoops and Courtyard Paving - AMP-20

HACP CONTRACT NO. 600-37-19

INVITATION FOR BIDS LIST OF DOCUMENTS

The HOUSING AUTHORITY OF THE CITY OF PITTSBURGH will receive separate sealed bids for Homewood North Stoops and Courtyard Paving - AMP-20, for the following contracts:

GENERAL CONSTRUCTION

A complete **Invitation for Bids (IFB)** consists of the following documents:

THE PROJECT MANUAL, dated August 12, 2019 consisting of:

Bidding Requirements, Contract Forms, Conditions of the Contract, Wage Determination, and the Specifications.

THE PROJECT DRAWINGS, as prepared by D&D Engineering, Inc., dated September 30, 2018.

THE BID PACKAGE, dated August 12, 2019 consisting of a single three-ring binder containing:

Blank bid document forms to be completed by the bidder;

Divider tabs to separate the original bid documents from the copies;

A pre-printed, pre-addressed envelope in which to deliver the bid.

ADDENDA will be issued as required.

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

IDENTIFICATION OF OWNER

The Owner of this project is the Housing Authority of the City of Pittsburgh, a body corporate and politic and created pursuant to the "Housing Authorities Law," an Act passed by the 1937 session of the Legislature of the Commonwealth of Pennsylvania, P.L. 955, approved May 28, 1937, hereinafter variously called the "Housing Authority of the City of Pittsburgh" (HACP), "The Authority," the "Local Housing Authority" (LHA), the "Public Housing Authority" (PHA), or the "Public Housing Authority/Indian Housing Authority" (PHA/IHA).

Caster D. Binion
Executive Director
Housing Authority of the City of Pittsburgh

James D. Harris, Esquire
General Counsel
Housing Authority of the City of Pittsburgh

Kim Detrick
Director of Procurement / Chief Contracting Officer
Housing Authority of the City of Pittsburgh

**U.S. Department of Housing and
Urban Development**
Office of Public and Indian Housing

**Instructions to Bidders for Contracts
Public and Indian Housing Programs**

Instructions to Bidders for Contracts

Public and Indian Housing Programs

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1. Bid Preparation and Submission

(a) Bidders are expected to examine the specifications, drawings, all instructions, and, if applicable, the construction site (see also the contract clause entitled **Site Investigation and Conditions Affecting the Work** of the *General Conditions of the Contract for Construction*). Failure to do so will be at the bidders' risk.

(b) All bids must be submitted on the forms provided by the Public Housing Agency/Indian Housing Authority (PHA/IHA). Bidders shall furnish all the information required by the solicitation. Bids must be signed and the bidder's name typed or printed on the bid sheet and each continuation sheet which requires the entry of information by the bidder. Erasures or other changes must be initialed by the person signing the bid. Bids signed by an agent shall be accompanied by evidence of that agent's authority. (Bidders should retain a copy of their bid for their records.)

(c) Bidders must submit as part of their bid a completed form HUD-5369-A, "Representations, Certifications, and Other Statements of Bidders."

(d) All bid documents shall be sealed in an envelope which shall be clearly marked with the words "Bid Documents," the Invitation for Bids (IFB) number, any project or other identifying number, the bidder's name, and the date and time for receipt of bids.

(e) If this solicitation requires bidding on all items, failure to do so will disqualify the bid. If bidding on all items is not required, bidders should insert the words "No Bid" in the space provided for any item on which no price is submitted.

(f) Unless expressly authorized elsewhere in this solicitation, alternate bids will not be considered.

(g) Unless expressly authorized elsewhere in this solicitation, bids submitted by telegraph or facsimile (fax) machines will not be considered.

(h) If the proposed contract is for a Mutual Help project (as described in 24 CFR Part 905, Subpart E) that involves Mutual Help contributions of work, material, or equipment, supplemental information regarding the bid advertisement is provided as an attachment to this solicitation.

2. Explanations and Interpretations to Prospective Bidders

(a) Any prospective bidder desiring an explanation or interpretation of the solicitation, specifications, drawings, etc., must request it at least 7 days before the scheduled time for bid opening. Requests may be oral or written. Oral requests must be confirmed in writing. The only oral clarifications that will be provided will be those clearly related to solicitation procedures, i.e., not substantive technical information. No other oral explanation or interpretation will be provided. Any information given a prospective bidder concerning this solicitation will be furnished promptly to all other prospective bidders as a written amendment to the solicitation, if that information is necessary in submitting bids, or if the lack of it would be prejudicial to other prospective bidders.

(b) Any information obtained by, or provided to, a bidder other than by formal amendment to the solicitation shall not constitute a change to the solicitation.

3. Amendments to Invitations for Bids

(a) If this solicitation is amended, then all terms and conditions which are not modified remain unchanged.

(b) Bidders shall acknowledge receipt of any amendment to this solicitation (1) by signing and returning the amendment, (2) by identifying the amendment number and date on the bid form, or (3) by letter, telegram, or facsimile, if those methods are authorized in the solicitation. The PHA/IHA must receive acknowledgement by the time and at the place specified for receipt of bids. Bids which fail to acknowledge the bidder's receipt of any amendment will result in the rejection of the bid if the amendment(s) contained information which substantively changed the PHA's/IHA's requirements.

(c) Amendments will be on file in the offices of the PHA/IHA and the Architect at least 7 days before bid opening.

4. Responsibility of Prospective Contractor

(a) The PHA/IHA will award contracts only to responsible prospective contractors who have the ability to perform successfully under the terms and conditions of the proposed contract. In determining the responsibility of a bidder, the PHA/IHA will consider such matters as the bidder's:

- (1) Integrity;
- (2) Compliance with public policy;
- (3) Record of past performance; and
- (4) Financial and technical resources (including construction and technical equipment).

(b) Before a bid is considered for award, the bidder may be requested by the PHA/IHA to submit a statement or other documentation regarding any of the items in paragraph (a) above. Failure by the bidder to provide such additional information shall render the bidder nonresponsible and ineligible for award.

5. Late Submissions, Modifications, and Withdrawal of Bids

(a) Any bid received at the place designated in the solicitation after the exact time specified for receipt will not be considered unless it is received before award is made and it:

(1) Was sent by registered or certified mail not later than the fifth calendar day before the date specified for receipt of offers (e.g., an offer submitted in response to a solicitation requiring receipt of offers by the 20th of the month must have been mailed by the 15th);

(2) Was sent by mail, or if authorized by the solicitation, was sent by telegram or via facsimile, and it is determined by the PHA/IHA that the late receipt was due solely to mishandling by the PHA/IHA after receipt at the PHA/IHA; or

(3) Was sent by U.S. Postal Service Express Mail Next Day Service - Post Office to Addressee, not later than 5:00 p.m. at the place of mailing two working days prior to the date specified for receipt of proposals. The term "working days" excludes weekends and observed holidays.

(b) Any modification or withdrawal of a bid is subject to the same conditions as in paragraph (a) of this provision.

(c) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent either by registered or certified mail is the U.S. or Canadian Postal Service postmark both on the envelope or wrapper and on the original receipt from the U.S. or Canadian Postal Service. Both postmarks must show a legible date or the bid, modification, or withdrawal shall be processed as if mailed late. "Postmark" means a printed, stamped, or otherwise placed impression (exclusive of a postage meter machine impression) that is readily identifiable without further action as having been supplied and affixed by employees of the U.S. or Canadian Postal Service on the date of mailing. Therefore, bidders should request the postal clerk to place a hand cancellation bull's-eye postmark on both the receipt and the envelope or wrapper.

(d) The only acceptable evidence to establish the time of receipt at the PHA/IHA is the time/date stamp of PHA/IHA on the proposal wrapper or other documentary evidence of receipt maintained by the PHA/IHA.

(e) The only acceptable evidence to establish the date of mailing of a late bid, modification, or withdrawal sent by Express Mail Next Day Service-Post Office to Addressee is the date entered by the post office receiving clerk on the "Express Mail Next Day Service-Post Office to Addressee" label and the postmark on both the envelope or wrapper and on the original receipt from the U.S. Postal Service. "Postmark" has the same meaning as defined in paragraph (c) of this provision, excluding postmarks of the Canadian Postal Service. Therefore, bidders should request the postal clerk to place a legible hand cancellation bull's eye postmark on both the receipt and Failure by a bidder to acknowledge receipt of the envelope or wrapper.

(f) Notwithstanding paragraph (a) of this provision, a late modification of an otherwise successful bid that makes its terms more favorable to the PHA/IHA will be considered at any time it is received and may be accepted.

(g) Bids may be withdrawn by written notice, or if authorized by this solicitation, by telegram (including mailgram) or facsimile machine transmission received at any time before the exact time set for opening of bids; provided that written confirmation of telegraphic or facsimile withdrawals over the signature of the bidder is mailed and postmarked prior to the specified bid opening time. A bid may be withdrawn in person by a bidder or its authorized representative if, before the exact time set for opening of bids, the identity of the person requesting withdrawal is established and the person signs a receipt for the bid.

6. Bid Opening

All bids received by the date and time of receipt specified in the solicitation will be publicly opened and read. The time and place of opening will be as specified in the solicitation. Bidders and other interested persons may be present.

7. Service of Protest

(a) Definitions. As used in this provision:

"Interested party" means an actual or prospective bidder whose direct economic interest would be affected by the award of the contract.

"Protest" means a written objection by an interested party to this solicitation or to a proposed or actual award of a contract pursuant to this solicitation.

(b) Protests shall be served on the Contracting Officer by obtaining written and dated acknowledgement from —

Contracting Officer
Legal Department
Housing Authority of the City of Pittsburgh
200 Ross Street, 7th Floor
Pittsburgh, PA 15219

[Contracting Officer designate the official or location where a protest may be served on the Contracting Officer]

(c) All protests shall be resolved in accordance with the PHA's/IHA's protest policy and procedures, copies of which are maintained at the PHA/IHA.

8. Contract Award

(a) The PHA/IHA will evaluate bids in response to this solicitation without discussions and will award a contract to the responsible bidder whose bid, conforming to the solicitation, will be most advantageous to the PHA/IHA considering only price and any price-related factors specified in the solicitation.

(b) If the apparent low bid received in response to this solicitation exceeds the PHA's/IHA's available funding for the proposed contract work, the PHA/IHA may either accept separately priced items (see 8(e) below) or use the following procedure to determine contract award. The PHA/IHA shall apply in turn to each bid (proceeding in order from the apparent low bid to the high bid) each of the separately priced bid deductible items, if any, in their priority order set forth in this solicitation. If upon the application of the first deductible item to all initial bids, a new low bid is within the PHA's/IHA's available funding, then award shall be made to that bidder. If no bid is within the available funding amount, then the PHA/IHA shall apply the second deductible item. The PHA/IHA shall continue this process until an evaluated low bid, if any, is within the PHA's/IHA's available funding. If upon the application of all deductibles, no bid is within the PHA's/IHA's available funding, or if the solicitation does not request separately priced deductibles, the PHA/IHA shall follow its written policy and procedures in making any award under this solicitation.

(c) In the case of tie low bids, award shall be made in accordance with the PHA's/IHA's written policy and procedures.

(d) The PHA/IHA may reject any and all bids, accept other than the lowest bid (e.g., the apparent low bid is unreasonably low), and waive informalities or minor irregularities in bids received, in accordance with the PHA's/IHA's written policy and procedures.

(e) Unless precluded elsewhere in the solicitation, the PHA/IHA may accept any item or combination of items bid.

(f) The PHA/IHA may reject any bid as nonresponsive if it is materially unbalanced as to the prices for the various items of work to be performed. A bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

(g) A written award shall be furnished to the successful bidder within the period for acceptance specified in the bid and shall result in a binding contract without further action by either party.

9. Bid Guarantee (applicable to construction and equipment contracts exceeding \$25,000)

All bids must be accompanied by a negotiable bid guarantee which shall not be less than five percent (5%) of the amount of the bid. The bid guarantee may be a certified check, bank draft, U.S. Government Bonds at par value, or a bid bond secured by a surety company acceptable to the U.S. Government and authorized to do business in the state where the work is to be performed. In the case where the work under the contract will be performed on an Indian reservation area, the bid guarantee may also be an irrevocable Letter of Credit (see provision 10, Assurance of Completion, below). Certified checks and bank drafts must be made payable to the order of the PHA/IHA. The bid guarantee shall insure the execution of the contract and the furnishing of a method of assurance of completion by the successful bidder as required by the solicitation. Failure to submit a bid guarantee with the bid shall result in the rejection of the bid. Bid guarantees submitted by unsuccessful bidders will be returned as soon as practicable after bid opening.

10. Assurance of Completion

(a) Unless otherwise provided in State law, the successful bidder shall furnish an assurance of completion prior to the execution of any contract under this solicitation. This assurance may be [Contracting Officer check applicable items] —

☒ (1) a performance and payment bond in a penal sum of 100 percent of the contract price; or, as may be required or permitted by State law;

☐ (2) separate performance and payment bonds, each for 50 percent or more of the contract price;

☐ (3) a 20 percent cash escrow;

☐ (4) a 25 percent irrevocable letter of credit; or,

☐ (5) an irrevocable letter of credit for 10 percent of the total contract price with a monitoring and disbursements agreement with the IHA (applicable only to contracts awarded by an IHA under the Indian Housing Program).

(b) Bonds must be obtained from guarantee or surety companies acceptable to the U.S. Government and authorized to do business in the state where the work is to be performed. Individual sureties will not be considered. U.S. Treasury Circular Number 570, published annually in the Federal Register, lists companies approved to act as sureties on bonds securing Government contracts, the maximum underwriting limits on each contract bonded, and the States in which the company is licensed to do business. Use of companies listed in this circular is mandatory. Copies of the circular may be downloaded on the U.S. Department of Treasury website <http://www.fms.treas.gov/c570/index.html>, or ordered for a minimum fee by contacting the Government Printing Office at (202) 512-2168.

(c) Each bond shall clearly state the rate of premium and the total amount of premium charged. The current power of attorney for the person who signs for the surety company must be attached to the bond. The effective date of the power of attorney shall not precede the date of the bond. The effective date of the bond shall be on or after the execution date of the contract.

(d) Failure by the successful bidder to obtain the required assurance of completion within the time specified, or within such extended period as the PHA/IHA may grant based upon reasons determined adequate by the PHA/IHA, shall render the bidder ineligible for award. The PHA/IHA may then either award the contract to the next lowest responsible bidder or solicit new bids. The PHA/IHA may retain the ineligible bidder's bid guarantee.

11. Preconstruction Conference (applicable to construction contracts)

After award of a contract under this solicitation and prior to the start of work, the successful bidder will be required to attend a preconstruction conference with representatives of the PHA/IHA and its architect/engineer, and other interested parties convened by the PHA/IHA. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract (e.g., Equal Employment Opportunity, Labor Standards). The PHA/IHA will provide the successful bidder with the date, time, and place of the conference.

12. Indian Preference Requirements (applicable only if this solicitation is for a contract to be performed on a project for an Indian Housing Authority)

(a) HUD has determined that the contract awarded under this solicitation is subject to the requirements of section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e(b)). Section 7(b) requires that any contract or subcontract entered into for the benefit of Indians shall require that, to the greatest extent feasible

(1) Preferences and opportunities for training and employment (other than core crew positions; see paragraph (h) below) in connection with the administration of such contracts or subcontracts be given to qualified "Indians." The Act defines "Indians" to mean persons who are members of an Indian tribe and defines "Indian tribe" to mean any Indian tribe, band, nation, or other organized group or community, including any Alaska Native village or regional or village corporation as defined in or established pursuant to the Alaska Native Claims Settlement Act, which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians; and,

(2) Preference in the award of contracts or subcontracts in connection with the administration of contracts be given to Indian organizations and to Indian-owned economic enterprises, as defined in section 3 of the Indian Financing Act of 1974 (25 U.S.C. 1452). That Act defines "economic enterprise" to mean any Indian-owned commercial, industrial, or business activity established or organized for the purpose of profit, except that the Indian ownership must constitute not less than 51 percent of the enterprise; "Indian organization" to mean the governing body of any Indian tribe or entity established or recognized by such governing body; "Indian" to mean any person who is a member of any tribe, band, group, pueblo, or community which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs and any "Native" as defined in the Alaska Native Claims Settlement Act; and Indian "tribe" to mean any Indian tribe, band, group, pueblo, or community including Native villages and Native groups (including

corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs.

(b) (1) The successful Contractor under this solicitation shall comply with the requirements of this provision in awarding all subcontracts under the contract and in providing training and employment opportunities.

(2) A finding by the IHA that the contractor, either (i) awarded a subcontract without using the procedure required by the IHA, (ii) falsely represented that subcontracts would be awarded to Indian enterprises or organizations; or, (iii) failed to comply with the contractor's employment and training preference bid statement shall be grounds for termination of the contract or for the assessment of penalties or other remedies.

(c) If specified elsewhere in this solicitation, the IHA may restrict the solicitation to qualified Indian-owned enterprises and Indian organizations. If two or more (or a greater number as specified elsewhere in the solicitation) qualified Indian-owned enterprises or organizations submit responsive bids, award shall be made to the qualified enterprise or organization with the lowest responsive bid. If fewer than the minimum required number of qualified Indian-owned enterprises or organizations submit responsive bids, the IHA shall reject all bids and readvertise the solicitation in accordance with paragraph (d) below.

(d) If the IHA prefers not to restrict the solicitation as described in paragraph (c) above, or if after having restricted a solicitation an insufficient number of qualified Indian enterprises or organizations submit bids, the IHA may advertise for bids from non-Indian as well as Indian-owned enterprises and Indian organizations. Award shall be made to the qualified Indian enterprise or organization with the lowest responsive bid if that bid is -

(1) Within the maximum HUD-approved budget amount established for the specific project or activity for which bids are being solicited; and

(2) No more than the percentage specified in 24 CFR 905.175(c) higher than the total bid price of the lowest responsive bid from any qualified bidder. If no responsive bid by a qualified Indian-owned economic enterprise or organization is within the stated range of the total bid price of the lowest responsive bid from any qualified enterprise, award shall be made to the bidder with the lowest bid.

(e) Bidders seeking to qualify for preference in contracting or subcontracting shall submit proof of Indian ownership with their bids. Proof of Indian ownership shall include but not be limited to:

(1) Certification by a tribe or other evidence that the bidder is an Indian. The IHA shall accept the certification of a tribe that an individual is a member.

(2) Evidence such as stock ownership, structure, management, control, financing and salary or profit sharing arrangements of the enterprise.

(f) (1) All bidders must submit with their bids a statement describing how they will provide Indian preference in the award of subcontracts. The specific requirements of that statement and the factors to be used by the IHA in determining the statement's adequacy are included as an attachment to this solicitation. Any bid that fails to include the required statement shall be rejected as nonresponsive. The IHA may require that comparable statements be provided by subcontractors to the successful Contractor, and may require the Contractor to reject any bid or proposal by a subcontractor that fails to include the statement.

(2) Bidders and prospective subcontractors shall submit a certification (supported by credible evidence) to the IHA in any instance where the bidder or subcontractor believes it is infeasible to provide Indian preference in subcontracting. The acceptance or rejection by the IHA of the certification shall be final. Rejection shall disqualify the bid from further consideration.

(g) All bidders must submit with their bids a statement detailing their employment and training opportunities and their plans to provide preference to Indians in implementing the contract; and the number or percentage of Indians anticipated to be employed and trained. Comparable statements from all proposed subcontractors must be submitted. The criteria to be used by the IHA in determining the statement(s)'s adequacy are included as an attachment to this solicitation. Any bid that fails to include the required statement(s), or that includes a statement that does not meet minimum standards required by the IHA shall be rejected as nonresponsive.

(h) Core crew employees. A core crew employee is an individual who is a bona fide employee of the contractor at the time the bid is submitted; or an individual who was not employed by the bidder at the time the bid was submitted, but who is regularly employed by the bidder in a supervisory or other key skilled position when work is available. Bidders shall submit with their bids a list of all core crew employees.

(i) Preference in contracting, subcontracting, employment, and training shall apply not only on-site, on the reservation, or within the IHA's jurisdiction, but also to contracts with firms that operate outside these areas (e.g., employment in modular or manufactured housing construction facilities).

(j) Bidders should contact the IHA to determine if any additional local preference requirements are applicable to this solicitation.

(k) The IHA [] does [X] does not [Contracting Officer check applicable box] maintain lists of Indian-owned economic enterprises and Indian organizations by specialty (e.g., plumbing, electrical, foundations), which are available to bidders to assist them in meeting their responsibility to provide preference in connection with the administration of contracts and subcontracts.

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

Homewood North Stoops and Courtyard Paving - AMP-20

HACP CONTRACT NO. 600-37-19

**NOTICE OF
PRE-BID CONFERENCE**

A Pre-Bid Conference will be held on August 21, 2019

- A Pre-Bid Conference will be held on August 21, 2019 at 9:00 am, at the 10 Albertice Street, Pittsburgh, PA 15208. A site visit of the property will be conducted thereafter. Bidders shall be prepared to review all aspects of the site necessary to prepare a bid.
- Representatives of the Authority, the engineer and other interested parties will be in attendance.

All bidders are urged to attend.

- Bidders are responsible for examining the construction site. (Refer to "Instructions to Bidders for Contracts," Document HUD 5369, Clause 1, "Bid Preparation and Submission.") Notwithstanding the above, lack of attendance will not be a basis for rejecting a bid.
- Bidders are urged to examine the drawings and specifications prior to the Pre-Bid Conference.
- Nothing at the Pre-Bid Conference will change the terms of the IFB unless a subsequent Addendum is issued. (Refer to "Instructions to Bidders for Contracts," Document HUD 5369, Clause 2, "Explanations and Interpretations to Prospective Bidders.")

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

Homewood North Stoops and Courtyard Paving - AMP-20

HACP CONTRACT NO. 600-37-19

PROJECT SCHEDULE

NO LATER THAN
August 12, 2019

Invitation for Bids issued

August 21, 2019
9:00 am

Pre-Bid Conference (Followed by Site Visit)

September 5, 2019
2:00 pm

Last day to submit written questions

September 16, 2019
2:00 pm

Bids due

August 1, 2019
(estimated)

Notice of Award

September 2, 2019
(estimated)

Execution of Contracts

September 5, 2019
(estimated)

Pre-Construction Conference

September 9, 2019
(estimated)

Construction Start

120 calendar days
from effective date
of Notice to Proceed

All work required under this contract shall be complete

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

Homewood North Stoops and Courtyard Paving - AMP-20

HACP CONTRACT NO. 600-37-19

***SCOPE OF WORK FOR
GENERAL CONSTRUCTION***

The Contract for General Construction shall consist of the following component parts:

1. THE AGREEMENT
(Bound in the Project Manual)

THE BID	Document 00310 - Scope of Work for General Construction Document 00311 - Form of Bid for General Construction
THE FORM OF AGREEMENT	Document 00500 - Form of Agreement Document 00590 - Contracting Officer Certification
CONDITIONS OF THE CONTRACT	Document HUD - 5370 General Conditions HACP Document - Supplemental General Conditions Document 00830 - Wage Determination Schedule

2. PRIMARY SPECIFICATIONS FOR THE GENERAL CONSTRUCTION CONTRACT
(Bound in the Project Manual)

All Work contained in the Primary Specifications listed below is the Work of the Contractor for this General Construction Contract unless specifically indicated otherwise.

Any Reference in the Primary Specifications to the "Contractor," the "Prime Contractor," or the "General Contractor" shall be interpreted as meaning the Contractor for this General Construction Contract.

The General Contractor shall coordinate the schedule and activities of work performed by this and all other Prime Contracts, as identified by (G)-General, (P)-Plumbing, (H)-HVAC, and (E)-Electrical.

It is the contractual responsibility of the Contractor for General Construction to familiarize himself with the work of the other prime contractors so that the Project as a whole can proceed in an orderly fashion. Failure to familiarize work by other trades would not be an excuse for corrective measures at no cost to the City of Pittsburgh Housing Authority.

For example, the General Contractor shall coordinate installation of general construction work with the requirements of the Plumbing, Mechanical, and Electrical Contractors.

Reference Standard for Incidental Work: Incidental work, as used in this paragraph, is work which is not a basic part of other Prime Contracts but which is required by reference.

For example, the General Contractor is required by his Primary Specifications to install and repair all general work. In the event that the Plumbing Contractor disturbs the general work, the patching, repair shall be done and follow the same Specification requirements of the appropriate Specification Section by the Plumbing Contractor even if that specification section may not be part of the Plumbing Contractor's Primary Specification. The same applies to all trades where incidental work occurs.

TECHNICAL SPECIFICATIONS MAY BE FOUND AT PART FOUR
OF THE PROJECT MANUAL

PLEASE ALSO REFER TO DRAWINGS

3. PRIMARY DRAWINGS FOR THE GENERAL CONSTRUCTION CONTRACT
(Contained in the set of Project Drawings issued simultaneously with this Project Manual)

All Work contained in the Primary Drawings listed below is the Work of this Contractor unless specifically indicated otherwise.

Any Reference to the "Contractor," the "Prime Contractor," or the "General Contractor" shall be interpreted as meaning the Contractor for this General Construction Contract.

The Primary Drawings for this contract consist of all D&D Engineering, Inc. construction documents drawings, **dated** September 30, 2018 and specifications contained in this project manual.

In case of drawing conflict with specifications, it is understood that the specification shall supersede the drawings.

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH
Homewood North Stoops and Courtyard Paving - AMP-20

HACP Contract No. 600-37-19

FORM OF BID
GENERAL CONSTRUCTION

Contract No.: 600-37-19

TO: HOUSING AUTHORITY
CITY OF PITTSBURGH
(Hereinafter called the "Authority")
100 Ross Street, Suite 200
Pittsburgh, PA 15219

BIDDER:

(Bidder Name)

(Business Address)

(Telephone)

1. The undersigned Bidder, having visited the site, having become familiar with local conditions affecting the cost of the work, **including all City of Pittsburgh current code requirements**, and having become familiar with the Invitation for Bids (the IFB) issued by the Authority, which consists of the following:

- Project Manual, dated August 12, 2018 containing Bidding Requirements, Contract Forms, Conditions of the Contract, and Specifications
- Project Drawings, dated September 30, 2018
- Addenda (if any) as enumerated in this Form of Bid

hereby proposes to provide all supervision, technical personnel, labor, materials, machinery, tools, appurtenances, equipment and services required to construct and complete the General Construction Work as described in Document 00310 "Scope of Work for General Construction" and as indicated in the Drawings and Specifications, for the following Firm Fixed Price:

*UTILIZE FORMS IN ATTACHMENT A TO SHOW BID PRICE

Dollars (\$ *Use bid forms)

(Insert Bid Price in words)

(Insert Bid Price in Figures)

2. Bid security [☐ is [☐ is not submitted with this bid.
(Check one)

Bid Security is in amount of:

_____ % of the bid OR _____ Dollars (\$ _____)

Bid Security is in the form of:

<input type="checkbox"/>	Certified Check	<input type="checkbox"/>	Bank Draft
<input type="checkbox"/>	U.S. Govt. Bond	<input type="checkbox"/>	Bid Bond (Document 00410)

3. The Bidder hereby acknowledges receipt of the following Addenda, if any, as issued by the Authority:

Total number of Addenda _____ (if none, so state)

Addendum No. _____ dated _____ Addendum No. _____ dated _____

Addendum No. _____ dated _____ Addendum No. _____ dated _____

Addendum No. _____ dated _____ Addendum No. _____ dated _____

Addendum No. _____ dated _____ Addendum No. _____ dated _____

Addendum No. _____ dated _____ Addendum No. _____ dated _____

Addendum No. _____ dated _____ Addendum No. _____ dated _____

4. The Bidder attaches hereto the Special Provisions (Document 00021);
5. The Bidder attaches hereto the Statement of Bidder's Qualifications (Document 00420);
6. The Bidder attaches hereto the Section 3 Opportunities Plan (Document 00433), MBE/WBE Solicitation and Commitment Record (Document 00434), Bidder Manpower Plan (Document 00435), and Previous Related Experience (Document 00436);
7. The Bidder attaches hereto the Bidder's Representations, Certifications and Other Statements of Bidders (Document HUD 5369-A), Previous Participation Certificate (Document HUD-2530);
8. The Bidder attaches hereto the Bidder's Special Provisions – Notice to All Prospective Bidders (Document 00437), Non-Collusion Affidavit (Document 00485);
9. The Bidder attaches hereto the completed Form of Agreement (Document 00500);
10. The Bidder attaches hereto the Supplemental General Conditions (HACP Document).

PROPRIETORSHIP SIGNATURE PAGE

SHEET - FB-I

(To be used when the Bidder is an individual doing business as a Sole Proprietorship.)

THE BIDDER CERTIFIES THAT THE BIDDER IS:

- ☐ An individual doing business in his/her own name
☐ An individual doing business under a fictitious or assumed name
(Complete Proprietorship Fictitious Name Disclosure below)

SIGNED, SEALED AND DELIVERED

this _____ day of _____ 20 _____.

	_____ (Printed or Typed Name)	<i>Principal</i>	_____ (Printed or Typed Name)
<i>Witness</i>	{		{
	_____ (Signature and Date)		_____ (Signature and Date)

PROPRIETORSHIP FICTITIOUS NAME DISCLOSURE

(To be used when the Bidder is an individual doing business under a fictitious or assumed name.)

_____ is an individual trading under a fictitious or
(Proprietor's Name)

assumed name of _____ and ☐ has ☐ has not registered under
(Fictitious or Assumed Name Used as Bidder's Name) (Check one)

the Fictitious Names Act of Pennsylvania, namely the Act of May 24, 1945, P.L. 967, as amended, 54 P.S. sec. 281.1 et seq.

	_____ (Printed or Typed Name)	<i>Principal</i>	_____ (Printed or Typed Name)
<i>Witness</i>	{		{
	_____ (Signature and Date)		_____ (Signature and Date)

PARTNERSHIP SIGNATURE PAGE

SHEET - FB-P-1

(To be used when the Bidder is an individual doing business as a Partnership.)

THE BIDDER CERTIFIES THAT THE BIDDER IS:

- ☐ A General Partnership (Attach completed Sheet FB-P-3)
 - ☐ Doing business under Partnership Name
 - ☐ Doing business under a fictitious or assumed name
(Complete Partnership Fictitious Name Disclosure Sheet FB-P-2)
- ☐ A Limited Partnership (Attach completed Sheet FB-P-3)
 - ☐ Doing business under Partnership Name
 - ☐ Doing business under a fictitious or assumed name
(Complete Partnership Fictitious Name Disclosure Sheet FB-P-2)

SIGNED, SEALED AND DELIVERED

this _____ day of _____ 20 _____.

<i>Witness</i>	_____ (Printed or Typed Name)	<i>Partner *</i>	_____ (Printed or Typed Name)
{		{	
	_____ (Signature and Date)		_____ (Signature and Date)
<i>Witness</i>	_____ (Printed or Typed Name)	<i>Partner *</i>	_____ (Printed or Typed Name)
{		{	
	_____ (Signature and Date)		_____ (Signature and Date)

- * If the Bidder is a partnership, the Bid and Contract must be signed in the name of the partnership by at least two general partners, and the names and addresses of all the partners must be listed on the certificate on Sheet FB-P-3.

PARTNERSHIP FICTITIOUS NAME DISCLOSURE

(To be used when the Bidder is a partnership doing business under a fictitious or assumed name.)

SHEET FB-P-2

_____ is a partnership trading under a fictitious or
(Partnership's Name)

assumed name of _____ and ☐ **has** ☐ **has not** registered under
(Fictitious or Assumed Name Used as Bidder's Name) *(Check one)*

the Fictitious Names Act of Pennsylvania, namely the Act of May 24, 1945,P.L.967, as amended, 54 P.S.sec.281.1 et seq.

<i>Witness</i>	_____ <i>(Printed or Typed Name)</i>	<i>Partner*</i>	_____ <i>(Printed or Typed Name)</i>
	{		{
	_____ <i>(Signature and Date)</i>		_____ <i>(Signature and Date)</i>

PARTNERSHIP CERTIFICATE
(To be used when the Bidder is a partnership.)

SHEET FB-P-3

I, as partner of _____,
(Name of Partnership)
certify that the following are the names and addresses of all the partners of said partnership.

Name: _____ Name: _____

Address: _____ Address: _____

City: _____ City: _____

Name: _____ Name: _____

Address: _____ Address: _____

City: _____ City: _____

Name: _____ Name: _____

Address: _____ Address: _____

City: _____ City: _____

Name: _____ Name: _____

Address: _____ Address: _____

City: _____ City: _____

(Use additional sheets as required.)

<p>_____ <i>(Printed or Typed Name)</i></p> <p><i>Witness</i> {</p> <p>_____ <i>(Signature and Date)</i></p>	<p><i>Partner*</i></p>	<p>_____ <i>(Printed or Typed Name)</i></p> <p>{</p> <p>_____ <i>(Signature and Date)</i></p>
--	------------------------	---

CORPORATION SIGNATURE PAGE

(To be used when the bidder is a corporation.)

SHEET FB-C-1

THE BIDDER CERTIFIES THAT THE BIDDER IS:

- ☐ A corporation doing business in its own name
☐ A corporation doing business under a fictitious or assumed name
(Complete Corporation Fictitious Name Disclosure FB-C-2)

SIGNED, SEALED AND DELIVERED

this _____ day of _____ 20 _____.

(CORPORATE
SEAL)

(Corporate Name)

(Printed or Typed Name)

(Printed or Typed Name)

Witness

{

President
V.P. **

{

(Signature and Date)

(Signature and Date)

(Corporate Title)

(Corporate Title)

** If the bidder is a corporation, the Bid and the Contract must be executed in the Corporation's correct corporate name by its President or Vice President and attested to by its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the Certification of Corporate Principal (Doc. 00625) must be executed by the Secretary or Assistant Secretary.

CORPORATION FICTITIOUS NAME DISCLOSURE
(To be used when the Bidder is a corporation doing business under a fictitious or assumed name.)

SHEET FB-C-2

_____ is a corporation trading under a fictitious or
(Corporation's Name)

assumed name of _____ and ☐ **has** ☐ **has not** registered under
(Fictitious or Assumed Name Used as Bidder's Name) (Check one)

the Fictitious Names Act of Pennsylvania, namely the Act of May 24, 1945, P.L. 967, as amended, 54 P.S. sec. 281.1 et seq.

<i>Witness</i>	<div>_____ <i>(Printed or Typed Name)</i></div> <div>{</div> <div>_____ <i>(Signature and Date)</i></div>	<div><i>President</i></div> <div><i>V.P. **</i></div>	<div>_____ <i>(Printed or Typed Name)</i></div> <div>{</div> <div>_____ <i>(Signature and Date)</i></div>
----------------	---	---	---

****** If the bidder is a corporation, the Bid and the Contract must be executed in the Corporation's correct corporate name by its President or Vice President and attested to by its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the Certification of Corporate Principal (Doc. 00625) must be executed by the Secretary or Assistant Secretary.

CORPORATION CERTIFICATE
(To be used when the bidder is a corporation)

SHEET FB-C-3

_____ is a corporation organized and existing
(Corporate name used as Bidder name)

under the laws of the state of _____ with its principal place of business at:

_____, _____, _____
(Street Address) (City) (State)

and, if a non-Pennsylvania corporation ☐ **has** ☐ **has not** *(check one)* been granted a certificate of authority to do business in Pennsylvania as required by the Pennsylvania Business Corporation Law, approved May 5, 1933, P.L. 364, as amended, 15 P.S. sec.2005 et seq.

I, _____, certify that I am the ☐ **Secretary** ☐ **Assistant Secretary** of the
(check one)
Corporation named a Bidder herein; that _____ who signed
this Bid on behalf of the Corporation was then _____ of said Corporation that
*(President/V.P.) ***

I know his signature and his signature thereto is genuine; and that said Bid was duly signed, sealed and attested in behalf of said Corporation by authority of its governing body.

*(CORPORATE
SEAL)*

(Signature and Date)

****** If the bidder is a corporation, the Bid and the Contract must be executed in the Corporation's correct corporate name by its President or Vice President and its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the above Certificate must be executed by the Secretary or Assistant Secretary

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we,

_____, as Principal, and
(Insert name and address of Bidder exactly as it appears on Form of Bid)

_____, as Sureties, are
held and firmly bound unto the Housing Authority of the City of Pittsburgh, its certain attorney, successors, or assigns
(the Obligee, hereinafter called the "Authority") in the penal sum of

_____ Dollars (\$_____)

lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our
heirs, personal representatives, successors, and assigns, jointly and severally, firmly by these presents:

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas, the Principal simultaneously submits to
the Authority the accompanying bid, dated

_____, 20_____ (the "Bid"), for construction of
(Insert date of bid)

(Insert name of project exactly as it appears on Form of Bid)
pursuant to specifications, drawings and other related documents constituting the Invitation for Bids (the "IFB").

NOW, THEREFORE, if the Principal shall not withdraw said bid within the period specified therein after the
opening of the same, or, if no period be specified, within sixty (60) days after the said opening, and shall within the
period specified therefore, or, if no period be specified within ten (10) days after the prescribed forms are presented to
him for signature, enter into a written contract with the Authority in accordance with the bid as accepted, and give
bonds with good and sufficient surety or sureties, as may be required for the faithful performance and proper
fulfillment of such contract and for the payment of labor and materialmen or in the event of the withdrawal of said bid
within the period specified, or the failure to enter into such contract and give such bonds within the time specified, if
the Principal shall pay the Authority the difference between the amount specified in said bid and the amount for which
the Authority may procure the required work or supplies or both, if the latter amount be in excess of the former, then
the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

SIGNED, SEALED AND DELIVERED IN _____ ORIGINAL COUNTERPARTS

this _____ day of _____ 20_____.

IF THE PRINCIPAL IS AN INDIVIDUAL, SIGN HERE

_____ (Printed or Typed Name)	_____ (Printed or Typed Name)
<i>Witness</i>	<i>Principal</i>
{	{
_____ (Signature and Date)	_____ (Signature and Date)

SURETY SIGN HERE

(SURETY
SEAL)

_____ (Printed or Typed Name)	_____ (Printed or Typed Name)
<i>Attest</i>	<i>Surety***</i>
{	{
_____ (Signature and Date)	_____ (Signature and Date)

*** Power of attorney must be attached to this Bid Bond.

SIGNED, SEALED AND DELIVERED IN _____ ORIGINAL COUNTERPARTS

this _____ day of _____ 20_____.

IF THE PRINCIPAL IS A PARTNERSHIP, SIGN HERE

<p>_____ (Printed or Typed Name)</p> <p><i>Witness</i></p> <p>{</p> <p>_____ (Signature and Date)</p>	<p>_____ (Printed or Typed Name)</p> <p><i>Partner*</i></p> <p>{</p> <p>_____ (Signature and Date)</p>
<p>_____ (Printed or Typed Name)</p> <p><i>Witness</i></p> <p>{</p> <p>_____ (Signature and Date)</p>	<p>_____ (Printed or Typed Name)</p> <p><i>Partner*</i></p> <p>{</p> <p>_____ (Signature and Date)</p>

* If the Bidder is a partnership, the Bond must be signed in the name of the partnership by at least two general partners, whose names and addresses must be listed on the certificate on page BF-3-P of the Bid.

SURETY SIGN HERE

(SURETY
SEAL)

<p>_____ (Printed or Typed Name)</p> <p><i>Attest</i></p> <p>{</p> <p>_____ (Signature and Date)</p>	<p>_____ (Printed or Typed Name)</p> <p><i>Surety***</i></p> <p>{</p> <p>_____ (Signature and Date)</p>
--	---

*** Power of attorney must be attached to this Bid Bond.

SIGNED, SEALED AND DELIVERED IN _____ ORIGINAL COUNTERPARTS

this _____ day of _____ 20_____.

IF THE PRINCIPAL IS A CORPORATION, SIGN HERE

(CORPORATE
SEAL)

(Corporate Name)

(Printed or Typed Name)

(Printed or Typed Name)

Attest

{

President
V.P. **

{

(Signature and Date)

(Signature and Date)

(Corporate Title)

(Corporate Title)

** If the bidder is a corporation, the Bond must be executed in the Corporation's correct corporate name by its President or Vice President and attested to by its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the Certification of Corporate Principal below must be executed by the Secretary or Assistant Secretary.

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the
[] **Secretary** [] **Assistant Secretary** of the Corporation named a Bidder herein; that
(check one)

_____ who signed this Bid on behalf of the

Corporation was then _____ of said Corporation that I know his
signature and his signature thereto is genuine; and that said Bid was duly signed, sealed and attested
in behalf of said Corporation by authority of its governing body.

(CORPORATE
SEAL)

(Signature and Date)

SURETY SIGN HERE

(SURETY
SEAL)

(Printed or Typed Name)

(Printed or Typed Name)

Attest

{

*Surety****

{

(Signature and Date)

(Signature and Date)

*** Power of attorney must be attached to this Bid Bond.

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

STATEMENT OF BIDDER'S QUALIFICATIONS

Homewood North Stoops and Courtyard Paving -
AMP-20

(Bidder's Name)

(Project Name)

(Address)

600-37-19

(HACP Project No.)

Names of not more than two principals to contact:

Name: _____

Name: _____

Title: _____

Title: _____

Telephone: _____

Telephone: _____

AUTHORIZATION:

Excerpt from HUD 7460.8-REV-1 AND 24 CFR 85.36(b)(8) & 24 CFR 905.160(a)(3):

"The evaluation of a contractor's ability to perform a contract is known as determining the contractor's responsibility. HAs **shall** make awards only to **responsible** contractors possessing the ability to perform successfully under the terms and conditions of a proposed contract. Consideration **shall** be given to such matters as **contractor integrity, compliance with public policy, record of past performance, and financial and technical resources**.

"The award of a contract to an offeror **shall** not be made solely on the basis of the lowest evaluated price without considering the firm's ability to perform the required work. Some of the specific factors to consider include (1) whether the contractor performed satisfactorily on other HA Contracts, (2) is the contractor suspended or debarred from Federal Contracts, and (3) have other HAs has satisfactory performance from this contractor.

"A pre-award survey may entail an on-site inspection of the offeror's facilities, including a review of financial statements, record keeping, production capacity, or similar factors that impact on the ability to perform the contract.

"Recent unsatisfactory performance regarding either quality or timeliness of delivery is an example of a problem which the Contracting Officer **shall** consider and resolve as to its impact on the current procurement prior to making an affirmative determination of responsibility.

ORGANIZATION

THE BIDDER IS:

- ☐ An individual doing business in his/her own name
- ☐ An individual doing business under a fictitious or assumed name

- ☐ A General Partnership
 - ☐ Doing business under Partnership Name
 - ☐ Doing business under a fictitious or assumed name

- ☐ A Limited Partnership
 - ☐ Doing business under Partnership Name
 - ☐ Doing business under a fictitious or assumed name

- ☐ A corporation doing business in its own name
- ☐ A corporation doing business under a fictitious or assumed name

How many years has the bidder been in business as a Contractor? _____

How many years has the bidder been in business under its present business name? _____

Under what other or former names has the bidder operated?

PAST PERFORMANCE

CLAIMS AND SUITS. (If the answer to any of the questions below is yes, please attach explanation.)

☐ Yes ☐ No Has the Bidder ever failed to complete any work awarded to it?

☐ Yes ☐ No Are there any judgments, claims, arbitration proceedings or suits pending or outstanding against the bidder or its officers?

☐ Yes ☐ No Has the bidder filed any law suits or requested arbitration with regard to construction contracts within the last five years?

☐ Yes ☐ No Within the last five years, has any officer or principal of the bidder ever been an officer or principal of another organization when it failed to complete a construction contract? (If answer is yes, please attach details.)

State average annual amount of construction work performed during the past five years:
\$ _____

State total worth of work in progress and under contract: \$ _____

On a separate sheet, list major construction projects the bidder has in progress, giving the name of project, owner, architect, contract amount, percent complete and scheduled completion date.

On a separate sheet, list the major projects the bidder has completed in the past five years, giving the name of project, owner, architect, contract amount, date of completion and percentage of the cost of the work performed with your own forces.

FINANCIAL RESOURCES

Financial Statement.

Attach a financial statement (audited if available), including the bidder's latest balance sheet and income statement showing the following items:

Current Assets (e.g. cash, joint venture accounts, accounts receivable, notes receivable, accrued income, deposits, materials inventory and prepaid expenses);
Net Fixed Assets;
Other Assets;
Current Liabilities (e.g. accounts payable, notes payable, accrued expenses, provision for income taxes, advances, accrued salaries and accrued payroll taxes);
Other Liabilities (e.g. capital, capital stock, authorized and outstanding shares par values, earned surplus and retained earnings).

Name and address of firm preparing attached financial statement, and date thereof:

☐ **Yes** ☐ **No** Is the attached financial statement for the identical organization named on page one?

If not, explain the relationship and financial responsibility of the organization whose financial statement is provided (e.g., parent-subsiary).

☐ **Yes** ☐ **No** Will the organization whose financial statement is attached act as guarantor of the contract for construction?

TECHNICAL RESOURCES

Licensing:

List jurisdictions and trade categories in which the bidder is legally qualified to do business, and indicate registration or license numbers, if applicable.

Experiences:

List the categories of work that the bidder normally performs with its own forces.

On a separate sheet, list the construction experience and present commitments of the key individuals of the bidder.

REFERENCES

List Trade References (use separate sheet if necessary):

List Bank References (use separate sheet if necessary):

List previous HUD/USDA-FmHA projects and Section 8 Contracts (formerly Schedule A on HUD-2530). Applicable to construction contracts exceeding \$50,000. List each principals name, previous project, principal's participation role and interest, and disclose defaults, mortgage relief, assignments and foreclosures. **Note that having a Master Schedule on file with HUD will not meet this requirement.**

Certifications: I (meaning the individual who signs as well as the corporations, partnerships or other parties listed above who certify) hereby apply to HUD or USDA-FmHA, as the case may be, for approval to participate as a principal in the role and project listed above based upon my following previous participation record of this Certification.

I certify that all the statements made by me are true, complete and correct to the best of my knowledge and belief and are made in good faith, including the data contained in Schedule A and Exhibits, signed by me and attached to this form.

Warning: HUD and/or the Authority will prosecute false claims and statements. Conviction may result in criminal and/or civil penalties. (18 U.S.C. 1001, 1012; 31 U.S.C. 3729, 3802)

I further certify that:

1. The list of previous HUD/USDA-FmHA projects and Section 8 Contracts contains a listing of every assisted or insured project of HUD, which I have been or am now a principal.
2. For the period beginning 10 years prior to the date of this certification, and except as shown by me on the certification.
 - a. No mortgage on a project listed by me has ever been in default, assigned to the Government or foreclosed, nor has mortgage relief by the mortgagee been given;
 - b. I have not experienced default or noncompliance under any Conventional Contract or Turnkey Contract of Sale in connection with a public housing project;
 - c. To the best of my knowledge, there are no unresolved findings raised as a result of HUD audits, management reviews or other Governmental investigations concerning me or my projects;
 - d. There has not been a suspension or termination of payments under any HUD assistance contract in which I have had a legal or beneficial interest;
 - e. I have not been convicted of a felony and am not presently, to my knowledge, the subject of a complaint or indictment charging a felony. (A felony is defined as any offense punishable by imprisonment for a term exceeding one year, but does not include any offense classified as a misdemeanor under the laws of a State and punishable by imprisonment of two years or less);
 - f. I have not been suspended, debarred or otherwise restricted by any Department or Agency of the Federal Government or of a State Government from doing business with such Department or Agency.

- g. I have not defaulted on an obligation covered by a surety or performance bond and have not been the subject of a claim under an employee fidelity bond.
3. All the names of the parties, known to me to be principals in this project(s) in which I propose to participate, are listed above.
4. I am not a HUD/FmHA employee or a member of a HUD/FmHA employee's immediate household as defined in Standards of Ethical Conduct for Employees of the Executive Branch in 5 C.F.R. Part 2635 (57 FR 35006) and HUD's Standard of Conduct in 24 C.F.R. Part O and USDA's Standard of Conduct in 7 C.F.R. Part 9 Subpart B.
5. I am not a Housing Authority of the City of Pittsburgh employee or a member of an Authority employee's immediate family.
6. I am not a principal participant in an assisted or insured project as of this date on which construction has stopped for a period in excess of 20 days or which has been substantially completed for more than 90 days and documents for closing, including final cost certification have not been filed with HUD or FmHA.
7. To my knowledge I have not been found by HUD or FmHA to be in noncompliance with any applicable civil rights law.
8. I am not a Member of Congress or a Resident Commissioner nor otherwise prohibited or limited by law from contracting with the Government of the United States of America.
9. Statements above (if any) to which I cannot certify have been deleted by striking through the words with a pen. I have initialed each deletion (if any) and have attached a true and accurate signed statement (if applicable) to explain the facts and circumstances which I think helps to qualify me as a responsible principal for participation in this project.

(Signature and Date)

(Typed or Printed Name)

(Title)

(Company Name)

Subscribed and sworn to before me

this _____ day of _____, 20

My Commission expires _____, 20

All section 3 covered contracts shall include the following clause (referred to as the section 3 clause):

- A. The work to be performed under this contract is subject to the requirements of section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.
- B. The parties to this contract agree to comply with HUD's regulations in 24 CFR part 135, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 135 regulations.
- C. The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.
- D. The contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 135.
- E. The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR part 135.
- F. Noncompliance with HUD's regulations in 24 CFR part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.
- G. With respect to work performed in connection with section 3 covered Indian housing assistance, section 7(b) of the Indian Self- Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of section 3 and section 7(b) agree to comply with section 3 to the maximum extent feasible, but not in derogation of compliance with section 7(b).

Housing Authority City of Pittsburgh
Development and Modernization Department
 Bidder's Section 3 Participation Form

A. Bidder's Section 3 Hiring Plan

Job Category	Total Estimated Positions Needed for Project	No. Positions Occupied by Permanent Employees*	Number of Positions Not Occupied	Number of Positions Available for Section 3 Residents
Trade:				
Journeyman				
Helper				
Apprentices				
Trainees				
Laborer				
Others				

* Please submit a list of current employees to be assigned to this project including Dates of Hire

B. Bidder's Section 3 Subcontracting Plan

SUB - CONTRACTOR'S NAME**	SUB - CONTRACTORS ADDRESS	PHONE NUMBER	FEDERAL TAX ID NO./ SS#	DESCRIPTION OF WORK	Sub - Contract Amount

** If the Bidder has not identified a Section 3 subcontractor, please indicate if there will be any Section 3 subcontracting opportunity and describe scope of work_____

Company Name

Project Name

Project Number

Name and Title of Person Completing this Form

Signature and Date

PLACE HOLDER FOR
ROSTER OF CURRENT EMPLOYEES

**Pursuant to Housing Authority of the City of Pittsburgh Section 3 Program Manual, Part I,
Section A - Section 3 Policy Statement (in part):**

“HACP shall examine and consider a contractor’s potential for success in providing employment and business opportunities to those covered under Section 3 prior to acting on any proposed contract award. In response to any RFP, RFQ or IFB HACP will require submission of the Section 3 Opportunities Plan and roster of current employees, and certification that the bidder will comply with the requirements of Section 3.”

Section 3 Participation

With respect to work performed in connection with Section 3 covered Indian housing assistance, Section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of Section 3 and Section 7(b) agree to comply with Section 3 to the maximum extent feasible, but not in derogation of compliance with Section 7(b).

RESIDENT HIRING REQUIREMENTS / RESIDENT HIRING SCALE

TOTAL LABOR DOLLARS USE TOTAL CONTRACT AMOUNT FOR SERVICE CONTRACTS	RESIDENT LABOR AS A % OF TOTAL LABOR DOLLARS
Labor dollars \$25,000 but less than \$100,000	10% of the labor dollars
\$100,000, but less than \$200,000	9% of the labor dollars
At least \$200,000, but less than \$300,000	8% of the labor dollars
At least \$300,000, but less than \$400,000	7% of the labor dollars
At least \$400,000, but less than \$500,000	6% of the labor dollars
At least \$500,000, but less than \$1 million	5% of the labor dollars
At least \$1 million, but less than \$2 million	4% of the labor dollars
At least \$2 million, but less than \$4 million	3% of the labor dollars
At least \$4 million, but less than \$7 million	2% of the labor dollars
\$7 million or more	½ to 1 % of the labor dollars

A copy of HACP's Section 3 Program Manual is available for download at www.HACP.org.



SECTION 3 OPPORTUNITIES PLAN

Business Opportunities and Employment Training for Housing Authority of the City of Pittsburgh Low Income Public Housing Residents (LIPH) and Area Residents of Low and Very Low Income Status (ARLIS)

PRIME CONTRACTOR'S NAME: _____
SPECIFICATION OR RFP/IFB/RFQ NUMBER: _____
SPECIFICATION OR RFP/IFB/RFQ TITLE: _____

The Contractor hereby agrees to comply with all the provisions of Section 3 as set forth in 24 CFR 135.1 et seq. and the HACP Section 3 Policy and Program requirements. The Contractor hereby submits this document to identify employment opportunities for HACP residents (LIPH) and **Area Residents of Low and Very Low Income Status (ARLIS)** during the term of the contract between the Contractor and the HACP.

The preference of HACP is to ensure that as many HACP residents as possible are employed. In an effort to further that requirement, HACP has created a preference tier structure as outlined in the HACP Section 3 Policy and Program Manual which can be reviewed by visiting the "Vendor Services" section of www.hacp.org. Contractors are required to comply with Section 3 by first considering Tier I – Hiring. If the Contractor cannot meet its Section 3 requirement in Tier I and needs to move to Tier II or Tier III, that Contractor must document this inability to comply with the preference and the need to move to a lower tier. (Such inability **must** be documented for moves within tiers). The Contractor agrees to meet its Section 3 requirement following the Preferential Tier Structure as indicated by the selection below (check one or more tiers below):

[] Tier I – HIRING

The Contractor affirms that the jobs identified shall be for meaningful employment that may or may not be related to the scope of services covered under Contract/Purchase Order # _____. The Contractor has committed to employ _____ resident(s) in order to comply with its Section 3 requirements. A prime contractor may satisfy the HACP Resident Hiring Requirements through his/her subcontractors. **Contact the HACP Resident Employment Program for resident referrals at 412-395-3950, Ext 1048.**

When Tier I is selected, the Contractor shall complete the following table as instructed below:

- (1) Indicate each job title for all phases of this contract
- (2) The number of positions that will be needed in each category
- (3) How many of those positions are currently filled
- (4) The number currently filled by low and very low-income HACP residents
- (5) The number currently filled by City of Pittsburgh neighborhood area residents
- (6) How many positions need to be filled

Indicate your requirement for the number of positions you intend to fill with:

- (7) Low income HACP Residents (LIPH) and/or
- (8) Low and very low income City of Pittsburgh Neighborhood Area Residents (ARLIS)



SECTION 3 OPPORTUNITIES PLAN

Section 3 Labor Utilization Assessment and Plan							
SPEC or RFP TITLE:					SPEC or RFP NUMBER:		
JOB TITLE (1)	NUMBER OF POSITIONS					HIRING REQUIREMENT	
	# NEEDED (2)	CURRENTLY FILLED			TO BE FILLED (6)	LIPH (7)	ARLIS (8)
		TOTAL (3)	LIPH (4)	ARLIS (5)			

LIPH – HACP low income public housing resident

ARLIS - Area Residents of Low/Very Low Income Status – (Area is the Pittsburgh metropolitan area)

In the event the value of Section 3 resident hiring is less than the amount identified in the Resident Hiring Scale, vendors must contribute to the HACP Education Fund an amount not less than the difference between the value of Section 3 hiring and the amount identified in the Resident Hiring Scale, which funds shall be used to provide other economic opportunities.

Therefore, if it is anticipated that any position listed above shall be for less than the full term of the contract period, you must indicate on the lines below, the anticipated term for each position:



SECTION 3 OPPORTUNITIES PLAN

[] Tier II – CONTRACTING

The contractor has identified _____ HACP resident-owned business(es) or _____ Section 3 business(es) which is/are 51 percent or more owned by Section 3 residents or 30 percent or more of their permanent full-time workforce are Section 3 residents. This will satisfy the contractor's Section 3 requirement covered under Contract/Purchase Order # _____.

In a one (1) page letter on your firm's letterhead:

- 1) Indicate the requirements, expressed in terms of percentage, of planned contracting dollars for the use of Section 3 business concerns as subcontractors.
- 2) A statement of the total dollar amount to be contracted, total dollar amount to be contracted to Section 3 business concerns for building trades, and total dollar amount to be contracted to Section 3 business concerns for other than building trades work (maintenance, repair, modernization, and development).
- 3) A description of the method used to develop the requirements above and the efforts to be undertaken by the contractor to meet those requirements.

[] Tier III - OTHER ECONOMIC OPPORTUNITIES

Firms may provide other economic opportunities to train and employ Section 3 residents or make a direct cash contribution to the HACP Education Fund. HACP has established the following minimum threshold requirements for provision of training or contribution to the HACP fund that provides other economic opportunities:

- a) Contractor incurs the cost of providing skilled training for residents in an amount commensurate with the sliding scale set forth in the Resident Hiring Scale; or,
- b) Contractor makes a contribution to the HACP Education Fund at Clean Slate E3 to provide assistance to residents to obtain training. The level of contribution would be commensurate with the sliding scale set forth in the Resident Hiring Scale.

Contractor shall provide, in a letter on firm letterhead:

- 1) Indication of the skilled training to be provided, the number of persons to be trained, the training provider, the cost of training, and the trainee recruitment plan; or,
- 2) Provide the amount of planned contribution to be made in relation to percentage of the contract labor hours costs. (Contribution checks should be made payable to: Clean Slate E3 Education Fund and mailed to Clean Slate E3, C/O Housing Authority of the City of Pittsburgh, Finance Department, 200 Ross Street, 9th Floor, Pittsburgh, PA 15219.

[] Tier IV – No New Hire Opportunity

If awarded this contract, the contractor will be able to fulfill the requirements of the IFB/RFP/RFQ with the existing work force. No new hires will be employed as a result of this award. If this position changes and hiring opportunities become necessary, the HACP Resident Employment Program will be notified.



SECTION 3 OPPORTUNITIES PLAN

By signing below, the Contractor hereby agrees to comply with the selected Section 3 requirements indicated above. To the extent that the completion of this form is contingent upon future information, for example price negotiations, request for specific services, etc., the undersigned hereby affirms and agrees to fully adhere to the spirit and intent of the HACP Section 3 Policy.

Furthermore, the undersigned acknowledges and affirms responsibility for completion and submission of this form as part of the response documentation for this Invitation for Bid or Request for Proposal. Failure to submit this form may jeopardize the responsiveness of your submission.

Company Name: _____

Name: _____

Title: _____

Signature: _____ Date: _____

Witness Name: _____

Witness Signature: _____ Date: _____

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH
MBE/WBE SOLICITATION AND COMMITMENT RECORD

SOLICITATION AND COMMITMENT STATEMENT MINORITY (MBE) AND FEMALE (WBE) OWNED BUSINESS ENTERPRISES					
BID NUMBER	NAME OF BIDDER	ADDRESS	PHONE		
List below All MBE/WBE's that were solicited - whether or not a commitment was obtained -- Copy this form as necessary					
____ MBE ____ WBE COMPANY NAME ADDRESS CONTACT PERSON PHONE	TYPE OF SUBCONTRACT WORK OR MATERIALS	<u>DATE SOLICITED</u> BY PHONE BY MAIL		<u>COMMITMENT MADE</u> YES NO <small>(IF YES, GIVE DATE)</small>	GIVE REASON(S) IF NO COMMITMENT MADE
		QUOTE RECEIVED		AMOUNT COMMITTED	
		YES NO	DOLLAR AMOUNT \$	PERCENT OF TOTAL BID %	
____ MBE ____ WBE COMPANY NAME ADDRESS CONTACT PERSON PHONE	TYPE OF SUBCONTRACT WORK OR MATERIALS	<u>DATE SOLICITED</u> BY PHONE BY MAIL		<u>COMMITMENT MADE</u> YES NO <small>(IF YES, GIVE DATE)</small>	GIVE REASON(S) IF NO COMMITMENT MADE
		QUOTE RECEIVED		AMOUNT COMMITTED	
		YES NO	DOLLAR AMOUNT \$	PERCENT OF TOTAL BID %	
____ MBE ____ WBE COMPANY NAME ADDRESS CONTACT PERSON PHONE	TYPE OF SUBCONTRACT WORK OR MATERIALS	<u>DATE SOLICITED</u> BY PHONE BY MAIL		<u>COMMITMENT MADE</u> YES NO <small>(IF YES, GIVE DATE)</small>	GIVE REASON(S) IF NO COMMITMENT MADE
		QUOTE RECEIVED		AMOUNT COMMITTED	
		YES NO	DOLLAR AMOUNT \$	PERCENT OF TOTAL BID %	

Prepared by:

Title:

Phone:

NOTE: Certification and letters of intent for each MBE/WBE commitment must accompany this document.

MBE/WBE Participation Plan

I. SMALL BUSINESS PARTICIPATION

Is the Bidder a Small Business as defined by the size and standards in 13 CFR 121?

Yes _____ No _____

II. MINORITY BUSINESS PARTICIPATION

Is the Bidder classified as a Minority Business Enterprise?

Yes _____ No _____

If “No”, are any Subcontractors classified as Minority Business enterprises?

Yes _____ No _____

If “Yes”, please fill in the following chart:

Consulting Firm(s) (MBE)	\$ Value Contract	% of Fee

III. WOMEN-OWNED BUSINESS PARTICIPATION

Is the Bidder classified as a Woman-Owned Business Enterprise?

Yes _____ No _____

If “No”, are any Subcontractors classified as Women-Owned Business Enterprises?

Yes _____ No _____

If “Yes”, please fill in the following chart:

Consulting Firm(s) (WBE)	\$ Value Contract	% of Fee

****All MBE/WBE firms must be certified.**

In order for the MBE/WBE participation plan to be complete, copies of MBE/WBE certification must be included for all firms listed.

BIDDERS NAME: _____
 ADDRESS: _____
 TELEPHONE: _____
 CONTACT PERSON: _____
 PROPOSAL AND BID FOR: _____

[illegible]

Phone:

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH
MBE/WBE SOLICITATION AND COMMITMENT STATEMENT
ADDITIONAL INFORMATION SHEET

The bidder presents the following as additional and supplemental
information to its MBE/WBE Solicitation and
Commitment Statement.

Prepared by:

Title:

Phone:

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH
MBE/WBE EXHIBIT

MBE/WBE COMMITMENT WAIVER REQUEST FORM

BIDDER'S FIRM: _____
ADDRESS: _____
TELEPHONE: _____
CONTACT PERSON: _____
PROPOSAL AND BID FOR: _____

Waiver of the MBE/WBE participation requirement is requested for the following reasons:

Prepared by: _____ Title: _____ Phone: _____

NOTE: The fully completed MBE/WBE Solicitation and Commitment Statement must accompany this waiver request.

**Notice of Requirement for Affirmative Action
to Ensure Equal Employment Opportunity
(Executive Order 11625)**

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.
2. The goals for minority and female participation at the Housing Authority of the City of Pittsburgh are pursuant to the Mayor's promulgated Executive Order, and the action of the Housing Authority Board. Expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, these goals are eighteen percent (18%) of the total cost of the contract to be expended for minority participation and seven percent (7%) for women participation. These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in Section 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in Section 41 CFR Part 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in Section 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification, within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation, to:

LaVaris Ross, Labor Relations Specialist
U.S. Department of Housing and Urban Development
Office of Labor Relations
City Crescent Building
10 S. Howard Street, 5th Floor
Baltimore, MD 21201

The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is within the Commonwealth of Pennsylvania, County of Allegheny, City of Pittsburgh.



Development & Modernization
100 Ross Street, Suite 200
Pittsburgh, PA 15219
(412) 456-5020
www.hacp.org

NOTICE TO ALL PROSPECTIVE BIDDERS

REQUEST FOR MANPOWER PLAN
Homewood North Stoops and Courtyard Paving - AMP-20

HACP CONTRACT No. 600-37-19

Each bid must include a separate Manpower Plan and Major Equipment List for this Invitation for Bids. The Manpower Plan must include (1) the names of the bidder's personnel to be assigned to the Project, (2) trade/position, (3) Social Security Number or Driver's License Number and (4) Employee Date of Hire.

In the event you are bidding on multiple HACP construction work, each bid must include a separate Manpower Plan and Major Equipment List that clearly demonstrates that the bidder has the capacity and will not use the same personnel and equipment on more than one HACP construction work that are being executed simultaneously within the next 180 days.

HACP will use this information to determine whether the bidder has the capacity to perform the work.

Please acknowledge receipt of this Notice by completing the information below and the attached and including copies in your bid.

Bidder's Name: _____

Name of the Person Signing the Bid: _____

Signature of the Person Signing the Bid: _____

Bid Due Date: _____



Development & Modernization
100 Ross Street, Suite 200
Pittsburgh, PA 15219
(412) 456-5020
www.hacp.org

Bidder's Planned Manpower

Provide Employee Name, Trade/Position, Social Security Number or Driver's License Number and Date of Hire for each employee:
(use additional sheets if necessary).

Name	Position	Social Security No. or Driver's License No.		Date of Hire



Development & Modernization
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(412) 456-5020
www.hacp.org

SPECIAL PROVISIONS
FOR INVITATION FOR BIDS (IFB)

REQUEST FOR INFORMATION

Each bidder must submit the following information to assist the Owner to determine if the Bidder has the capacity to perform the required work under this **Project Name:** _____ **IFB No.** _____.

Bidder's Capacity

Provide information demonstrating the Bidder's ability to provide the resources necessary for the timely and efficient implementation of the construction work. Due to the nature of this procurement, capacity will also be evaluated based on the Bidder's ability to complete the work on time and within budget, therefore, please describe the Bidder's Capacity as follows:

1. Manpower Plan and Major Equipment List (Please complete **Form 00435-1 & 2**).
2. List a maximum of three-(3) current or completed *Housing Authority of the City of Pittsburgh* related projects, the **Initial Contract Value**, **Change Orders, if any**, and **Final Contract Value**. If the project was not completed within budget and on time, please explain the circumstances and/or justification for the change order(s): Please attach a separate sheet if you do not have sufficient space.

<u>Project #</u>	<u>Initial Contract Value</u>	<u>Change Order(s)</u>	<u>Final Contract Value</u>
-------------------------	--------------------------------------	-------------------------------	------------------------------------

- a.
- b.
- c.

Justification for Change Orders/Schedule: _____

3. List at least three-(3) other Owners including one current or completed project plus the following information:

<u>Vendor's Name & Contact #</u>	<u>Initial Contract Value</u>	<u>Change Order(s)</u>	<u>Final Contract Value</u>
---	--------------------------------------	-------------------------------	------------------------------------

- a.
- b.
- c.

Justification for Change Orders/Schedule: _____

The Bidder hereby certifies that the information provided above is accurate/correct and provision of false information can be a basis for the rejection of this bid:

Bidder's Name: _____ Bidder's Signature: _____
Date: _____



Development & Modernization
100 Ross Street, Suite 200
Pittsburgh, PA 15219
(412) 456-5020
www.hacp.org

NOTICE TO ALL PROSPECTIVE BIDDERS

**Previous Related Experience
for**

Homewood North Stoops and Courtyard Paving - AMP-20

HACP CONTRACT NO. 600-37-19

The bidder shall list three (3) firms, governmental units, or persons for whom the bidder has previously performed work of the nature requested under this IFB. Bidder shall list as references all housing authorities, including HACP, for whom the bidder has previously performed work of the nature requested under this IFB. HACP reserves the right to contact such persons at anytime prior to award and the bidder agrees that HACP may rely on information provided by such persons to determine the bidder's responsibility.

In addition to the references, all bidders will provide the last three jobs they performed, contact information from the job and all change orders related to the job and the reason for each.

All bidders will provide information on the most recent HACP job to include all change order information and the reason for each. The most recent HACP job can be one of the 3 last jobs performed if that is the case.

Reference 1			
Project:			
Contact:			
Contact Telephone Number:			
Contract Amount:			
Change Orders			
Number	Total \$ Value per Change	Description of Change	Reason for Change
1			
2			
3			
4			
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10			



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In addition to the references, all bidders will provide the last three jobs they performed, contact information from the job and all change orders related to the job and the reason for each.

All bidders will provide information on the most recent HACP job to include all change order information and the reason for each. The most recent HACP job can be one of the 3 last jobs performed if that is the case.

Reference 2			
Project:			
Contact:			
Contact Telephone Number:			
Contract Amount:			
Change Orders			
Number	Total \$ Value per Change	Description of Change	Reason for Change
1			
2			
3			
4			
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In addition to the references, all bidders will provide the last three jobs they performed, contact information from the job and all change orders related to the job and the reason for each.

All bidders will provide information on the most recent HACP job to include all change order information and the reason for each. The most recent HACP job can be one of the 3 last jobs performed if that is the case.

Reference 3			
Project:			
Contact:			
Contact Telephone Number:			
Contract Amount:			
Change Orders			
Number	Total \$ Value per Change	Description of Change	Reason for Change
1			
2			
3			
4			
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In addition to the references, all bidders will provide the last three jobs they performed, contact information from the job and all change orders related to the job and the reason for each.

All bidders will provide information on the most recent HACP job to include all change order information and the reason for each. The most recent HACP job can be one of the 3 last jobs performed if that is the case.

Reference 4			
Project:			
Contact:			
Contact Telephone Number:			
Contract Amount:			
Change Orders			
Number	Total \$ Value per Change	Description of Change	Reason for Change
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In addition to the references, all bidders will provide the last three jobs they performed, contact information from the job and all change orders related to the job and the reason for each.

All bidders will provide information on the most recent HACP job to include all change order information and the reason for each. The most recent HACP job can be one of the 3 last jobs performed if that is the case.

Reference 5			
Project:			
Contact:			
Contact Telephone Number:			
Contract Amount:			
Change Orders			
Number	Total \$ Value per Change	Description of Change	Reason for Change
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In addition to the references, all bidders will provide the last three jobs they performed, contact information from the job and all change orders related to the job and the reason for each.

All bidders will provide information on the most recent HACP job to include all change order information and the reason for each. The most recent HACP job can be one of the 3 last jobs performed if that is the case.

Reference 6			
Project:			
Contact:			
Contact Telephone Number:			
Contract Amount:			
Change Orders			
Number	Total \$ Value per Change	Description of Change	Reason for Change
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In addition to the references, all bidders will provide the last three jobs they performed, contact information from the job and all change orders related to the job and the reason for each.

All bidders will provide information on the most recent HACP job to include all change order information and the reason for each. The most recent HACP job can be one of the 3 last jobs performed if that is the case.

Reference 7			
Project:			
Contact:			
Contact Telephone Number:			
Contract Amount:			
Change Orders			
Number	Total \$ Value per Change	Description of Change	Reason for Change
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***All contractors MUST submit 3 references and most recent HACP Job if applicable.**

**U.S. Department of Housing
and Urban Development**
Office of Public and Indian Housing

**Representations, Certifications,
and Other Statements of Bidders**
Public and Indian Housing Programs

Representations, Certifications, and Other Statements of Bidders

Public and Indian Housing Programs

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1. Certificate of Independent Price Determination

(a) The bidder certifies that--

(1) The prices in this bid have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other bidder or competitor relating to (i) those prices, (ii) the intention to submit a bid, or (iii) the methods or factors used to calculate the prices offered;

(2) The prices in this bid have not been and will not be knowingly disclosed by the bidder, directly or indirectly, to any other bidder or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a competitive proposal solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the bidder to induce any other concern to submit or not to submit a bid for the purpose of restricting competition.

(b) Each signature on the bid is considered to be a certification by the signatory that the signatory--

(1) Is the person in the bidder's organization responsible for determining the prices being offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above; or

(2) (i) Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above.

[insert full name of person(s) in the bidder's organization responsible for determining the prices offered in this bid or proposal, and the title of his or her position in the bidder's organization];

(ii) As an authorized agent, does certify that the principals named in subdivision (b)(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

(iii) As an agent, has not personally participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above.

(c) If the bidder deletes or modifies subparagraph (a)2 above, the bidder must furnish with its bid a signed statement setting forth in detail the circumstances of the disclosure.

☒ [Contracting Officer check if following paragraph is applicable]

(d) Non-collusive affidavit. (applicable to contracts for construction and equipment exceeding \$50,000)

(1) Each bidder shall execute, in the form provided by the PHA/IHA, an affidavit to the effect that he/she has not colluded with any other person, firm or corporation in regard to any bid submitted in response to this solicitation. If the successful bidder did not submit the affidavit with his/her bid, he/she must submit it within three (3) working days of bid opening. Failure to submit the affidavit by that date may render the bid nonresponsive. No contract award will be made without a properly executed affidavit.

(2) A fully executed "Non-collusive Affidavit" [] is, [] is not included with the bid.

2. Contingent Fee Representation and Agreement

(a) Definitions. As used in this provision:

"Bona fide employee" means a person, employed by a bidder and subject to the bidder's supervision and control as to time, place, and manner of performance, who neither exerts, nor proposes to exert improper influence to solicit or obtain contracts nor holds out as being able to obtain any contract(s) through improper influence.

"Improper influence" means any influence that induces or tends to induce a PHA/IHA employee or officer to give consideration or to act regarding a PHA/IHA contract on any basis other than the merits of the matter.

(b) The bidder represents and certifies as part of its bid that, except for full-time bona fide employees working solely for the bidder, the bidder:

(1) [] has, [] has not employed or retained any person or company to solicit or obtain this contract; and

(2) [] has, [] has not paid or agreed to pay to any person or company employed or retained to solicit or obtain this contract any commission, percentage, brokerage, or other fee contingent upon or resulting from the award of this contract.

(c) If the answer to either (a)(1) or (a)(2) above is affirmative, the bidder shall make an immediate and full written disclosure to the PHA/IHA Contracting Officer.

(d) Any misrepresentation by the bidder shall give the PHA/IHA the right to (1) terminate the contract; (2) at its discretion, deduct from contract payments the amount of any commission, percentage, brokerage, or other contingent fee; or (3) take other remedy pursuant to the contract.

3. Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions (applicable to contracts exceeding \$100,000)

(a) The definitions and prohibitions contained in Section 1352 of title 31, United States Code, are hereby incorporated by reference in paragraph (b) of this certification.

(b) The bidder, by signing its bid, hereby certifies to the best of his or her knowledge and belief as of December 23, 1989 that:

(1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the awarding of a contract resulting from this solicitation;

(2) If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with this solicitation, the bidder shall complete and submit, with its bid, OMB standard form LLL, "Disclosure of Lobbying Activities;" and

(3) He or she will include the language of this certification in all subcontracts at any tier and require that all recipients of subcontract awards in excess of \$100,000 shall certify and disclose accordingly.

(c) Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by section 1352, title 31, United States Code. Any person who makes an expenditure prohibited under this provision or who fails to file or amend the disclosure form to be filed or amended by this provision, shall be subject to a civil penalty of not less than \$10,000, and not more than \$100,000, for each such failure.

(d) Indian tribes (except those chartered by States) and Indian organizations as defined in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450B) are exempt from the requirements of this provision.

4. Organizational Conflicts of Interest Certification

The bidder certifies that to the best of its knowledge and belief and except as otherwise disclosed, he or she does not have any organizational conflict of interest which is defined as a situation in which the nature of work to be performed under this proposed contract and the bidder's organizational, financial, contractual, or other interests may, without some restriction on future activities:

(a) Result in an unfair competitive advantage to the bidder; or,
(b) Impair the bidder's objectivity in performing the contract work.
[] In the absence of any actual or apparent conflict, I hereby certify that to the best of my knowledge and belief, no actual or apparent conflict of interest exists with regard to my possible performance of this procurement.

5. Bidder's Certification of Eligibility

(a) By the submission of this bid, the bidder certifies that to the best of its knowledge and belief, neither it, nor any person or firm which has an interest in the bidder's firm, nor any of the bidder's subcontractors, is ineligible to:

(1) Be awarded contracts by any agency of the United States Government, HUD, or the State in which this contract is to be performed; or,

(2) Participate in HUD programs pursuant to 24 CFR Part 24.

(b) The certification in paragraph (a) above is a material representation of fact upon which reliance was placed when making award. If it is later determined that the bidder knowingly rendered an erroneous certification, the contract may be terminated for default, and the bidder may be debarred or suspended from participation in HUD programs and other Federal contract programs.

6. Minimum Bid Acceptance Period

(a) "Acceptance period," as used in this provision, means the number of calendar days available to the PHA/IHA for awarding a contract from the date specified in this solicitation for receipt of bids.

(b) This provision supersedes any language pertaining to the acceptance period that may appear elsewhere in this solicitation.

(c) The PHA/IHA requires a minimum acceptance period of [Contracting Officer insert time period] calendar days.

(d) In the space provided immediately below, bidders may specify a longer acceptance period than the PHA's/IHA's minimum requirement. The bidder allows the following acceptance period: calendar days.

(e) A bid allowing less than the PHA's/IHA's minimum acceptance period will be rejected.

(f) The bidder agrees to execute all that it has undertaken to do, in compliance with its bid, if that bid is accepted in writing within (1) the acceptance period stated in paragraph (c) above or (2) any longer acceptance period stated in paragraph (d) above.

7. Small, Minority, Women-Owned Business Concern Representation

The bidder represents and certifies as part of its bid/ offer that it --

(a) [] is, [] is not a small business concern. "Small business concern," as used in this provision, means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding, and qualified as a small business under the criteria and size standards in 13 CFR 121.

(b) [] is, [] is not a women-owned business enterprise. "Women-owned business enterprise," as used in this provision, means a business that is at least 51 percent owned by a woman or women who are U.S. citizens and who also control and operate the business.

(c) [] is, [] is not a minority business enterprise. "Minority business enterprise," as used in this provision, means a business which is at least 51 percent owned or controlled by one or more minority group members or, in the case of a publicly owned business, at least 51 percent of its voting stock is owned by one or more minority group members, and whose management and daily operations are controlled by one or more such individuals. For the purpose of this definition, minority group members are:

(Check the block applicable to you)

[] Black Americans	[] Asian Pacific Americans
[] Hispanic Americans	[] Asian Indian Americans
[] Native Americans	[] Hasidic Jewish Americans

8. Indian-Owned Economic Enterprise and Indian Organization Representation (applicable only if this solicitation is for a contract to be performed on a project for an Indian Housing Authority)

The bidder represents and certifies that it:

(a) [] is, [] is not an Indian-owned economic enterprise. "Economic enterprise," as used in this provision, means any commercial, industrial, or business activity established or organized for the purpose of profit, which is at least 51 percent Indian owned. "Indian," as used in this provision, means any person who is a member of any tribe, band, group, pueblo, or community which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs and any "Native" as defined in the Alaska Native Claims Settlement Act.

(b) [] is, [] is not an Indian organization. "Indian organization," as used in this provision, means the governing body of any Indian tribe or entity established or recognized by such governing body. Indian "tribe" means any Indian tribe, band, group, pueblo, or

community including Native villages and Native groups (including corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, which is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs.

9. Certification of Eligibility Under the Davis-Bacon Act (applicable to construction contracts exceeding \$2,000)

(a) By the submission of this bid, the bidder certifies that neither it nor any person or firm who has an interest in the bidder's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(b) No part of the contract resulting from this solicitation shall be subcontracted to any person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(c) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.

10. Certification of Nonsegregated Facilities (applicable to contracts exceeding \$10,000)

(a) The bidder's attention is called to the clause entitled **Equal Employment Opportunity** of the General Conditions of the Contract for Construction.

(b) "Segregated facilities," as used in this provision, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin because of habit, local custom, or otherwise.

(c) By the submission of this bid, the bidder certifies that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The bidder agrees that a breach of this certification is a violation of the Equal Employment Opportunity clause in the contract.

(d) The bidder further agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time periods) prior to entering into subcontracts which exceed \$10,000 and are not exempt from the requirements of the Equal Employment Opportunity clause, it will:

(1) Obtain identical certifications from the proposed subcontractors;

(2) Retain the certifications in its files; and

(3) Forward the following notice to the proposed subcontractors (except if the proposed subcontractors have submitted identical certifications for specific time periods):

Notice to Prospective Subcontractors of Requirement for Certifications of Nonsegregated Facilities

A Certification of Nonsegregated Facilities must be submitted before the award of a subcontract exceeding \$10,000 which is not exempt from the provisions of the Equal Employment Opportunity clause of the prime contract. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

Note: The penalty for making false statements in bids is prescribed in 18 U.S.C. 1001.

11. Clean Air and Water Certification (applicable to contracts exceeding \$100,000)

The bidder certifies that:

(a) Any facility to be used in the performance of this contract [] is, [] is not listed on the Environmental Protection Agency List of Violating Facilities:

(b) The bidder will immediately notify the PHA/IHA Contracting Officer, before award, of the receipt of any communication from the Administrator, or a designee, of the Environmental Protection Agency, indicating that any facility that the bidder proposes to use for the performance of the contract is under consideration to be listed on the EPA List of Violating Facilities; and,

(c) The bidder will include a certification substantially the same as this certification, including this paragraph (c), in every nonexempt subcontract.

12. Previous Participation Certificate (applicable to construction and equipment contracts exceeding \$50,000)

(a) The bidder shall complete and submit with his/her bid the Form HUD-2530, "Previous Participation Certificate." If the successful bidder does not submit the certificate with his/her bid, he/she must submit it within three (3) working days of bid opening. Failure to submit the certificate by that date may render the bid nonresponsive. No contract award will be made without a properly executed certificate.

(b) A fully executed "Previous Participation Certificate" [] is, [] is not included with the bid.

13. Bidder's Signature

The bidder hereby certifies that the information contained in these certifications and representations is accurate, complete, and current.

(Signature and Date)

(Typed or Printed Name)

(Title)

(Company Name)

(Company Address)

US Department of Housing and Urban Development
Office of Housing/Federal Housing Commissioner

US Department of Agriculture
Farmers Home Administration

Part I to be completed by Controlling Participant of Covered Projects <i>(See instructions)</i> Reason for submission:		For HUD HQ/FmHA use only	
1. Agency name and City where the application is filed		2. Project Name, Project Number, City and Zip Code	
3. Loan or Contract amount \$	4. Number of Units or Beds	5. Section of Act	6. Type of Project (check one) <input type="checkbox"/> Existing <input type="checkbox"/> Rehabilitation <input type="checkbox"/> Proposed (New)

7. List all proposed Controlling Participants and attach organization chart for all organizations		
Name and address of Principals and Affiliates (Name: Last, First, Middle Initial) proposing to participate	8 Role of Each Principal in Project	9. SSN or IRS Employer Number

Certifications: The controlling participants(s) listed above hereby apply to HUD or USDA FmHA, as the case maybe, for approval to participate as controlling participant(s) in the role(s) and project listed above. The controlling participant(s) each certify that all the statements made on this form are true, complete and correct to the best of their knowledge and belief and are made in good faith, including any Exhibits attached to this form.

Warning: HUD will prosecute false claims and statements. Conviction may result in criminal and/or civil penalties. The controlling participants(s) further certify that to the best of their knowledge and belief:

- Schedule A contains a listing, for the last ten years, of every project assisted or insured by HUD, USDA FmHA and/or State and local government housing finance agencies in which the controlling participant(s) have participated or are now participating.
- For the period beginning 10 years prior to the date of this certification, and except as shown on the certification:
 - No mortgage on a project listed has ever been in default, assigned to the Government or foreclosed, nor has it received mortgage relief from the mortgagee;
 - The controlling participants have no defaults or noncompliance under any Conventional Contract or Turnkey Contract of Sale in connection with a public housing project;
 - There are no known unresolved findings as a result of HUD audits, management reviews or other Governmental investigations concerning the controlling participants or their projects;
 - There has not been a suspension or termination of payments under any HUD assistance contract due to the controlling participant's fault or negligence;
 - The controlling participants have not been convicted of a felony and are not presently the subject of a complaint or indictment charging a felony. (A felony is defined as any offense punishable by imprisonment for a term exceeding one year, but does not include any offense classified as a misdemeanor under the laws of a State and punishable by imprisonment of two years or less);
 - The controlling participants have not been suspended, debarred or otherwise restricted by any Department or Agency of the Federal Government or of a State Government from doing business with such Department or Agency;
 - The controlling participants have not defaulted on an obligation covered by a surety or performance bond and have not been the subject of a claim under an employee fidelity bond;
- All the names of the controlling participants who propose to participate in this project are listed above.
- None of the controlling participants is a HUD/FmHA employee or a member of a HUD/FmHA employee's immediate household as defined in Standards of Ethical Conduct for Employees of the Executive Branch in 5 C.F.R. Part 2635 (57 FR 35006) and HUD's Standard of Conduct in 24 C.F.R. Part 0 and USDA's Standard of Conduct in 7 C.F.R. Part 0 Subpart B.
- None of the controlling participants is a participant in an assisted or insured project as of this date on which construction has stopped for a period in excess of 20 days or which has been substantially completed for more than 90 days and documents for closing, including final cost certification, have not been filed with HUD or FmHA.
- None of the controlling participants have been found by HUD or FmHA to be in noncompliance with any applicable fair housing and civil rights requirements in 24 CFR 5.105(a). (If any controlling participants have been found to be in noncompliance with any requirements, attach a signed statement explaining the relevant facts, circumstances, and resolution, if any).
- None of the controlling participants is a Member of Congress or a Resident Commissioner nor otherwise prohibited or limited by law from contracting with the Government of the United States of America.
- Statements above (if any) to which the controlling participant(s) cannot certify have been deleted by striking through the words with a pen, and the controlling participant(s) have initialed each deletion (if any) and have attached a true and accurate signed statement (if applicable) to explain the facts and circumstances.

Name of Controlling Participant	Signature of Controlling Participant	Certification Date (mm/dd/yyyy)	Area Code and Tel. No.
This form prepared by (print name)		Area Code and Tel. No.	

Previous Participation Certification

OMB Approval No. 2502-0118
(Exp. 05/31/2019)

Schedule A: List of Previous Projects and Section 8 Contracts. Below is a complete list of the controlling participants' previous participation projects and participation history in multifamily Housing programs of HUD/FmHA, State and local Housing Finance Agencies. **Note:** Read and follow the instruction sheet carefully. Make full disclosure. Add extra sheets if you need more space. Double check for accuracy. If no previous projects, write by your name, **"No previous participation, First Experience"**.

1. Controlling Participants' Name (Last, First)	2. List of previous projects (Project name, project ID and, Govt. agency involved)	3. List Participants' Role(s) (indicate dates participated, and if fee or identity of interest participant)	4. Status of loan (current, defaulted, assigned, foreclosed)	5. Was the Project ever in default during your participation Yes No If yes, explain		6. Last MOR rating and Physical Insp. Score and date

Part II- For HUD Internal Processing Only

Received and checked by me for accuracy and completeness; recommend approval or refer to Headquarters after checking appropriate box.

Date (mm/dd/yyyy)	Tel No. and area code	<input type="checkbox"/> A. No adverse information; form HUD-2530 approval recommended. <input type="checkbox"/> B. Name match in system	<input type="checkbox"/> C. Disclosure or Certification problem <input type="checkbox"/> D. Other (attach memorandum)	
Staff	Processing and Control			
Signature of authorized reviewer		Signature of authorized reviewer	Approved <input type="checkbox"/> Yes <input type="checkbox"/> No	Date (mm/dd/yyyy)

Instructions for Completing the Previous Participation Certificate, form HUD-2530

Carefully read these instructions and the applicable regulations. A copy of those regulations published at 24 C.F.R. part 200, subpart H, can be obtained on-line at www.gpo.gov and from the Account Executive at any HUD Office. Type or print neatly in ink when filling out this form. Mark answers in all blocks of the form. If the form is not filled completely, it will delay approval of your application.

Attach extra sheets as you need them. Be sure to indicate "Continued on Attachments" wherever appropriate. Sign each additional page that you attach if it refers to you or your record. **Carefully read the certification before you sign it.** Any questions regarding the form or how to complete it can be answered by your HUD Account Executive.

Purpose: This form provides HUD with a certified report of all previous participation in HUD programs by those parties making application. The information requested in this form is used by HUD to determine if you meet the standards established to ensure that all controlling participants in HUD projects will honor their legal, financial and contractual obligations and are acceptable risks from the underwriting standpoint of an insurer, lender or governmental agency. HUD requires that you certify your record of previous participation in HUD/USDA-FmHA, State and Local Housing Finance Agency projects by completing and signing this form, before your project application or participation can be approved.

HUD approval of your certification is a necessary precondition for your participation in the project and in the capacity that you propose. If you do not file this certification, do not furnish the information requested accurately, or do not meet established standards, HUD will not approve your certification.

Note that approval of your certification does not obligate HUD to approve your project application, and it does not satisfy all other HUD program requirements relative to your qualifications.

Who Must Sign and File Form HUD-2530: Form HUD-2530 must be completed and signed by all Controlling Participants of Covered Projects, as such terms are defined in 24 CFR 200.212, and as further clarified by the Processing Guide referenced in 24 CFR 200.210(b) and made available on the HUD website at: http://portal.hud.gov/hudportal/HUD?src=/program_offices/housing/mfh/prevparticipation.

Where and When Form HUD-2530 Must Be Filed: The original of this form must be submitted to the HUD Office where your project application will be processed at the same time you file your initial project application. This form must be filed with applications for projects listed in 24 CFR 200.214 and for the Triggering Events listed at 24 CFR 200.218.

Review of Adverse Determination: If approval of your participation in a HUD project is denied, withheld, or conditionally granted on the basis of your record of previous participation, you will be notified by the HUD Office. You may request reconsideration in accordance with 24 CFR 200.222 and further clarified by the Processing Guide. Request must be made in writing within 30 days from your receipt of the notice of determination.

Specific Line Instructions are set forth in the Processing Guide.

The Department of Housing and Urban Development (HUD) is authorized to collect this information by law (42 U.S.C. 3535(d) and 24 C.F.R. 200.217) and by regulation at 24 CFR 200.210. This information is needed so that principals applying to participate in multifamily programs can become HUD-approved controlling participants. The information you provide will enable HUD to evaluate your record with respect to established standards of performance, responsibility and eligibility. Without prior approval, a controlling participant may not participate in a proposed or existing multifamily or healthcare project. HUD uses this information to evaluate whether or not controlling participants pose an unsatisfactory underwriting risk. The information is used to evaluate the potential controlling participants and approve only individuals and organizations that will honor their legal, financial and contractual obligations.

Privacy Act Statement: The Housing and Community Development Act of 1987, 42 U.S.C. 3543 requires persons applying for a Federally-insured or guaranteed loan to furnish his/her Social Security Number (SSN). HUD must have your SSN for identification of your records. HUD may use your SSN for automated processing of your records and to make requests for information about you and your previous records with other public agencies and private sector sources. HUD may disclose certain information to Federal, State and local agencies when relevant to civil, criminal, or regulatory investigations and prosecutions. It will not be otherwise disclosed or released outside of HUD, except as required and permitted by law. You must provide all of the information requested in this application, including your SSN.

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. This agency may not collect this information, and you are not required to complete this form, unless it displays a currently valid OMB control number.

A response is mandatory. Failure to provide any of the information will result in your disapproval of participation in this HUD program.

SPECIAL PROVISIONS

NOTICE TO ALL PROSPECTIVE BIDDERS

Homewood North Stoops and Courtyard Paving - AMP-20

Documents Required for Payment
HACP Contract No.: 600-37-19

Pursuant to Sections 27, 38, 40 and 46 of the General Conditions for this Contract, each contractor must submit the following required documents with each Payment Estimate (“PE”) in order for HACP to process a PE as follows:

A. Periodic Estimate – HUD 51001

B. Schedule of Stored Materials – HUD 51003 (if applicable)

C. Summary of Stored Materials – HUD 51004 (if applicable)

D. Schedule of Change Orders – HUD 51002 (if applicable)

E. Progress Payment Certification

F. Current/Approved Certified Payrolls (submitted to HACP’s Davis-Bacon Wage Clerk).

G. MBE/WBE Utilization Report

H. Section 3 Summary Report

Signature of Authorized Officer: _____

Date: _____

THIS DOCUMENT MUST BE SIGNED.

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

**NON-COLLUSION
AFFIDAVIT**

State of _____

County of _____

_____, being first duly sworn, deposes and says:
(Printed or Typed Name)

That he/she is
(Proprietor, General Partner, President or Vice President)

of _____; and having submitted the foregoing Bid for
(Bidder Name)

Homewood North Stoops and Courtyard
Paving - AMP-20

(Project Name)

600-37-19 _____;
(HACP Contract No.)

and is the party making the foregoing Bid, and that such Bid is genuine and not collusive or sham; that said Bidder has not colluded, conspired, connived or agreed, directly or indirectly, with any Bidder or person, to put in a sham bid, or to refrain from bidding, and has not in any manner, directly or indirectly, sought by agreement or collusion, or communication or conference, with any person, to fix the bid price of affiant or of any bidder, or to fix any overhead, profit or cost element of said bid price, or of that of any bidder, or to secure any advantage against the Housing Authority of the City of Pittsburgh or any person interested in the proposed contract; and that all statements in said Bid are true.

(Signature and Date)

Subscribed and sworn to before me

this _____ day of _____, 20__

My Commission expires _____, 20__

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

FORM OF AGREEMENT

THIS AGREEMENT, made this ____ day of _____ in the year Two Thousand ____ (20) by and between:

- ☐ An individual doing business in his/her own name
- ☐ An individual doing business under a fictitious or assumed name
- ☐ A partnership
- ☐ A Corporation

(Hereinafter called the Contractor)

AND

The Housing Authority of the City of Pittsburgh (hereinafter called the Authority)
200 Ross Street
Pittsburgh, PA 15219

WITNESSETH: That the Contractor and the Authority, for the consideration stated herein, mutually agree as follows:

ARTICLE 1, STATEMENT OF WORK

The Contractor shall provide all labor, materials and equipment, and services necessary to perform and complete all work required in accordance with D&D Engineering, Inc. drawings for Homewood North Stoops and Courtyard Paving - AMP-20 dated September 30, 2018 and Project Manual dated August 12, 2019 regarding:

CONTRACT NO. 600-37-19

and addenda thereto numbered _____, all as prepared by _____, which said specifications, drawings, and addenda are incorporated herein by reference and are a part hereof.

The work shall begin at the time stipulated in the NOTICE TO PROCEED and in no event exceeding 120 consecutive calendar days from notice to proceed.

ARTICLE 2, THE CONTRACT PRICE

The Authority shall pay the contractor for the performance of the Contract in current fund, subject to additions and deductions as provided in the specifications.

_____ (\$ _____)

ARTICLE 3, CONTRACT DOCUMENTS

The Contract shall consist of the following component parts:

- a. This Agreement
- b. Project Manual (including all component parts) dated August 12, 2019.
- c. Project Drawings issued by D&D Engineering, Inc. dated September 30, 2018.

This Agreement, together with the other documents enumerated in this Article 3 which said other documents are as fully a part of the Contract as if hereto attached or herein repeated, form the Contract. In the event that any provision in any component part of this Contract conflicts with any provision of any other component part, the provision of the component part first enumerated in this ARTICLE 3, shall govern, except as subsequent parts may establish more specific criteria or language in which case these criteria and language shall govern. The various provisions in Addenda shall be construed in the order of preference of the component part of the Contract which each modified.

SIGNED, SEALED AND DELIVERED IN _____ ORIGINAL COUNTERPARTS

this _____ day of _____ 20____.

IF THE PRINCIPAL IS AN INDIVIDUAL, SIGN HERE

By signing this Form of Agreement, if the Housing Authority accepts and signs Contract No. 600-37-19 this contract shall be binding on both parties.

(Printed or Typed Name)

(Printed or Typed Name)

Witness

{

(Signature and Date)

Principal

{

(Signature and Date)

IF THE PRINCIPAL IS A PARTNERSHIP, SIGN HERE

By signing this Form of Agreement, if the Housing Authority accepts and signs Contract No. 600-37-19
this contract shall be binding on both parties.

<hr/> <i>(Printed or Typed Name)</i>	<hr/> <i>(Printed or Typed Name)</i>
<i>Witness</i>	<i>Partner*</i>
{	{
<hr/> <i>(Signature and Date)</i>	<hr/> <i>(Signature and Date)</i>

<hr/> <i>(Printed or Typed Name)</i>	<hr/> <i>(Printed or Typed Name)</i>
<i>Witness</i>	<i>Partner*</i>
{	{
<hr/> <i>(Signature and Date)</i>	<hr/> <i>(Signature and Date)</i>

* If the Bidder is a partnership, the Form of Agreement must be signed in the name of the partnership by at least two general partners, whose names and addresses must be listed on the certificate on page BF-3-P of the Bid.

IF THE PRINCIPAL IS A CORPORATION, SIGN HERE

By signing this Form of Agreement, if the Housing Authority accepts and signs Contract No. 600-37-19 this contract shall be binding on both parties.

(CORPORATE
SEAL)

(Corporate Name)

(Printed or Typed Name)

(Printed or Typed Name)

Witness

{

President
V.P. **

{

(Signature and Date)

(Signature and Date)

(Corporate Title)

(Corporate Title)

** If the bidder is a corporation, the Form of Agreement must be executed in the Corporation's correct corporate name by its President or Vice President and attested to by its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the Certification of Corporate Principal (Doc. 00625) must be executed by the Secretary or Assistant Secretary.

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the
Secretary/Assistant Secretary of the Corporation named a Bidder herein; that
(Circle one)

_____ who signed this Bid on behalf of the

Corporation was then _____ of said Corporation that I know his signature and his signature thereto is genuine; and that said Bid was duly signed, sealed and attested in behalf of said Corporation by authority of its governing body.

(CORPORATE
SEAL)

(Signature and Date)

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

Secretary

Kim Detrick, Chief Contracting Officer

Attest

Principal

{

{

(Signature and Date)

(Signature and Date)

Manikandan Muthiah, Director of Construction and Modernization

Approved as to

Contents and Costs {

(Signature and Date)

Associate Counsel

Approved as to

Form

{

(Signature and Date)

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

CONTRACTING OFFICER CERTIFICATION

I _____ certify that I am the Recording Secretary of the Housing Authority of the City of Pittsburgh; that _____, who signed this Contract on behalf of the Housing Authority, was then Contracting Officer of said Authority; that the said Contract was duly signed for and on behalf of the Housing Authority of the City of Pittsburgh.

Secretary (SEAL)

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

PERFORMANCE BOND

THIS BOND IS ISSUED SIMULTANEOUSLY WITH PAYMENT BOND IN FAVOR OF THE
AUTHORITY CONDITIONED ON THE FULL AND FAITHFUL PERFORMANCE OF THE CONTRACT.

KNOW ALL MEN BY THESE PRESENTS, that we,

_____, as Principal, and
(Insert name and address of contractor exactly as it appears on Form of Agreement)

_____, as Sureties, are
held and firmly bound unto the **Housing Authority of the City of Pittsburgh**, its certain attorney, successors, or assigns
(the Obligee, hereinafter called the "Authority") in the penal sum of

_____ Dollars (\$ _____)

lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our
heirs, personal representatives, successors, and assigns, jointly and severally, firmly by these presents:

WHEREAS, the Principal heretofore has submitted to the said Authority a certain bid, dated

_____, 20 _____ (the "Bid"), for construction of
(Insert date of bid)

(Insert name of project exactly as it appears on Form of Agreement)
pursuant to specifications, drawings and other related documents constituting the Invitation for Bids (the "IFB"); and

WHEREAS, the said Authority is a "Contracting body" under provisions of Act No. 385 of the General Assembly
of the Commonwealth of Pennsylvania, approved by the Governor on December 20, 1967, known and cited as the
"Public Works Contractors' Bond Law of 1967" (8 P.S. 191-202) (the "Act"); and

WHEREAS, the Act, in Section 3 (a), requires that, before an award shall be made to the Principal shall furnish this
Bond to the said Authority, with this Bond to become binding upon the award of a Contract to the Principal by the said
Authority in accordance with the Bid; and

WHEREAS, it also is a condition of the IFB that this Bond shall be furnished by the Principal to the said Authority;
and

WHEREAS, Under the Invitation for Bids, it is provided, inter alia, that if the Principal shall furnish this Bond to
the said Authority, and if the said Authority shall make an award to the Principal in accordance with the Bid, then the
Principal and the said Authority shall enter into a contract with respect to performance of such work (the "Contract"), the
Form of Agreement for which is set forth in the IFB.

NOW, therefore, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the principal shall faithfully perform the Contract on his part as of the time and in the manner therein provided and satisfy all claims and demands incurred in or for the same, or growing out of the same, or for injury or damages to persons or property in the performance thereof, and shall fully indemnify and save harmless the said Authority from any and all cost and damage which the said Authority may suffer by reason of the principal's failure to do so, and shall fully reimburse and repay the said Authority any and all outlay and expense which it incurs by reason of any such default, then this obligation shall be null and void, otherwise it shall remain in full force and virtue.

It is further understood and agreed that the principal shall guarantee for a period of one (1) year from completion date of the contract against defects in workmanship or materials in accordance with the terms of the Contract.

The said surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or the Specifications accompanying the same shall in any wise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the Specifications.

SIGNED, SEALED AND DELIVERED IN _____ ORIGINAL COUNTERPARTS
(2 required by Authority)

this _____ day of _____ 20____.

IF THE PRINCIPAL IS AN INDIVIDUAL, SIGN HERE

_____ (Printed or Typed Name)	_____ (Printed or Typed Name)
<i>Witness</i>	<i>Principal</i>
{	{
_____ (Signature and Date)	_____ (Signature and Date)

IF THE PRINCIPAL IS A PARTNERSHIP, SIGN HERE

	<hr/> <i>(Printed or Typed Name)</i>		<hr/> <i>(Printed or Typed Name)</i>
<i>Witness</i>		<i>Partner*</i>	
	{		{
	<hr/> <i>(Signature and Date)</i>		<hr/> <i>(Signature and Date)</i>

	<hr/> <i>(Printed or Typed Name)</i>		<hr/> <i>(Printed or Typed Name)</i>
<i>Witness</i>		<i>Partner*</i>	
	{		{
	<hr/> <i>(Signature and Date)</i>		<hr/> <i>(Signature and Date)</i>

* If the Bidder is a partnership, the Bond must be signed in the name of the partnership by at least two general partners, whose names and addresses must be listed on the certificate on page BF-3-P of the Bid.

IF THE PRINCIPAL IS A CORPORATION, SIGN HERE

(CORPORATE
SEAL)

(Corporate Name)

Witness

(Printed or Typed Name)

(Printed or Typed Name)

{

President
V.P. **

{

(Signature and Date)

(Signature and Date)

(Corporate Title)

(Corporate Title)

** If the bidder is a corporation, the Bond must be executed in the Corporation's correct corporate name by its President or Vice President and attested to by its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the Certification of Corporate Principal below must be executed by the Secretary or Assistant Secretary.

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the
Secretary/Assistant Secretary of the Corporation named a Bidder herein; that
(Circle one)

_____ who signed this Bid on behalf of the

Corporation was then _____ of said Corporation that I know his signature and his
signature thereto is genuine; and that said Bid was duly signed, sealed and attested in behalf of said Corporation by
authority of its governing body.

(CORPORATE
SEAL)

(Signature and Date)

SURETY SIGN HERE

(SURETY
SEAL)

(Printed or Typed Name)

(Printed or Typed Name)

Attest
{

(Signature and Date)

Surety ***
{

(Signature and Date)

***Power of attorney must be attached to this Bid Bond.

The rate of premium charged is \$ _____ per thousand.
(To be filled in by Surety)

The total amount of premium charged is \$ _____
(To be filled in by Surety)

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

PAYMENT BOND
(Labor and Materialmen's Bond)

THIS BOND IS ISSUED SIMULTANEOUSLY WITH PERFORMANCE BOND IN FAVOR OF THE
AUTHORITY CONDITIONED ON THE FULL AND FAITHFUL PERFORMANCE OF THE CONTRACT.

KNOW ALL MEN BY THESE PRESENTS, that we,

_____, as Principal, and
(Insert name and address of Contractor exactly as it appears on Form of Agreement)

_____, as Sureties, are
held and firmly bound unto the **Housing Authority of the City of Pittsburgh**, its certain attorney, successors, or assigns
(the Obligee, hereinafter called the "Authority") in the penal sum of

_____ Dollars (\$_____)

lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our
heirs, personal representatives, successors, and assigns, jointly and severally, firmly by these presents:

WHEREAS, the Principal heretofore has submitted to the said Obligee a certain bid, dated

_____, 20_____ (the "Bid"), for construction of
(Insert date of bid)

(Insert name of project exactly as it appears on Form of Agreement)

pursuant to specifications, drawings and other related documents constituting the Invitation for Bids (the "IFB"); and

WHEREAS, the said Authority is a "Contracting body" under provisions of Act No. 385 of the General Assembly
of the Commonwealth of Pennsylvania, approved by the Governor on December 20, 1967, known and cited as the
"Public Works Contractors' Bond Law of 1967" (8 P.S. 191-202) (the "Act"); and

WHEREAS, the Act, in Section 3 (a), requires that, before an award shall be made to the Principal shall furnish this
Bond to the said Authority, with this Bond to become binding upon the award of a Contract to the Principal by the said
Authority in accordance with the Bid; and

WHEREAS, it also is a condition of the IFB that this Bond shall be furnished by the Principal to the said Authority;
and

WHEREAS, Under the Invitation for Bids, it is provided, inter alia, that if the Principal shall furnish this Bond to the said Authority, and if the said Authority shall make an award to the Principal in accordance with the Bid, then the Principal and the said Authority shall enter into a contract with respect to performance of such work (the "Contract"), the Form of Agreement for which is set forth in the IFB.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH that if said principal and all subcontractors to whom any portion of the work provided for in said contract is sublet and all assignees of said principal and of such subcontractors shall promptly make payment for all material furnished, labor supplied or performed, rental for equipment employed, and services rendered by public utilities in or in connection with the prosecution of the work, whether or not the said material, labor, equipment or services enter into and become component parts of the work or improvement contemplated in said contract, or in any amendment or extension of or addition to said Contract, then the above obligation shall be void; otherwise to remain in full force and effect. PROVIDED, however, that this bond is subject to the following conditions and limitations.

(a) All persons who have performed labor, rendered services or furnished materials or machinery, shall have direct right of action against the principal and surety on this bond, which right of action shall be asserted in proceedings instituted in the State in which such labor was performed, services rendered or materials furnished (or where labor has been performed, services rendered or materials furnished under said Contract is more than one State, then in any such State). Insofar as permitted by the laws of such State, such right of action shall be asserted in a proceeding instituting such action and any or all other persons having claims hereunder, and any other person having a claim hereunder shall have the right to be made a party to such proceeding (but not later than one year after the complete performance of said Contract and final settlement thereof) and to have such claim adjudicated in such action and judgment rendered thereon.

(b) The surety shall not be liable hereunder for any damages or compensation recoverable under any workmen's compensation or employer's liability statute.

(c) In no event shall the surety be liable for a greater sum than the penalty of this bond, or subject to any suit, action or proceeding thereon that is instituted later than one year after the complete performance of said contract and final settlement thereof.

(d) As used herein: The term "person" refers to any individual, firm or corporation who have furnished materials or machinery or public utility services to be used on or incorporated in the work or the prosecution thereof provided for in said Contract or in any amendment or extension of or addition to said Contract, and/or to any person engaged in the prosecution of the work provided for in said Contract or in any amendment or extension of or addition to said Contract, who is an agent, servant or employee of the principal, or of any subcontractor, or of any assignee of said principal or of any subcontractor and also anyone so engaged who performs the work of a laborer or of a mechanic regardless of any contractual relationship between the principal, or any sub-contractor, or any assignee of said principal or of said subcontractor, and such laborer or mechanic, but shall not include office employees not regularly stationed at the site of the work.

The said surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, or to the work to be performed thereunder or the Specifications accompanying the same, shall in any wise affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the Specifications.

SIGNED, SEALED AND DELIVERED IN _____ ORIGINAL COUNTERPARTS
(2 required by Authority)

this _____ day of _____ 20_____.

IF THE PRINCIPAL IS AN INDIVIDUAL, SIGN HERE

	_____ (Printed or Typed Name)		_____ (Printed or Typed Name)
<i>Witness</i>		<i>Principal</i>	
	{		{
	_____ (Signature and Date)		_____ (Signature and Date)

IF THE PRINCIPAL IS A PARTNERSHIP, SIGN HERE

	<hr/>		<hr/>
	<i>(Printed or Typed Name)</i>		<i>(Printed or Typed Name)</i>
<i>Witness</i>		<i>Partner*</i>	
	{		{
	<hr/>		<hr/>
	<i>(Signature and Date)</i>		<i>(Signature and Date)</i>
	<hr/>		<hr/>
	<i>(Printed or Typed Name)</i>		<i>(Printed or Typed Name)</i>
<i>Witness</i>		<i>Partner*</i>	
	{		{
	<hr/>		<hr/>
	<i>(Signature and Date)</i>		<i>(Signature and Date)</i>

* If the Bidder is a partnership, the Bond must be signed in the name of the partnership by at least two general partners, whose names and addresses must be listed on the certificate on page BF-3-P of the Bid.

IF THE PRINCIPAL IS A CORPORATION, SIGN HERE

(CORPORATE
SEAL)

(Corporate Name)

(Printed or Typed Name)

(Printed or Typed Name)

Witness

President

V.P.**

{

{

(Signature and Date)

(Signature and Date)

(Corporate Title)

(Corporate Title)

** If the bidder is a corporation, the Bond must be executed in the Corporation's correct corporate name by its President or Vice President and attested to by its Secretary or Assistant Secretary or Treasurer or Assistant Treasurer, and the Certification of Corporate Principal (Doc. 00625) must be executed by the Secretary or Assistant Secretary.

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the
Secretary/Assistant Secretary of the Corporation named a Bidder herein; that
(Circle one)

_____ who signed this Bid on behalf of the

Corporation was then _____ of said Corporation that I know his
signature and his signature thereto is genuine; and that said Bid was duly signed, sealed and
attested in behalf of said Corporation by authority of its governing body.

(CORPORATE
SEAL)

(Signature and Date)

SURETY SIGN HERE

(SURETY
SEAL)

	<hr/>		<hr/>
	(Printed or Typed Name)		(Printed or Typed Name)
Attest		Surety	
	{		{
	<hr/>		<hr/>
	(Signature and Date)		(Signature and Date)

The rate of premium charged is \$ _____ per thousand.
(To be filled in by Surety)

The total amount of premium charged is \$ _____
(To be filled in by Surety)

General Conditions for Construction Contracts - Public Housing Programs

U.S. Department of Housing and Urban Development
Office of Public and Indian Housing
OMB Approval No. 2577-0157 (exp. 3/31/2020)

Applicability. This form is applicable to any construction/development contract greater than \$150,000.

This form includes those clauses required by OMB's common rule on grantee procurement, implemented at HUD in 2 CFR 200, and those requirements set forth in Section 3 of the Housing and Urban Development Act of 1968 and its amendment by the Housing and Community Development Act of 1992, implemented by HUD at 24 CFR Part 135. The form is required for construction contracts awarded by Public Housing Agencies (PHAs).

The form is used by Housing Authorities in solicitations to provide necessary contract clauses. If the form were not used, HAs would be unable to enforce their contracts.

Public reporting burden for this collection of information is estimated to average 1.0 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Responses to the collection of information are required to obtain a benefit or to retain a benefit.

The information requested does not lend itself to confidentiality.

HUD may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB number.

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1. Definitions

- (a) "Architect" means the person or other entity engaged by the PHA to perform architectural, engineering, design, and other services related to the work as provided for in the contract. When a PHA uses an engineer to act in this capacity, the terms "architect" and "engineer" shall be synonymous. The Architect shall serve as a technical representative of the Contracting Officer. The Architect's authority is as set forth elsewhere in this contract.
- (b) "Contract" means the contract entered into between the PHA and the Contractor. It includes the forms of Bid, the Bid Bond, the Performance and Payment Bond or Bonds or other assurance of completion, the Certifications, Representations, and Other Statements of Bidders (form HUD-5370), these General Conditions of the Contract for Construction (form HUD-5370), the applicable wage rate determinations from the U.S. Department of Labor, any special conditions included elsewhere in the contract, the specifications, and drawings. It includes all formal changes to any of those documents by addendum, change order, or other modification.
- (c) "Contracting Officer" means the person delegated the authority by the PHA to enter into, administer, and/or terminate this contract and designated as such in writing to the Contractor. The term includes any successor Contracting Officer and any duly authorized representative of the Contracting Officer also designated in writing. The Contracting Officer shall be deemed the authorized agent of the PHA in all dealings with the Contractor.
- (d) "Contractor" means the person or other entity entering into the contract with the PHA to perform all of the work required under the contract.
- (e) "Drawings" means the drawings enumerated in the schedule of drawings contained in the Specifications and as described in the contract clause entitled Specifications and Drawings for Construction herein.
- (f) "HUD" means the United States of America acting through the Department of Housing and Urban Development including the Secretary, or any other person designated to act on its behalf. HUD has agreed, subject to the provisions of an Annual Contributions Contract (ACC), to provide financial assistance to the PHA, which includes assistance in financing the work to be performed under this contract. As defined elsewhere in these General Conditions or the contract documents, the determination of HUD may be required to authorize changes in the work or for release of funds to the PHA for payment to the Contractor. Notwithstanding HUD's role, nothing in this contract shall be construed to create any contractual relationship between the Contractor and HUD.
- (g) "Project" means the entire project, whether construction or rehabilitation, the work for which is provided for in whole or in part under this contract.
- (h) "PHA" means the Public Housing Agency organized under applicable state laws which is a party to this contract.
- (i) "Specifications" means the written description of the technical requirements for construction and includes the criteria and tests for determining whether the requirements are met.
- (l) "Work" means materials, workmanship, and manufacture and fabrication of components.
- (a) The Contractor shall furnish all necessary labor, materials, tools, equipment, and transportation necessary for performance of the work. The Contractor shall also furnish all necessary water, heat, light, and power not made available to the Contractor by the PHA pursuant to the clause entitled Availability and Use of Utility Services herein.
- (b) The Contractor shall perform on the site, and with its own organization, work equivalent to at least ☒ (12 percent unless otherwise indicated) of the total amount of work to be performed under the order. This percentage may be reduced by a supplemental agreement to this order if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the PHA.
- (c) At all times during performance of this contract and until the work is completed and accepted, the Contractor shall directly superintend the work or assign and have on the work site a competent superintendent who is satisfactory to the Contracting Officer and has authority to act for the Contractor.
- (d) The Contractor shall be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence, and shall take proper safety and health precautions to protect the work, the workers, the public, and the property of others. The Contractor shall hold and save the PHA, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.
- (e) The Contractor shall lay out the work from base lines and bench marks indicated on the drawings and be responsible for all lines, levels, and measurements of all work executed under the contract. The Contractor shall verify the figures before laying out the work and will be held responsible for any error resulting from its failure to do so.
- (f) The Contractor shall confine all operations (including storage of materials) on PHA premises to areas authorized or approved by the Contracting Officer.
- (g) The Contractor shall at all times keep the work area, including storage areas, free from accumulations of waste materials. After completing the work and before final inspection, the Contractor shall (1) remove from the premises all scaffolding, equipment, tools, and materials (including rejected materials) that are not the property of the PHA and all rubbish caused by its work; (2) leave the work area in a clean, neat, and orderly condition satisfactory to the Contracting Officer; (3) perform all specified tests; and, (4) deliver the installation in complete and operating condition.
- (h) The Contractor's responsibility will terminate when all work has been completed, the final inspection made, and the work accepted by the Contracting Officer. The Contractor will then be released from further obligation except as required by the warranties specified elsewhere in the contract.

3. Architect's Duties, Responsibilities, and Authority

- (a) The Architect for this contract, and any successor, shall be designated in writing by the Contracting Officer.

2. Contractor's Responsibility for Work

- (b) The Architect shall serve as the Contracting Officer's technical representative with respect to architectural, engineering, and design matters related to the work performed under the contract. The Architect may provide direction on contract performance. Such direction shall be within the scope of the contract and may not be of a nature which: (1) institutes additional work outside the scope of the contract; (2) constitutes a change as defined in the Changes clause herein; (3) causes an increase or decrease in the cost of the contract; (4) alters the Construction Progress Schedule; or (5) changes any of the other express terms or conditions of the contract.
- (c) The Architect's duties and responsibilities may include but shall not be limited to:
 - (1) Making periodic visits to the work site, and on the basis of his/her on-site inspections, issuing written reports to the PHA which shall include all observed deficiencies. The Architect shall file a copy of the report with the Contractor's designated representative at the site;
 - (2) Making modifications in drawings and technical specifications and assisting the Contracting Officer in the preparation of change orders and other contract modifications for issuance by the Contracting Officer;
 - (3) Reviewing and making recommendations with respect to - (i) the Contractor's construction progress schedules; (ii) the Contractor's shop and detailed drawings; (iii) the machinery, mechanical and other equipment and materials or other articles proposed for use by the Contractor; and, (iv) the Contractor's price breakdown and progress payment estimates; and,
 - (4) Assisting in inspections, signing Certificates of Completion, and making recommendations with respect to acceptance of work completed under the contract.

4. Other Contracts

The PHA may undertake or award other contracts for additional work at or near the site of the work under this contract. The Contractor shall fully cooperate with the other contractors and with PHA employees and shall carefully adapt scheduling and performing the work under this contract to accommodate the additional work, heeding any direction that may be provided by the Contracting Officer. The Contractor shall not commit or permit any act that will interfere with the performance of work by any other contractor or by PHA employees

Construction Requirements

5. Pre-construction Conference and Notice to Proceed

- (a) Within ten calendar days of contract execution, and prior to the commencement of work, the Contractor shall attend a preconstruction conference with representatives of the PHA, its Architect, and other interested parties convened by the PHA. The conference will serve to acquaint the participants with the general plan of the construction operation and all other requirements of the contract. The PHA will provide the Contractor with the date, time, and place of the conference.
- (b) The contractor shall begin work upon receipt of a written Notice to Proceed from the Contracting Officer or designee. The Contractor shall not begin work prior to receiving such notice.

6. Construction Progress Schedule

- (a) The Contractor shall, within five days after the work commences on the contract or another period of time determined by the Contracting Officer, prepare and submit to the Contracting Officer for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring labor, materials, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments or take other remedies under the contract until the Contractor submits the required schedule.
- (b) The Contractor shall enter the actual progress on the chart as required by the Contracting Officer, and immediately deliver three copies of the annotated schedule to the Contracting Officer. If the Contracting Officer determines, upon the basis of inspection conducted pursuant to the clause entitled Inspection and Acceptance of Construction, herein that the Contractor is not meeting the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Contracting Officer, without additional cost to the PHA. In this circumstance, the Contracting Officer may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules in chart form as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained.
- (c) Failure of the Contractor to comply with the requirements of the Contracting Officer under this clause shall be grounds for a determination by the Contracting Officer that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the Contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the Default clause of this contract.

7. Site Investigation and Conditions Affecting the Work

- (a) The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to, (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) the availability of labor, water, electric power, and roads; (3) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is

reasonably ascertainable from an inspection of the site, including all exploratory work done by the PHA, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the PHA.

- (b) The PHA assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the PHA. Nor does the PHA assume responsibility for any understanding reached or representation made concerning conditions which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

8. Differing Site Conditions

- (a) The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Contracting Officer of (1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or (2) unknown physical conditions at the site(s), of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the contract.
- (b) The Contracting Officer shall investigate the site conditions promptly after receiving the notice. Work shall not proceed at the affected site, except at the Contractor's risk, until the Contracting Officer has provided written instructions to the Contractor. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this contract, whether or not changed as a result of the conditions, the Contractor shall file a claim in writing to the PHA within ten days after receipt of such instructions and, in any event, before proceeding with the work. An equitable adjustment in the contract price, the delivery schedule, or both shall be made under this clause and the contract modified in writing accordingly.
- (c) No request by the Contractor for an equitable adjustment to the contract under this clause shall be allowed, unless the Contractor has given the written notice required; provided, that the time prescribed in (a) above for giving written notice may be extended by the Contracting Officer.
- (d) No request by the Contractor for an equitable adjustment to the contract for differing site conditions shall be allowed if made after final payment under this contract.

9. Specifications and Drawings for Construction

- (a) The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Contracting Officer access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In case of discrepancy in the figures, in the drawings, or in the specifications, the matter shall be

promptly submitted to the Contracting Officer, who shall promptly make a determination in writing. Any adjustment by the Contractor without such a determination shall be at its own risk and expense. The Contracting Officer shall furnish from time to time such detailed drawings and other information as considered necessary, unless otherwise provided.

- (b) Wherever in the specifications or upon the drawings the words "directed", "required", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the "direction", "requirement", "order", "designation", or "prescription", of the Contracting Officer is intended and similarly the words "approved", "acceptable", "satisfactory", or words of like import shall mean "approved by", or "acceptable to", or "satisfactory to" the Contracting Officer, unless otherwise expressly stated.
- (c) Where "as shown" "as indicated", "as detailed", or of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provide complete in place" that is "furnished and installed".
- (d) "Shop drawings" means drawings, submitted to the PHA by the Contractor, subcontractor, or any lower tier subcontractor, showing in detail (1) the proposed fabrication and assembly of structural elements and (2) the installation (i.e., form, fit, and attachment details) of materials of equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the Contractor to explain in detail specific portions of the work required by the contract. The PHA may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.
- (e) If this contract requires shop drawings, the Contractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with other contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the Contracting Officer without evidence of the Contractor's approval may be returned for resubmission. The Contracting Officer will indicate an approval or disapproval of the shop drawings and if not approved as submitted shall indicate the PHA's reasons therefore. Any work done before such approval shall be at the Contractor's risk. Approval by the Contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with (f) below.
- (f) If shop drawings show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the Architect approves any such variation and the Contracting Officer concurs, the Contracting Officer shall issue an appropriate modification to the contract, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.
- (g) It shall be the responsibility of the Contractor to make timely requests of the PHA for such large scale and full size drawings, color schemes, and other additional information, not already in his possession, which shall be

required in the planning and production of the work. Such requests may be submitted as the need arises, but each such request shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay.

- (h) The Contractor shall submit to the Contracting Officer for approval four copies (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. Three sets (unless otherwise indicated) of all shop drawings, will be retained by the PHA and one set will be returned to the Contractor. As required by the Contracting Officer, the Contractor, upon completing the work under this contract, shall furnish a complete set of all shop drawings as finally approved. These drawings shall show all changes and revisions made up to the time the work is completed and accepted.
- (i) This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all shop drawings prepared by subcontractors are submitted to the Contracting Officer.

10. As-Built Drawings

- (a) "As-built drawings," as used in this clause, means drawings submitted by the Contractor or subcontractor at any tier to show the construction of a particular structure or work as actually completed under the contract. "As-built drawings" shall be synonymous with "Record drawings."
- (b) As required by the Contracting Officer, the Contractor shall provide the Contracting Officer accurate information to be used in the preparation of permanent as-built drawings. For this purpose, the Contractor shall record on one set of contract drawings all changes from the installations originally indicated, and record final locations of underground lines by depth from finish grade and by accurate horizontal offset distances to permanent surface improvements such as buildings, curbs, or edges of walks.
- (c) This clause shall be included in all subcontracts at any tier. It shall be the responsibility of the Contractor to ensure that all as-built drawings prepared by subcontractors are submitted to the Contracting Officer.

11. Material and Workmanship

- (a) All equipment, material, and articles furnished under this contract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. References in the contract to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of, and as approved by the Contracting Officer, is equal to that named in the specifications, unless otherwise specifically provided in this contract.
- (b) Approval of equipment and materials.
 - (1) The Contractor shall obtain the Contracting Officer's approval of the machinery and mechanical and other equipment to be incorporated into the work. When requesting approval, the Contractor shall furnish to the Contracting Officer the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the

machinery and mechanical and other equipment. When required by this contract or by the Contracting Officer, the Contractor shall also obtain the Contracting Officer's approval of the material or articles which the Contractor contemplates incorporating into the work. When requesting approval, the Contractor shall provide full information concerning the material or articles. Machinery, equipment, material, and articles that do not have the required approval shall be installed or used at the risk of subsequent rejection.

- (2) When required by the specifications or the Contracting Officer, the Contractor shall submit appropriately marked samples (and certificates related to them) for approval at the Contractor's expense, with all shipping charges prepaid. The Contractor shall label, or otherwise properly mark on the container, the material or product represented, its place of origin, the name of the producer, the Contractor's name, and the identification of the construction project for which the material or product is intended to be used.
- (3) Certificates shall be submitted in triplicate, describing each sample submitted for approval and certifying that the material, equipment or accessory complies with contract requirements. The certificates shall include the name and brand of the product, name of manufacturer, and the location where produced.
- (4) Approval of a sample shall not constitute a waiver of the PHA right to demand full compliance with contract requirements. Materials, equipment and accessories may be rejected for cause even though samples have been approved.
- (5) Wherever materials are required to comply with recognized standards or specifications, such specifications shall be accepted as establishing the technical qualities and testing methods, but shall not govern the number of tests required to be made nor modify other contract requirements. The Contracting Officer may require laboratory test reports on items submitted for approval or may approve materials on the basis of data submitted in certificates with samples. Check tests will be made on materials delivered for use only as frequently as the Contracting Officer determines necessary to insure compliance of materials with the specifications. The Contractor will assume all costs of retesting materials which fail to meet contract requirements and/or testing materials offered in substitution for those found deficient.
- (6) After approval, samples will be kept in the Project office until completion of work. They may be built into the work after a substantial quantity of the materials they represent has been built in and accepted.
- (c) Requirements concerning lead-based paint. The Contractor shall comply with the requirements concerning lead-based paint contained in the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. 4821-4846) as implemented by 24 CFR Part 35.

12. Permits and Codes

- (a) The Contractor shall give all notices and comply with all applicable laws, ordinances, codes, rules and regulations. Notwithstanding the requirement of the Contractor to comply with the drawings and specifications in the contract, all work installed shall comply with all applicable codes and regulations as amended by any

waivers. Before installing the work, the Contractor shall examine the drawings and the specifications for compliance with applicable codes and regulations bearing on the work and shall immediately report any discrepancy it may discover to the Contracting Officer. Where the requirements of the drawings and specifications fail to comply with the applicable code or regulation, the Contracting Officer shall modify the contract by change order pursuant to the clause entitled Changes herein to conform to the code or regulation.

- (b) The Contractor shall secure and pay for all permits, fees, and licenses necessary for the proper execution and completion of the work. Where the PHA can arrange for the issuance of all or part of these permits, fees and licenses, without cost to the Contractor, the contract amount shall be reduced accordingly.

13. Health, Safety, and Accident Prevention

- (a) In performing this contract, the Contractor shall:
- (1) Ensure that no laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his/her health and/or safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation;
 - (2) Protect the lives, health, and safety of other persons;
 - (3) Prevent damage to property, materials, supplies, and equipment; and,
 - (4) Avoid work interruptions.
- (b) For these purposes, the Contractor shall:
- (1) Comply with regulations and standards issued by the Secretary of Labor at 29 CFR Part 1926. Failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54, 83 Stat. 96), 40 U.S.C. 3701 et seq.; and
 - (2) Include the terms of this clause in every subcontract so that such terms will be binding on each subcontractor.
- (c) The Contractor shall maintain an accurate record of exposure data on all accidents incident to work performed under this contract resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment, and shall report this data in the manner prescribed by 29 CFR Part 1904.
- (d) The Contracting Officer shall notify the Contractor of any noncompliance with these requirements and of the corrective action required. This notice, when delivered to the Contractor or the Contractor's representative at the site of the work, shall be deemed sufficient notice of the noncompliance and corrective action required. After receiving the notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to take corrective action promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall not base any claim or request for equitable adjustment for additional time or money on any stop order issued under these circumstances.
- (e) The Contractor shall be responsible for its subcontractors' compliance with the provisions of this clause. The Contractor shall take such action with respect to any subcontract as the PHA, the Secretary of Housing and Urban Development, or the Secretary of Labor shall direct as a means of enforcing such provisions.

14. Temporary Heating

The Contractor shall provide and pay for temporary heating, covering, and enclosures necessary to properly protect all work and materials against damage by dampness and cold, to dry out the work, and to facilitate the completion of the work. Any permanent heating equipment used shall be turned over to the PHA in the condition and at the time required by the specifications.

15. Availability and Use of Utility Services

- (a) The PHA shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the contract. Unless otherwise provided in the contract, the amount of each utility service consumed shall be charged to or paid for by the Contractor at prevailing rates charged to the PHA or, where the utility is produced by the PHA, at reasonable rates determined by the Contracting Officer. The Contractor shall carefully conserve any utilities furnished without charge.
- (b) The Contractor, at its expense and in a manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines, and all meters required to measure the amount of each utility used for the purpose of determining charges. Before final acceptance of the work by the PHA, the Contractor shall remove all the temporary connections, distribution lines, meters, and associated paraphernalia.

16. Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements

- (a) The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed under this contract, and which do not unreasonably interfere with the work required under this contract.
- (b) The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during performance of this contract, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the Contracting Officer.
- (c) The Contractor shall protect from damage all existing improvements and utilities (1) at or near the work site and (2) on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. Prior to disturbing the ground at the construction site, the Contractor shall ensure that all underground utility lines are clearly marked.
- (d) The Contractor shall shore up, brace, underpin, secure, and protect as necessary all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be affected by the excavations or other operations connected with the construction of the project.
- (e) Any equipment temporarily removed as a result of work under this contract shall be protected, cleaned, and replaced in the same condition as at the time of award of this contract.

- (f) New work which connects to existing work shall correspond in all respects with that to which it connects and/or be similar to existing work unless otherwise required by the specifications.
- (g) No structural members shall be altered or in any way weakened without the written authorization of the Contracting Officer, unless such work is clearly specified in the plans or specifications.
- (h) If the removal of the existing work exposes discolored or unfinished surfaces, or work out of alignment, such surfaces shall be refinished, or the material replaced as necessary to make the continuous work uniform and harmonious. This, however, shall not be construed to require the refinishing or reconstruction of dissimilar finishes previously exposed, or finished surfaces in good condition, but in different planes or on different levels when brought together by the removal of intervening work, unless such refinishing or reconstruction is specified in the plans or specifications.
- (i) The Contractor shall give all required notices to any adjoining or adjacent property owner or other party before the commencement of any work.
- (j) The Contractor shall indemnify and save harmless the PHA from any damages on account of settlement or the loss of lateral support of adjoining property, any damages from changes in topography affecting drainage, and from all loss or expense and all damages for which the PHA may become liable in consequence of such injury or damage to adjoining and adjacent structures and their premises.
- (k) The Contractor shall repair any damage to vegetation, structures, equipment, utilities, or improvements, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

17. Temporary Buildings and Transportation of Materials

- (a) Temporary buildings (e.g., storage sheds, shops, offices, sanitary facilities) and utilities may be erected by the Contractor only with the approval of the Contracting Officer and shall be built with labor and materials furnished by the Contractor without expense to the PHA. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.
- (b) The Contractor shall, as directed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any federal, state, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

18. Clean Air and Water

The contractor shall comply with the Clean Air Act, as amended, 42 USC 7401 et seq., the Federal Water Pollution Control Water Act, as amended, 33 U.S.C. 1251 et seq., and standards issued pursuant thereto in the facilities in which this contract is to be performed.

19. Energy Efficiency

The Contractor shall comply with mandatory standards and policies relating to energy efficiency which are contained in the energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub.L. 94-163) for the State in which the work under the contract is performed.

20. Inspection and Acceptance of Construction

- (a) Definitions. As used in this clause -
 - (1) "Acceptance" means the act of an authorized representative of the PHA by which the PHA approves and assumes ownership of the work performed under this contract. Acceptance may be partial or complete.
 - (2) "Inspection" means examining and testing the work performed under the contract (including, when appropriate, raw materials, equipment, components, and intermediate assemblies) to determine whether it conforms to contract requirements.
 - (3) "Testing" means that element of inspection that determines the properties or elements, including functional operation of materials, equipment, or their components, by the application of established scientific principles and procedures.
- (b) The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the work performed under the contract conforms to contract requirements. All work is subject to PHA inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.
- (c) PHA inspections and tests are for the sole benefit of the PHA and do not: (1) relieve the Contractor of responsibility for providing adequate quality control measures; (2) relieve the Contractor of responsibility for loss or damage of the material before acceptance; (3) constitute or imply acceptance; or, (4) affect the continuing rights of the PHA after acceptance of the completed work under paragraph (j) below.
- (d) The presence or absence of the PHA inspector does not relieve the Contractor from any contract requirement, nor is the inspector authorized to change any term or condition of the specifications without the Contracting Officer's written authorization. All instructions and approvals with respect to the work shall be given to the Contractor by the Contracting Officer.
- (e) The Contractor shall promptly furnish, without additional charge, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the Contracting Officer. The PHA may charge to the Contractor any additional cost of inspection or test when work is not ready at the time specified by the Contractor for inspection or test, or when prior rejection makes reinspection or retest necessary. The PHA shall perform all inspections and tests in a manner that will not unnecessarily delay the work. Special, full size, and performance tests shall be performed as described in the contract.

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- (f) The PHA may conduct routine inspections of the construction site on a daily basis.
 - (g) The Contractor shall, without charge, replace or correct work found by the PHA not to conform to contract requirements, unless the PHA decides that it is in its interest to accept the work with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises.
 - (h) If the Contractor does not promptly replace or correct rejected work, the PHA may (1) by contract or otherwise, replace or correct the work and charge the cost to the Contractor, or (2) terminate for default the Contractor's right to proceed.
 - (i) If any work requiring inspection is covered up without approval of the PHA, it must, if requested by the Contracting Officer, be uncovered at the expense of the Contractor. If at any time before final acceptance of the entire work, the PHA considers it necessary or advisable, to examine work already completed by removing or tearing it out, the Contractor, shall on request, promptly furnish all necessary facilities, labor, and material. If such work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or its subcontractors, the Contractor shall defray all the expenses of the examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the contract, the Contracting Officer shall make an equitable adjustment to cover the cost of the examination and reconstruction, including, if completion of the work was thereby delayed, an extension of time.
 - (j) The Contractor shall notify the Contracting Officer, in writing, as to the date when in its opinion all or a designated portion of the work will be substantially completed and ready for inspection. If the Architect determines that the state of preparedness is as represented, the PHA will promptly arrange for the inspection. Unless otherwise specified in the contract, the PHA shall accept, as soon as practicable after completion and inspection, all work required by the contract or that portion of the work the Contracting Officer determines and designates can be accepted separately. Acceptance shall be final and conclusive except for latent defects, fraud, gross mistakes amounting to fraud, or the PHA's right under any warranty or guarantee.

21. Use and Possession Prior to Completion

- (a) The PHA shall have the right to take possession of or use any completed or partially completed part of the work. Before taking possession of or using any work, the Contracting Officer shall furnish the Contractor a list of items of work remaining to be performed or corrected on those portions of the work that the PHA intends to take possession of or use. However, failure of the Contracting Officer to list any item of work shall not relieve the Contractor of responsibility for complying with the terms of the contract. The PHA's possession or use shall not be deemed an acceptance of any work under the contract.
- (b) While the PHA has such possession or use, the Contractor shall be relieved of the responsibility for (1) the loss of or damage to the work resulting from the PHA's possession or use, notwithstanding the terms of the clause entitled Permits and Codes herein; (2) all maintenance costs on the areas occupied; and, (3) furnishing heat, light, power, and water used in the areas

occupied without proper remuneration therefore. If prior possession or use by the PHA delays the progress of the work or causes additional expense to the Contractor, an equitable adjustment shall be made in the contract price or the time of completion, and the contract shall be modified in writing accordingly.

22. Warranty of Title

The Contractor warrants good title to all materials, supplies, and equipment incorporated in the work and agrees to deliver the premises together with all improvements thereon free from any claims, liens or charges, and agrees further that neither it nor any other person, firm or corporation shall have any right to a lien upon the premises or anything appurtenant thereto.

23. Warranty of Construction

- (a) In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph (j) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or workmanship performed by the Contractor or any subcontractor or supplier at any tier. This warranty shall continue for a period of _____ (one year unless otherwise indicated) from the date of final acceptance of the work. If the PHA takes possession of any part of the work before final acceptance, this warranty shall continue for a period of (one year unless otherwise indicated) from the date that the PHA takes possession.
- (b) The Contractor shall remedy, at the Contractor's expense, any failure to conform, or any defect. In addition, the Contractor shall remedy, at the Contractor's expense, any damage to PHA-owned or controlled real or personal property when the damage is the result of—
 - (1) The Contractor's failure to conform to contract requirements; or
 - (2) Any defects of equipment, material, workmanship or design furnished by the Contractor.
- (c) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for (one year unless otherwise indicated) from the date of repair or replacement.
- (d) The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect or damage.
- (e) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the PHA shall have the right to replace, repair or otherwise remedy the failure, defect, or damage at the Contractor's expense.
- (f) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall:
 - (1) Obtain all warranties that would be given in normal commercial practice;
 - (2) Require all warranties to be executed in writing, for the benefit of the PHA; and,
 - (3) Enforce all warranties for the benefit of the PHA.
- (g) In the event the Contractor's warranty under paragraph (a) of this clause has expired, the PHA may bring suit at its own expense to enforce a subcontractor's, manufacturer's or supplier's warranty.

- (h) Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defect of material or design furnished by the PHA nor for the repair of any damage that results from any defect in PHA furnished material or design.
- (i) Notwithstanding any provisions herein to the contrary, the establishment of the time periods in paragraphs (a) and (c) above relate only to the specific obligation of the Contractor to correct the work, and have no relationship to the time within which its obligation to comply with the contract may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to its obligation other than specifically to correct the work.
- (j) This warranty shall not limit the PHA's rights under the Inspection and Acceptance of Construction clause of this contract with respect to latent defects, gross mistakes or fraud.

24. Prohibition Against Liens

The Contractor is prohibited from placing a lien on the PHA's property. This prohibition shall apply to all subcontractors at any tier and all materials suppliers.

Administrative Requirements

25. Contract Period

this contract within 120 calendar days of the effective date of the contract, or within the time schedule established in the notice to proceed issued by the Contracting Officer.

26. Order of Provisions

In the event of a conflict between these General Conditions and the Specifications, the General Conditions shall prevail. In the event of a conflict between the contract and any applicable state or local law or regulation, the state or local law or regulation shall prevail; provided that such state or local law or regulation does not conflict with, or is less restrictive than applicable federal law, regulation, or Executive Order. In the event of such a conflict, applicable federal law, regulation, and Executive Order shall prevail.

27. Payments

- (a) The PHA shall pay the Contractor the price as provided in this contract.
- (b) The PHA shall make progress payments approximately every 30 days as the work proceeds, on estimates of work accomplished which meets the standards of quality established under the contract, as approved by the Contracting Officer. The PHA may, subject to written determination and approval of the Contracting Officer, make more frequent payments to contractors which are qualified small businesses.
- (c) Before the first progress payment under this contract, the Contractor shall furnish, in such detail as requested by the Contracting Officer, a breakdown of the total contract price showing the amount included therein for each principal category of the work, which shall substantiate the payment amount requested in order to provide a

basis for determining progress payments. The breakdown shall be approved by the Contracting Officer and must be acceptable to HUD. If the contract covers more than one project, the Contractor shall furnish a separate breakdown for each. The values and quantities employed in making up this breakdown are for determining the amount of progress payments and shall not be construed as a basis for additions to or deductions from the contract price. The Contractor shall prorate its overhead and profit over the construction period of the contract.

- (d) The Contractor shall submit, on forms provided by the PHA, periodic estimates showing the value of the work performed during each period based upon the approved

submitted not later than 45 days in advance of the date set for payment and are subject to correction and revision as required. The estimates must be approved by the Contracting Officer with the concurrence of the Architect prior to payment. If the contract covers more than one project, the Contractor shall furnish a separate progress payment estimate for each.

- (e) Along with each request for progress payments and the required estimates, the Contractor shall furnish the following certification, or payment shall not be made: I hereby certify, to the best of my knowledge and belief, that:

- (1) The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;
- (2) Payments to subcontractors and suppliers have been made from previous payments received under the contract, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements; and,
- (3) This request for progress payments does not include any amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract.

Name: _____

Title: _____

Date: _____

- (f) Except as otherwise provided in State law, the PHA shall retain ten (10) percent of the amount of progress payments until completion and acceptance of all work under the contract; except, that if upon completion of 50 percent of the work, the Contracting Officer, after consulting with the Architect, determines that the Contractor's performance and progress are satisfactory, the PHA may make the remaining payments in full for the work subsequently completed. If the Contracting Officer subsequently determines that the Contractor's performance and progress are unsatisfactory, the PHA shall reinstate the ten (10) percent (or other percentage as provided in State law) retainage until such time as the Contracting Officer determines that performance and progress are satisfactory.
- (g) The Contracting Officer may authorize material delivered on the site and preparatory work done to be taken into consideration when computing progress payments.

Material delivered to the Contractor at locations other than the site may also be taken into consideration if the Contractor furnishes satisfactory evidence that (1) it has acquired title to such material; (2) the material is properly stored in a bonded warehouse, storage yard, or similar suitable place as may be approved by the Contracting Officer; (3) the material is insured to cover its full value; and (4) the material will be used to perform this contract. Before any progress payment which includes delivered material is made, the Contractor shall furnish such documentation as the Contracting Officer may require to assure the protection of the PHA's interest in such materials. The Contractor shall remain responsible for such stored material notwithstanding the transfer of title to the PHA.

- (h) All material and work covered by progress payments made shall, at the time of payment become the sole property of the PHA, but this shall not be construed as (1) relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or, (2) waiving the right of the PHA to require the fulfillment of all of the terms of the contract. In the event the work of the Contractor has been damaged by other contractors or persons other than employees of the PHA in the course of their employment, the Contractor shall restore such damaged work without cost to the PHA and to seek redress for its damage only from those who directly caused it.
- (i) The PHA shall make the final payment due the Contractor under this contract after (1) completion and final acceptance of all work; and (2) presentation of release of all claims against the PHA arising by virtue of this contract, other than claims, in stated amounts, that the Contractor has specifically excepted from the operation of the release. Each such exception shall embrace no more than one claim, the basis and scope of which shall be clearly defined. The amounts for such excepted claims shall not be included in the request for final payment. A release may also be required of the assignee if the Contractor's claim to amounts payable under this contract has been assigned.
- (j) Prior to making any payment, the Contracting Officer may require the Contractor to furnish receipts or other evidence of payment from all persons performing work and supplying material to the Contractor, if the Contracting Officer determines such evidence is necessary to substantiate claimed costs.
- (k) The PHA shall not; (1) determine or adjust any claims for payment or disputes arising there under between the Contractor and its subcontractors or material suppliers; or, (2) withhold any moneys for the protection of the subcontractors or material suppliers. The failure or refusal of the PHA to withhold moneys from the Contractor shall in nowise impair the obligations of any surety or sureties under any bonds furnished under this contract.

28. Contract Modifications

- (a) Only the Contracting Officer has authority to modify any term or condition of this contract. Any contract modification shall be authorized in writing.
- (b) The Contracting Officer may modify the contract unilaterally (1) pursuant to a specific authorization stated in a contract clause (e.g., Changes); or (2) for administrative matters which do not change the rights or

responsibilities of the parties (e.g., change in the PHA address). All other contract modifications shall be in the form of supplemental agreements signed by the Contractor and the Contracting Officer.

- (c) When a proposed modification requires the approval of HUD prior to its issuance (e.g., a change order that exceeds the PHA's approved threshold), such modification shall not be effective until the required approval is received by the PHA.

29. Changes

- (a) The Contracting Officer may, at any time, without notice to the sureties, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract including changes:
 - (1) In the specifications (including drawings and designs);
 - (2) In the method or manner of performance of the work;
 - (3) PHA-furnished facilities, equipment, materials, services, or site; or,
 - (4) Directing the acceleration in the performance of the work.
- (b) Any other written order or oral order (which, as used in this paragraph (b), includes direction, instruction, interpretation, or determination) from the Contracting Officer that causes a change shall be treated as a change order under this clause; provided, that the Contractor gives the Contracting Officer written notice stating (1) the date, circumstances and source of the order and (2) that the Contractor regards the order as a change order.
- (c) Except as provided in this clause, no order, statement or conduct of the Contracting Officer shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.
- (d) If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for the performance of any part of the work under this contract, whether or not changed by any such order, the Contracting Officer shall make an equitable adjustment and modify the contract in writing. However, except for a adjustment based on defective specifications, no proposal for any change under paragraph (b) above shall be allowed for any costs incurred more than 20 days (5 days for oral orders) before the Contractor gives written notice as required. In the case of defective specifications for which the PHA is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with the defective specifications.
- (e) The Contractor must assert its right to an adjustment under this clause within 30 days after (1) receipt of a written change order under paragraph (a) of this clause, or (2) the furnishing of a written notice under paragraph (b) of this clause, by submitting a written statement describing the general nature and the amount of the proposal. If the facts justify it, the Contracting Officer may extend the period for submission. The proposal may be included in the notice required under paragraph (b) above. No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.
- (f) The Contractor's written proposal for equitable adjustment shall be submitted in the form of a lump sum proposal supported with an itemized breakdown of all increases and decreases in the contract in at least the following details:

- (1) Direct Costs. Materials (list individual items, the quantity and unit cost of each, and the aggregate cost); Transportation and delivery costs associated with materials; Labor breakdowns by hours or unit costs (identified with specific work to be performed); Construction equipment exclusively necessary for the change; Costs of preparation and/ or revision to shop drawings resulting from the change; Worker's Compensation and Public Liability Insurance; Employment taxes under FICA and FUTA; and, Bond Costs when size of change warrants revision.
- (2) Indirect Costs. Indirect costs may include overhead, general and administrative expenses, and fringe benefits not normally treated as direct costs.
- (3) Profit. The amount of profit shall be negotiated and may vary according to the nature, extent, and complexity of the work required by the change. The allowability of the direct and indirect costs shall be determined in accordance with the Contract Cost Principles and Procedures for Commercial Firms in Part 31 of the Federal Acquisition Regulation (48 CFR 1-31), as implemented by HUD Handbook 2210.18, in effect on the date of this contract. The Contractor shall not be allowed a profit on the profit received by any subcontractor. Equitable adjustments for deleted work shall include a credit for profit and may include a credit for indirect costs. On proposals covering both increases and decreases in the amount of the contract, the application of indirect costs and profit shall be on the net-change in direct costs for the Contractor or subcontractor performing the work.
- (g) The Contractor shall include in the proposal its request for time extension (if any), and shall include sufficient information and dates to demonstrate whether and to what extent the change will delay the completion of the contract in its entirety.
- (h) The Contracting Officer shall act on proposals within 30 days after their receipt, or notify the Contractor of the date when such action will be taken.
- (i) Failure to reach an agreement on any proposal shall be a dispute under the clause entitled Disputes herein. Nothing in this clause, however, shall excuse the Contractor from proceeding with the contract as changed.
- (j) Except in an emergency endangering life or property, no change shall be made by the Contractor without a prior order from the Contracting Officer.

30. Suspension of Work

- (a) The Contracting Officer may order the Contractor in writing to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contracting Officer determines appropriate for the convenience of the PHA.
- (b) If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted (1) by an act of the Contracting Officer in the administration of this contract, or (2) by the Contracting Officer's failure to act within the time specified (or within a reasonable time if not specified) in this contract an adjustment shall be made for any increase in the cost of performance of the contract (excluding profit) necessarily caused by such unreasonable suspension, delay, or interruption and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have

been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor or for which any equitable adjustment is provided for or excluded under any other provision of this contract.

- (c) A claim under this clause shall not be allowed (1) for any costs incurred more than 20 days before the Contractor shall have notified the Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order); and, (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the suspension, delay, or interruption, but not later than the date of final payment under the contract.

31. Disputes

- (a) "Claim," as used in this clause, means a written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a sum certain, the adjustment or interpretation of contract terms, or other relief arising under or relating to the contract. A claim arising under the contract, unlike a claim relating to the contract, is a claim that can be resolved under a contract clause that provides for the relief sought by the claimant. A voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a claim. The submission may be converted to a claim by complying with the requirements of this clause, if it is disputed either as to liability or amount or is not acted upon in a reasonable time.
- (b) Except for disputes arising under the clauses entitled Labor Standards - Davis Bacon and Related Acts, herein, all disputes arising under or relating to this contract, including any claims for damages for the alleged breach thereof which are not disposed of by agreement, shall be resolved under this clause.
- (c) All claims by the Contractor shall be made in writing and submitted to the Contracting Officer for a written decision. A claim by the PHA against the Contractor shall be subject to a written decision by the Contracting Officer.
- (d) The Contracting Officer shall, within 60 (unless otherwise indicated) days after receipt of the request, decide the claim or notify the Contractor of the date by which the decision will be made.
- (e) The Contracting Officer's decision shall be final unless the Contractor (1) appeals in writing to a higher level in the PHA in accordance with the PHA's policy and procedures, (2) refers the appeal to an independent mediator or arbitrator, or (3) files suit in a court of competent jurisdiction. Such appeal must be made within (30 unless otherwise indicated) days after receipt of the Contracting Officer's decision.
- (f) The Contractor shall proceed diligently with performance of this contract, pending final resolution of any request for relief, claim, appeal, or action arising under or relating to the contract, and comply with any decision of the Contracting Officer.

32. Default

- (a) If the Contractor refuses or fails to prosecute the work, or any separable part thereof, with the diligence that will insure its completion within the time specified in this contract, or any extension thereof, or fails to complete said work within this time, the Contracting Officer may, by written notice to the Contractor, terminate the right to

proceed with the work (or separable part of the work) that has been delayed. In this event, the PHA may take over the work and complete it, by contract or otherwise, and may take possession of and use any materials, equipment, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the PHA resulting from the Contractor's refusal or failure to complete the work within the specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the PHA in completing the work.

- (b) The Contractor's right to proceed shall not be terminated or the Contractor charged with damages under this clause if—
- (1) The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include (i) acts of God, or of the public enemy, (ii) acts of the PHA or other governmental entity in either its sovereign or contractual capacity, (iii) acts of another contractor in the performance of a contract with the PHA, (iv) fires, (v) floods, (vi) epidemics, (vii) quarantine restrictions, (viii) strikes, (ix) freight embargoes, (x) unusually severe weather, or (xi) delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and the subcontractors or suppliers; and
 - (2) The Contractor, within days (10 days unless otherwise indicated) from the beginning of such delay (unless extended by the Contracting Officer) notifies the Contracting Officer in writing of the causes of delay. The Contracting Officer shall ascertain the facts and the extent of the delay. If, in the judgment of the Contracting Officer, the findings of fact warrant such action, time for completing the work shall be extended by written modification to the contract. The findings of the Contracting Officer shall be reduced to a written decision which shall be subject to the provisions of the Disputes clause of this contract.
- (c) If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been for convenience of the PHA.

33. Liquidated Damages

- (a) If the Contractor fails to complete the work within the time specified in the contract, or any extension, as specified in the clause entitled Default of this contract, the Contractor shall pay to the PHA as liquidated damages, the sum of \$ 300.00 [Contracting Officer insert amount] for each day of delay. If different completion dates are specified in the contract for separate parts or stages of the work, the amount of liquidated damages shall be assessed on those parts or stages which are delayed. To the extent that the Contractor's delay or nonperformance is excused under another clause in this contract, liquidated damages shall not be due the PHA. The Contractor remains liable for damages caused other than by delay.
- (b) If the PHA terminates the Contractor's right to proceed, the resulting damage will consist of liquidated damages until such reasonable time as may be required for final

completion of the work together with any increased costs occasioned the PHA in completing the work.

- (c) If the PHA does not terminate the Contractor's right to proceed, the resulting damage will consist of liquidated damages until the work is completed or accepted.

34. Termination for Convenience

- (a) The Contracting Officer may terminate this contract in whole, or in part, whenever the Contracting Officer determines that such termination is in the best interest of the PHA. Any such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying the extent to which the performance of the work under the contract is terminated, and the date upon which such termination becomes effective.
- (b) If the performance of the work is terminated, either in whole or in part, the PHA shall be liable to the Contractor for reasonable and proper costs resulting from such termination upon the receipt by the PHA of a properly presented claim setting out in detail: (1) the total cost of the work performed to date of termination less the total amount of contract payments made to the Contractor; (2) the cost (including reasonable profit) of settling and paying claims under subcontracts and material orders for work performed and materials and supplies delivered to the site, payment for which has not been made by the PHA to the Contractor or by the Contractor to the subcontractor or supplier; (3) the cost of preserving and protecting the work already performed until the PHA or assignee takes possession thereof or assumes responsibility therefore; (4) the actual or estimated cost of legal and accounting services reasonably necessary to prepare and present the termination claim to the PHA; and (5) an amount constituting a reasonable profit on the value of the work performed by the Contractor.
- (c) The Contracting Officer will act on the Contractor's claim within days (60 days unless otherwise indicated) of receipt of the Contractor's claim.
- (d) Any disputes with regard to this clause are expressly made subject to the provisions of the Disputes clause of this contract.

35. Assignment of Contract

The Contractor shall not assign or transfer any interest in this contract; except that claims for monies due or to become due from the PHA under the contract may be assigned to a bank, trust company, or other financial institution. Such assignments of claims shall only be made with the written concurrence of the Contracting Officer. If the Contractor is a partnership, this contract shall inure to the benefit of the surviving or remaining member(s) of such partnership as approved by the Contracting Officer.

36. Insurance

- (a) Before commencing work, the Contractor and each subcontractor shall furnish the PHA with certificates of insurance showing the following insurance is in force and will insure all operations under the Contract:
- (1) Workers' Compensation, in accordance with state or Territorial Workers' Compensation laws.
 - (2) Commercial General Liability with a combined single limit for bodily injury and property damage of not less than \$ 1MILLION [Contracting Officer insert amount]

per occurrence to protect the Contractor and each subcontractor against claims for bodily injury or death and damage to the property of others. This shall cover the use of all equipment, hoists, and vehicles on the site(s) not covered by Automobile Liability under (3) below. If the Contractor has a "claims made" policy, then the following additional requirements apply: the policy must provide a "retroactive date" which must be on or before the execution date of the Contract; and the extended reporting period may not be less than five years following the completion date of the Contract.

- (3) Automobile Liability on owned and non-owned motor vehicles used on the site(s) or in connection therewith for a combined single limit for bodily injury and property damage of not less than \$ **1MILLION** [Contracting Officer insert amount] per occurrence.
- (b) Before commencing work, the Contractor shall furnish the PHA with a certificate of insurance evidencing that Builder's Risk (fire and extended coverage) Insurance on all work in place and/or materials stored at the building site(s), including foundations and building equipment, is in force. The Builder's Risk Insurance shall be for the benefit of the Contractor and the PHA as their interests may appear and each shall be named in the policy or policies as an insured. The Contractor in installing equipment supplied by the PHA shall carry insurance on such equipment from the time the Contractor takes possession thereof until the Contract work is accepted by the PHA. The Builder's Risk Insurance need not be carried on excavations, piers, footings, or foundations until such time as work on the superstructure is started. It need not be carried on landscape work. Policies shall furnish coverage at all times for the full cash value of all completed construction, as well as materials in place and/or stored at the site(s), whether or not partial payment has been made by the PHA. The Contractor may terminate this insurance on buildings as of the date taken over for occupancy by the PHA. The Contractor is not required to carry Builder's Risk Insurance for modernization work which does not involve structural alterations or additions and where the PHA's existing fire and extended coverage policy can be endorsed to include such work.
- (c) All insurance shall be carried with companies which are financially responsible and admitted to do business in the State in which the project is located. If any such insurance is due to expire during the construction period, the Contractor (including subcontractors, as applicable) shall not permit the coverage to lapse and shall furnish evidence of coverage to the Contracting Officer. All certificates of insurance, as evidence of coverage, shall provide that no coverage may be canceled or non-renewed by the insurance company until at least 30 days prior written notice has been given to the Contracting Officer.

37. Subcontracts

- (a) Definitions. As used in this contract -
- (1) "Subcontract" means any contract, purchase order, or other purchase agreement, including modifications and change orders to the foregoing, entered into by a subcontractor to furnish supplies, materials, equipment, and services for the performance of the prime contract or a subcontract.

(2) "Subcontractor" means any supplier, vendor, or firm that furnishes supplies, materials, equipment, or services to or for the Contractor or another subcontractor.

- (b) The Contractor shall not enter into any subcontract with any subcontractor who has been temporarily denied participation in a HUD program or who has been suspended or debarred from participating in contracting programs by any agency of the United States Government or of the state in which the work under this contract is to be performed.
- (c) The Contractor shall be as fully responsible for the acts or omissions of its subcontractors, and of persons either directly or indirectly employed by them as for the acts or omissions of persons directly employed by the Contractor.
- (d) The Contractor shall insert appropriate clauses in all subcontracts to bind subcontractors to the terms and conditions of this contract insofar as they are applicable to the work of subcontractors.
- (e) Nothing contained in this contract shall create any contractual relationship between any subcontractor and the PHA or between the subcontractor and HUD.

38. Subcontracting with Small and Minority Firms, Women's Business Enterprise, and Labor Surplus Area Firms

The Contractor shall take the following steps to ensure that, whenever possible, subcontracts are awarded to small business firms, minority firms, women's business enterprises, and labor surplus area firms:

- (a) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
- (b) Ensuring that small and minority businesses and women's business enterprises are solicited whenever they are potential sources;
- (c) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses and women's business enterprises;
- (d) Establishing delivery schedules, where the requirements of the contract permit, which encourage participation by small and minority businesses and women's business enterprises; and
- (e) Using the services and assistance of the U.S. Small Business Administration, the Minority Business Development Agency of the U.S. Department of Commerce, and State and local governmental small business agencies.

39. Equal Employment Opportunity

During the performance of this contract, the Contractor agrees as follows:

- (a) The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, or handicap.
- (b) The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, national origin, or handicap. Such action shall include, but not be limited to, (1) employment, (2) upgrading, (3) demotion, (4) transfer, (5) recruitment or recruitment advertising, (6) layoff or termination, (7) rates of pay or other forms of compensation, and (8) selection for training, including apprenticeship.

- (c) The Contractor shall post in conspicuous places available to employees and applicants for employment the notices to be provided by the Contracting Officer that explain this clause.
- (d) The Contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, or handicap.
- (e) The Contractor shall send, to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, the notice to be provided by the Contracting Officer advising the labor union or workers' representative of the Contractor's commitments under this clause, and post copies of the notice in conspicuous places available to employees and applicants for employment.
- (f) The Contractor shall comply with Executive Order 11246, as amended, and the rules, regulations, and orders of the Secretary of Labor.
- (g) The Contractor shall furnish all information and reports required by Executive Order 11246, as amended, Section 503 of the Rehabilitation Act of 1973, as amended, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto. The Contractor shall permit access to its books, records, and accounts by the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- (h) In the event of a determination that the Contractor is not in compliance with this clause or any rule, regulation, or order of the Secretary of Labor, this contract may be canceled, terminated, or suspended in whole or in part, and the Contractor may be declared ineligible for further Government contracts, or Federally assisted construction contracts under the procedures authorized in Executive Order 11246, as amended. In addition, sanctions may be imposed and remedies invoked against the Contractor as provided in Executive Order 11246, as amended, the rules, regulations, and orders of the Secretary of Labor, or as otherwise provided by law.
- (i) The Contractor shall include the terms and conditions of this clause in every subcontract or purchase order unless exempted by the rules, regulations, or orders of the Secretary of Labor issued under Executive Order 11246, as amended, so that these terms and conditions will be binding upon each subcontractor or vendor. The Contractor shall take such action with respect to any subcontract or purchase order as the Secretary of Housing and Urban Development or the Secretary of Labor may direct as a means of enforcing such provisions, including sanctions for noncompliance; provided that if the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.
- (j) Compliance with the requirements of this clause shall be to the maximum extent consistent with, but not in derogation of, compliance with section 7(b) of the Indian Self-Determination and Education Assistance Act and the Indian Preference clause of this contract.

40. Employment, Training, and Contracting Opportunities for Low-Income Persons, Section 3 of the Housing and Urban Development Act of 1968.

- (a) The work to be performed under this contract is subject to the requirements of section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.
- (b) The parties to this contract agree to comply with HUD's regulations in 24 CFR Part 135, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the Part 135 regulations.
- (c) The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.
- (d) The contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR Part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR Part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR Part 135.
- (e) The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR Part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR Part 135.
- (f) Noncompliance with HUD's regulations in 24 CFR Part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.
- (g) With respect to work performed in connection with section 3 covered Indian housing assistance, section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of section 3 and section 7(b) agree to comply with section 3 to the maximum extent feasible, but not in derogation of compliance with section 7(b).

41. Interest of Members of Congress

No member of or delegate to the Congress of the United States of America shall be admitted to any share or part of this contract or to any benefit that may arise therefrom.

42. Interest of Members, Officers, or Employees and Former Members, Officers, or Employees

No member, officer, or employee of the PHA, no member of the governing body of the locality in which the project is situated, no member of the governing body of the locality in which the PHA was activated, and no other public official of such locality or localities who exercises any functions or responsibilities with respect to the project, shall, during his or her tenure, or for one year thereafter, have any interest, direct or indirect, in this contract or the proceeds thereof.

43. Limitations on Payments made to Influence Certain Federal Financial Transactions

- (a) The Contractor agrees to comply with Section 1352 of Title 31, United States Code which prohibits the use of Federal appropriated funds to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; or the modification of any Federal contract, grant, loan, or cooperative agreement.
- (b) The Contractor further agrees to comply with the requirement of the Act to furnish a disclosure (OMB Standard Form LLL, Disclosure of Lobbying Activities) if any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a Federal contract, grant, loan, or cooperative agreement.

44. Royalties and Patents

The Contractor shall pay all royalties and license fees. It shall defend all suits or claims for infringement of any patent rights and shall save the PHA harmless from loss on account thereof; except that the PHA shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified and the Contractor has no reason to believe that the specified design, process, or product is an infringement. If, however, the Contractor has reason to believe that any design, process or product specified is an infringement of a patent, the Contractor shall promptly notify the Contracting Officer. Failure to give such notice shall make the Contractor responsible for resultant loss.

45. Examination and Retention of Contractor's Records

- (a) The PHA, HUD, or Comptroller General of the United States, or any of their duly authorized representatives shall, until 3 years after final payment under this contract, have access to and the right to examine any of the Contractor's directly pertinent books, documents, papers, or other records involving transactions related to this contract for the purpose of making audit, examination, excerpts, and transcriptions.
- (b) The Contractor agrees to include in first-tier subcontracts under this contract a clause substantially the same as paragraph (a) above. "Subcontract," as used in this clause, excludes purchase orders not exceeding \$10,000.
- (c) The periods of access and examination in paragraphs (a) and (b) above for records relating to (1) appeals under the Disputes clause of this contract, (2) litigation or settlement of claims arising from the performance of this contract, or (3) costs and expenses of this contract to which the PHA, HUD, or Comptroller General or any of their duly authorized representatives has taken exception shall continue until disposition of such appeals, litigation, claims, or exceptions.

46. Labor Standards - Davis-Bacon and Related Acts

If the total amount of this contract exceeds \$2,000, the Federal labor standards set forth in the clause below shall apply to the development or construction work to be performed under the contract.

- (a) Minimum Wages.
 - (1) All laborers and mechanics employed under this contract in the development or construction of the project(s) involved will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the regular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits in the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall

be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

- (2) (i) Any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when all the following criteria have been met: (A) The work to be performed by the classification requested is not performed by a classification in the wage determination; and (B) The classification is utilized in the area by the construction industry; and (C) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
- (ii) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employee Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.
- (iii) In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator of the Wage and Hour Division for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary.
- (iv) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (a)(2)(ii) or (iii) of this clause shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in classification.
- (3) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
- (4) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the

amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program; provided, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

- (b) Withholding of funds. HUD or its designee shall, upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working in the construction or development of the project, all or part of the wages required by the contract, HUD or its designee may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the Contractor, disburse such amounts withheld for and on account of the Contractor or subcontractor to the respective employees to whom they are due.
- (c) Payrolls and basic records.
- (1) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working in the construction or development of the project. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid. Whenever the Secretary of Labor has found, under 29 CFR 5.5(a)(1)(iv), that the wages of any laborer or mechanic include the amount of costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

- (2) (i) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Contracting Officer for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under subparagraph (c)(1) of this clause. This information may be submitted in any form desired. Optional Form WH-347 (Federal Stock Number 029-005-00014-1) is available for this purpose and may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. The Contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1214-0149.)
- (ii) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:
- (A) That the payroll for the payroll period contains the information required to be maintained under paragraph (c) (1) of this clause and that such information is correct and complete;
- (B) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3; and
- (C) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.
- (iii) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirements for submission of the "Statement of Compliance" required by subparagraph (c)(2)(ii) of this clause.
- (iv) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.
- (3) The Contractor or subcontractor shall make the records required under subparagraph (c)(1) available for inspection, copying, or transcription by authorized representatives of HUD or its designee, the Contracting Officer, or the Department of Labor and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to

make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

- (d) (1) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship and Training, Employer and Labor Services (OATELS), or with a State Apprenticeship Agency recognized by OATELS, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by OATELS or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in this paragraph, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator of the Wage and Hour Division determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event OATELS, or a State Apprenticeship Agency recognized by OATELS, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
- (2) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under

- the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed in the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate in the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate in the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate in the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
- (3) Equal employment opportunity. The utilization of apprentices, trainees, and journeymen under this clause shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.
- (e) Compliance with Copeland Act requirements. The Contractor shall comply with the requirements of 29 CFR Part 3, which are hereby incorporated by reference in this contract.
- (f) Contract termination; debarment. A breach of this contract clause may be grounds for termination of the contract and for debarment as a Contractor and a subcontractor as provided in 29 CFR 5.12.
- (g) Compliance with Davis-Bacon and related Act requirements. All rulings and interpretations of the Davis-Bacon and related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.
- (h) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this clause shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the PHA, HUD, the U.S. Department of Labor, or the employees or their representatives.
- (i) Certification of eligibility.
- (1) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded contracts by the United States Government by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
- (2) No part of this contract shall be subcontracted to any person or firm ineligible for award of a United States Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
- (3) The penalty for making false statements is prescribed in the U. S. Criminal Code, 18 U.S.C. 1001.
- (j) Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.
- (1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics, including watchmen and guards, shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.
- (2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the provisions set forth in subparagraph (j)(1) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic (including watchmen and guards) employed in violation of the provisions set forth in subparagraph (j)(1) of this clause, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by provisions set forth in subparagraph (j)(1) of this clause.
- (3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the Contractor or subcontractor under any such contract or any Federal contract with the same prime Contractor, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the provisions set forth in subparagraph (j)(2) of this clause.
- (k) Subcontracts. The Contractor or subcontractor shall insert in any subcontracts all the provisions contained in this clause, and such other clauses as HUD or its designee may by appropriate instructions require, and also a clause requiring the subcontractors to include these provisions in any lower tier subcontracts. The prime Contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all these provisions.

47. Non-Federal Prevailing Wage Rates

- (a) Any prevailing wage rate (including basic hourly rate and any fringe benefits), determined under State or tribal law to be prevailing, with respect to any employee in any trade or position employed under the contract, is inapplicable to the contract and shall not be enforced against the Contractor or any subcontractor, with respect to employees engaged under the contract whenever such non-Federal prevailing wage rate exceeds:
 - (1) The applicable wage rate determined by the Secretary of Labor pursuant to the Davis-Bacon Act (40 U.S.C. 3141 et seq.) to be prevailing in the locality with respect to such trade;
- (b) An applicable apprentice wage rate based thereon specified in an apprenticeship program registered with the U.S. Department of Labor (DOL) or a DOL-recognized State Apprenticeship Agency; or
- (c) An applicable trainee wage rate based thereon specified in a DOL-certified trainee program.

48. Procurement of Recovered Materials.

- (a) In accordance with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, the Contractor shall procure items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition. The Contractor shall procure items designated in the EPA guidelines that contain the highest percentage of recovered materials practicable unless the Contractor determines that such items: (1) are not reasonably available in a reasonable period of time; (2) fail to meet reasonable performance standards, which shall be determined on the basis of the guidelines of the National Institute of Standards and Technology, if applicable to the item; or (3) are only available at an unreasonable price.
- (b) Paragraph (a) of this clause shall apply to items purchased under this contract where: (1) the Contractor purchases in excess of \$10,000 of the item under this contract; or (2) during the preceding Federal fiscal year, the Contractor: (i) purchased any amount of the items for use under a contract that was funded with Federal appropriations and was with a Federal agency or a State agency or agency of a political subdivision of a State; and (ii) purchased a total of in excess of \$10,000 of the item both under and outside that contract.



Development & Modernization
100 Ross Street, Suite 200
Pittsburgh, PA 15219
(412) 456-5020
www.hacp.org

Homewood North Stoops and Courtyard Paving - AMP-20

HACP Contract No. 600-37-19

SUPPLEMENTAL GENERAL CONDITIONS

SUPPLEMENTAL GENERAL CONDITIONS

To the extent that there is a conflict between the terms of the General Conditions and the terms of the Supplemental General Conditions, the terms of the Supplemental General Conditions shall govern to the extent of such conflict.

If HUD 5370 applies:

Section 31(e) of the General Conditions shall be deleted in its entirety and replaced by the following:

31(e). Forum. The Chief Contracting Officer's decision shall be final unless, within thirty (30) days of receipt of the Contracting Officer's decision, the Contractor files suit in a court of competent jurisdiction.

If HUD 5370-EZ applies:

Section 3(d) of the General Conditions shall be deleted in its entirety and replaced by the following:

31(d). Forum. The Contracting Officer's decision shall be final unless, within thirty (30) days of receipt of the Chief Contracting Officer's decision, the Contractor files suit in a court of competent jurisdiction.

If HUD 5370-C applies:

Section 1 Item 7(d) of the General Conditions shall be deleted in its entirety and replaced by the following:

Section 1 Item 7(d). Forum. The Chief Contracting Officer's decision shall be final unless, within thirty (30) days of receipt of the Contracting Officer's decision, the Contractor files suit in a court of competent jurisdiction.

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

Date: _____

Signature: _____
Chief Contracting Officer

=====

Vendor Name(Insert vendor company name above) _____

Date: _____

Signature: _____

Title: _____

THE HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

Homewood North Stoops and Courtyard Paving - AMP-20

HACP Contract No. 600-37-19

WAGE DETERMINATION SCHEDULE

The construction covered by this contract is subject to the requirements of Clause 47 **Labor Standards - Davis-Bacon and Related Acts** of the General Conditions of the Contract for Construction. In accordance with 47 (a)(1) the wage determination of the Secretary of Labor is attached.

"General Decision Number: PA20190012 06/07/2019

Superseded General Decision Number: PA20180033

State: Pennsylvania

Construction Type: Residential

County: Allegheny County in Pennsylvania.

RESIDENTIAL CONSTRUCTION PROJECTS (consisting of single family homes and apartments up to and including 4 stories)

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.60 for calendar year 2019 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.60 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2019. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available

at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/04/2019
1	01/11/2019
2	04/12/2019
3	06/07/2019

BRPA0009-039 12/01/2018

	Rates	Fringes
BRICKLAYER.....	\$ 32.35	22.21

CARP0142-004 06/01/2018

	Rates	Fringes
CARPENTER (cluding Drywall Hanging and Asphalt Roofing).....	\$ 28.02	12.59

CARP1759-007 06/01/2017

	Rates	Fringes
SOFT FLOOR LAYER.....	\$ 33.01	16.45

ELEC0005-013 12/21/2018

	Rates	Fringes
ELECTRICIAN.....	\$ 24.34	15.53

ELEV0006-004 01/01/2019

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 48.73	33.705+A+B

FOOTNOTE:

A. Employer contributes 8% of regular hourly rate as vacation pay credit for employees with more than 5 years of service, and 6% for 6 months to 5 years of service.

B. Eight Paid Holidays (provided employee has worked 5 consecutive days before and the working day after the holiday): New Years's Day; Memorial Day; Independence Day; Labor Day; Veteran's Day; Thanksgiving Day and the Friday after Thanksgiving Day, and Christmas Day.

* IRON0003-006 06/01/2019

	Rates	Fringes
IRONWORKER, ORNAMENTAL.....	\$ 35.49	31.84

* PLUM0027-005 06/01/2019

	Rates	Fringes
PLUMBER.....	\$ 42.30	22.47

SHEE0012-006 07/01/2018

	Rates	Fringes
Sheet metal worker		
Excluding HVAC Duct Work....	\$ 19.49	10.08

SUPA2003-001 10/31/2003

	Rates	Fringes
Drywall Finishers.....	\$ 15.08	3.40
Laborers, Unskilled.....	\$ 12.70	2.12

PAINTER (Brush and Roller).....\$ 15.90	4.35
PLASTERER.....\$ 18.20	5.16
Power equipment operators:	
(Backhoe).....\$ 17.34	4.06
Roofer (Excluding Asphalt	
Roofing).....\$ 18.70	5.19
Sheet Metal Worker (HVAC Duct	
Only).....\$ 16.00	3.08

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

=====

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses

(29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average

rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

=====

END OF GENERAL DECISION"

PART 4: TECHNICAL SPECIFICATIONS

Homewood North Stoops and Courtyard Paving - AMP-20

IFB CONTRACT NO. 600-37-19

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH
Pittsburgh, Pennsylvania

Homewood North Concrete and Asphalt Repair Project

HACP Task Order: #48

September 30, 2018

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Photo Pages

Base Bid Photos
Alternate #1 through Alternate #4 Photos of Parking Lot Rehabilitation

DIVISION 1 – GENERAL REQUIREMENTS

SECTION - 1
SUMMARY OF WORK

PART 1. GENERAL

1.1 CONTRACT DOCUMENTS

- A. Refer to the instructions to Contractors, General Conditions, Special Conditions, Special Requirements, and all contract drawings, which form part of this Contract and have the same force and effect as if herein full.
- B. Drawing List:
 - TS-1** Title Sheet
 - TS-2** Sheet Layout Index
 - SP-1** Site Plan – Base Bid
 - SP-2** Site Plan – Base Bid
 - SP-3** Site Plan – Base Bid
 - SP-4** Site Plan – Base Bid
 - SP-5** Site Plan – Base Bid
 - SP-6** Site Plan – Base Bid
 - SP-7** Site Plan – Base Bid
 - SP-8** Site Plan – Base Bid
 - SP-9** Site Plan – Base Bid
 - SP-10** Site Plan – Nolan Court & Heart Court Parking Lots
 - SP-11** Site Plan – Stranahan Street & Ferris Court Parking Lots
 - GD-1** Details
 - GD-2** Details

1.2 PROJECT IDENTIFICATION

- A. The Contractor shall furnish all labor and materials and perform all work necessary for the implementation of all work associated with the Rehabilitation Work to be performed for Safety, Parking and Drainage Improvements located throughout the Homewood North Housing Site and as depicted on the Contract Drawings.
- B. By submitting a bid and executing the Contract, the Contractor represents that they have carefully examined all Drawings, Specifications, Addenda, and other Contract Documents and has visited the site; and that he has satisfied himself as to the nature and location of the Work, the conditions and difficulties under which it is to be performed, and all matters which may in any way affect the Work or its performance. Further that he fully understands the intent and purpose of the Documents and conditions bidding. Claims for additional compensation or extension of time because of any Contractor's failure to familiarize himself with

the Contract Documents and all conditions which affect the Work will not be allowed.

- C. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all. The General Contractor will be responsible for all work pertaining to this entire Contract based on the entire set of Contract Documents. The intention of the Documents is to include, unless specifically accepted, all labor, all materials, equipment, tools, construction equipment and machinery, transportation, and other facilities and services necessary for the proper execution and completion of the Work. The specifications and the drawings are complementary to each other. Work shown but not specified, and work specified but not shown, shall be fully included as if both shown and specified. Should any direct contradiction(s) between specifications, drawings, or specifications and drawings become apparent, the Contractor shall satisfy the most stringent requirements.
- D. **The contractor shall be aware during the bidding phase that this contract includes a “Base Bid” and “Alternate Bids”. The contract will be awarded to the lowest bid submitted by a responsible bidder as determined by the Owner provided such bid falls within the financing ability of the Owner. Alternate Bid Items as presented may be used to adjust the Total Base Bid in the event any, or all, of the Alternates are selected and further agree each Contract shall be awarded to the lowest Total Bid resulting.**

1.3 CONTRACT WORK

- A. Repair/replace concrete sidewalk and pavement, asphalt parking areas. Topsoil and seed landscaping areas. Install drain piping and also fencing.
- B. Provide all labor, engineering, tools, transportation, services, supervision, materials, and equipment necessary for and incidental to satisfactory completion of required work as indicated in Contract Documents.
- C. Provide all required staging, temporary placement of existing or temporary systems, and all other components of construction.
- D. The work required by this contractor shall be to furnish and deliver all materials, tools, equipment, testing, transportation, secure all permits, license, do and perform all labor, superintendent and all means of construction, pay all fees and do all incidental work, execute and finish in all expeditious, substantial and workmanlike manner the project in accordance with drawings and specifications to complete satisfaction and acceptance of the Owner.
- E. The contract work for this project will include all work required to repair/replace existing pavement surfaces and sidewalks as shown on the Contract Drawings.

1.3.1 BASE BID

The complete scope is defined in the Contract Drawings and Specifications. In general, this contracts contains the following aspects of work:

- A. Cast In Place Concrete Sidewalk and Patio Pads.
- B. Foam Lifting and Concrete Grinding to remove trip hazards.
- C. Joint Cleaning, Crack Sealing, Caulking and where applicable insertion of Neoprene Expansion in Joint.
- D. Minimal Drainage Work.
- E. Restoration, Topsoil and seeding.
- F. Provide all work associated with selected Division 1 requirements.
- G. Provide all work associated with selected Division 2 demolition requirements.

1.4 ALTERNATE BIDS

The complete scope is defined in the Contract Drawings and Specifications. In general, this contracts contains the following aspects of work:

- A. Parking Lot Resurfacing to include: Milling, Concrete/Curb Removal and Replacement, Soft Spot Repair and Asphalt Resurfacing.
- B. Line Striping and ADA Painting.
- C. Drainage Work, Inlet Construction, Pipe Bollard Painting.
- D. New Concrete Sidewalk Construction.

1.5 CONTRACTOR'S USE OF PREMISES

- A. Contractors shall limit their use of premises to construction activities in areas indicated; allow for Authority's occupancy and use by the public.
 - 1. Confine operations to areas within Contract limits indicated. Portions of site beyond areas in which construction operations are indicated are not to be disturbed.
 - 2. Keep driveways and entrances serving premises clear and available to tenants and the Authority's employees at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of on-site materials and equipment.
 - 3. Burial of Waste Materials: Do not dispose of waste material on site, either by burial or burning. All materials must be hauled away from the site and disposed of in a manner acceptable to the local in which the disposal occurs.

1.6 OWNER OCCUPANCY

- A. Full Owner Occupancy: Owner (The Housing Authority of the City of Pittsburgh) will occupy site and existing building during the entire construction period. Cooperate with the Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform work so as not to interfere with Owner's operations.
1. The Authority's services have priority over all work. The Authority will make every reasonable effort to accommodate Work in an orderly manner, but reserves the right to adjust or change any work schedule if necessary to maintain proper tenant services.
 2. Keep the Authority informed, through the Authority Representative, of Contractor activity so that the Authority can coordinate its functions with work. Schedules must be approved by the Authority. Shutdowns and changeovers of services and systems must be approved by the Authority 72 hours in advance of the work to be scheduled. Shutdowns and changeovers shall be incorporated into the construction CPS.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION 1

SECTION - 2 ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Coordination and Project conditions.
- B. Preconstruction meeting.
- C. Site mobilization meeting.
- D. Progress meetings.
- E. Pre-installation meetings.
- F. Closeout meeting.
- G. Alteration procedures.

1.2 COORDINATION AND PROJECT CONDITIONS

- A. Coordinate scheduling, submittals, and Work of various Sections of Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements.
- B. Verify that utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate Work of various Sections having interdependent responsibilities for installing, connecting to, and placing operating equipment in service.
- C. Coordination Meetings: In addition to other meetings specified in this Section, hold coordination meetings with personnel and Subcontractors to ensure coordination of Work.
- D. Coordinate completion and clean-up of Work of separate Sections in preparation for Substantial Completion.

1.3 PRECONSTRUCTION MEETING

- A. Owner and Engineer will schedule and preside over meeting after Agreements have been signed.
- B. Attendance Required: Architect/Engineer, Owner, and Contractor.

- C. Minimum Agenda:
 - 1. Submission of executed bonds and insurance certificates.
 - 2. Distribution of Contract Documents.
 - 3. Submission of list of products, schedule of values, and Progress Schedule.
 - 4. Designation of personnel representing parties in Contract, and Architect/Engineer.
 - 5. Communication procedures.
 - 6. Procedures and processing of requests for interpretations, field decisions, submittals, substitutions, Applications for Payments, proposal request, Change Orders, and Contract closeout procedures.
 - 7. Scheduling.
 - 8. Critical Work sequencing.
 - 9. Scheduling activities.
- D. Record minutes and distribute to participants after the meeting.

1.4 SITE MOBILIZATION MEETING

- A. Owner will schedule meeting at Project Site prior to Contractor occupancy.
- B. Attendance Required: Architect/Engineer, Owner and Contractor.
- C. Minimum Agenda:
 - 1. Use of premises by Owner and Contractor.
 - 2. Owner's requirements.
 - 3. Construction facilities and controls.
 - 4. Temporary utilities.
 - 5. Security and housekeeping procedures.
 - 6. Schedules.
 - 7. Procedures for maintaining record documents.
 - 8. Requirements for startup of equipment.
 - 9. Inspection and acceptance of equipment put into service during construction period.
- D. Record minutes and distribute to participants after meeting, and to those affected by decisions made.

1.5 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work at maximum intervals.
- B. Include first option in the following Paragraph when Contractor is responsible for progress meetings. When Architect/Engineer is responsible, edit second option accordingly.

- C. Make arrangements for meetings, prepare agenda with copies for participants, and preside over meetings.
- D. Attendance Required: Job superintendent, and others as appropriate to agenda topics for each meeting.
- E. Minimum Agenda:
 - 1. Review minutes of previous meetings.
 - 2. Review of Work progress.
 - 3. Field observations, problems, and decisions.
 - 4. Identification of problems impeding planned progress.
 - 5. Review of submittal schedule and status of submittals.
 - 6. Review of off-Site fabrication and delivery schedules.
 - 7. Maintenance of Progress Schedule.
 - 8. Corrective measures to regain projected schedules.
 - 9. Planned progress during succeeding work period.
 - 10. Coordination of projected progress.
 - 11. Maintenance of quality and work standards.
 - 12. Effect of proposed changes on Progress Schedule and coordination.
 - 13. Other business relating to Work.
- F. Record minutes and distribute to participants after the meeting, to those affected by decisions made.

1.6 PREINSTALLATION MEETINGS

- A. When required in individual Specification Sections, convene preinstallation meetings before starting Work of specific Section.
- B. Require attendance of parties directly affecting, or affected by, Work of specific Section.
- C. Notify Architect/Engineer/Owner in advance of meeting date.
- D. Prepare agenda and preside over meeting:
 - 1. Review conditions of installation, preparation, and installation procedures.
 - 2. Review coordination with related Work.
- E. Record minutes and distribute to participants after the meeting to those affected by decisions made.

1.7 CLOSEOUT MEETING

- A. Schedule Project closeout meeting with sufficient time to prepare for requesting Substantial Completion. Preside over meeting and be responsible for minutes.
- B. Attendance Required: Contractor/Architect/Engineer/Owner, and others appropriate to agenda.
- C. Notify Architect/Engineer/Owner in advance of meeting date.
- D. Minimum Agenda:
 - 1. Start-up of facilities and systems.
 - 2. Operations and maintenance manuals.
 - 3. Testing, adjusting, and balancing.
 - 4. System demonstration and observation.
 - 5. Operation and maintenance instructions for Owner's personnel.
 - 6. Contractor's inspection of Work.
 - 7. Contractor's preparation of an initial "punch list."
 - 8. Procedure to request Architect/Engineer inspection to determine date of Substantial Completion.
 - 9. Completion time for correcting deficiencies.
 - 10. Inspections by authorities having jurisdiction.
 - 11. Partial release of retainage.
 - 12. Final cleaning.
 - 13. Preparation for final inspection.
 - 14. Closeout Submittals:
 - a. Project record documents.
 - b. Operating and maintenance documents.
 - c. Operating and maintenance materials.
 - d. Affidavits.
 - 16. Final Application for Payment.
 - 17. Contractor's demobilization of Site.
 - 18. Maintenance.
- E. Record minutes and distribute to participants after meeting, to Architect/Engineer/Owner, and those affected by decisions made.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION

3.1 ALTERATION PROCEDURES

- A. Housing Sites will be occupied for normal operations during progress of construction. Cooperate with Owner in scheduling operations to minimize conflict and to permit continuous usage.
 - 1. Perform Work not to interfere with operations of occupied areas.
 - 2. Keep utility and service outages to a minimum and perform only after written approval of Owner.
 - 3. Clean Owner-occupied areas daily. Clean spillage, overspray, and heavy collection of dust in Owner-occupied areas immediately.
- B. Materials: As specified in product Sections; match existing products with new products for patching and extending Work.
- C. Employ a skilled and experienced installer to perform alteration and renovation Work.
- D. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion. Comply with Section 8 - Execution and Closeout Requirements
- E. Remove unsuitable material not marked for salvage, including rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.
- F. Remove debris and abandoned items from area and from concealed spaces.
- G. Prepare surface and remove surface finishes to permit installation of new Work and finishes.
- H. Close openings in exterior surfaces to protect existing Work from weather and extremes of temperature and humidity.
- I. Remove, cut, and patch Work to minimize damage and to permit restoring products and finishes to original or specified condition.
- J. Refinish existing visible surfaces to remain in renovated areas, to specified condition for each material, with neat transition to adjacent finishes.
- K. Where new Work abuts or aligns with existing Work, provide smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.

- L. When finished surfaces are cut so that smooth transition with new Work is not possible, terminate existing surface along straight line at natural line of division and submit recommendation to Architect/Engineer for review.
- M. Patch or replace portions of existing surfaces that are damaged, lifted, discolored, or showing other imperfections.
- N. Finish surfaces as specified in individual product Sections.

END OF SECTION 2

SECTION - 3
CONSTRUCTION PROGRESS SCHEDULE

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Submittals.
- B. Quality assurance.
- C. Format for network analysis schedules.
- D. Network analysis schedules.
- E. Bar chart schedules.
- F. Review and evaluation.
- G. Updating schedules.
- H. Distribution.

1.2 SUBMITTALS

- A. Within 10 days after Agreement date as established in Notice to Proceed, submit proposed schedule of work to be performed. This shall be reviewed by the Owner/Architect/Engineer.
- B. Submit network schedules under transmittal letter form specified in Section 4 - Submittal Procedures.
- C. Schedule Updates:
 - 1. Overall percent complete, projected and actual.
 - 2. Changes in Work scope and activities modified since submittal.
 - 3. Delays in submittals or resubmittals, deliveries, or Work.
 - 4. Adjusted or modified sequences of Work.
 - 5. Other identifiable changes.
 - 6. Revised projections of progress and completion.
- D. Narrative Progress Report:
 - 1. Submit with each monthly submission of Progress Schedule.
 - 2. Summary of Work completed during the past period between reports.

3. Work planned during the next period.
4. Explanation of differences between summary of Work completed and Work planned in previously submitted report.
5. Current and anticipated delaying factors and estimated impact on other activities and completion milestones.
6. Corrective action taken or proposed.

1.3 **QUALITY ASSURANCE Not Used**

1.4 **FORMAT FOR NETWORK ANALYSIS SCHEDULE Not Used**

1.5 **NETWORK ANALYSIS SCHEDULES Not Used**

1.6 **BAR CHART SCHEDULES Not Used**

1.7 **REVIEW AND EVALUATION**

- A. Participate in joint review and evaluation of schedules with Architect/Engineer at each submittal.
- B. Evaluate Project status to determine Work behind schedule and Work ahead of schedule.
- C. After review, revise schedules incorporating results of review, and resubmit within 2 days.

1.8 **UPDATING SCHEDULES**

- A. Maintain schedules to record actual start and finish dates of completed activities.
- B. Indicate progress of each activity to date of revision, with projected completion date of each activity. Update schedules to depict current status of Work.
- C. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
- D. Upon approval of a Change Order, include the change in the next schedule submittal.
- E. Indicate changes required to maintain Date of Substantial Completion.
- F. Submit sorts as required to support recommended changes.

- G. Prepare narrative report to define problem areas, anticipated delays, and impact on schedule.

1.9 DISTRIBUTION **Not Used**

PART 2 - PRODUCTS - **Not Used**

PART 3 - EXECUTION - **Not Used**

END OF SECTION 3

SECTION - 4 SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Definitions.
- B. Submittal procedures.
- C. Construction progress schedules.
- D. Proposed product list.
- E. Product data.
- F. Use of electronic CAD files of Project Drawings.
- G. Shop Drawings.
- H. Other submittals.
- I. Design data.
- J. Test reports.
- K. Certificates.
- L. Manufacturer's instructions.
- M. Manufacturer's field reports.
- N. Erection Drawings.
- O. Construction photographs.
- P. Contractor review.
- Q. Architect/Engineer review.

1.2 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect/Engineer's/Owners responsive action.

- B. Informational Submittals: Written and graphic information and physical Samples that do not require Architect/Engineer's responsive action. Submittals may be rejected for not complying with requirements.

1.3 SUBMITTAL PROCEDURES

- A. Transmit each submittal with Architect/Engineer-accepted form.
- B. Identify: Project, Contractor, Subcontractor and supplier, pertinent Drawing and detail number, and Specification Section number appropriate to submittal.
- C. Apply Contractor's stamp, signed or initialed, certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is according to requirements of the Work and Contract Documents.
- D. Schedule submittals to expedite Project. Coordinate submission of related items.
- E. For each submittal for review, allow 10 days excluding delivery time to and from Contractor.
- F. Identify variations in Contract Documents and product or system limitations that may be detrimental to successful performance of completed Work.
- G. Allow space on submittals for Contractor and Architect/Engineer review stamps.
- H. When revised for resubmission, identify changes made since previous submission.
- I. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.
- J. Submittals not requested will not be recognized nor processed.
- K. Incomplete Submittals: Architect/Engineer will not review. Complete submittals for each item are required. Delays resulting from incomplete submittals are not the responsibility of Architect/Engineer.

1.4 CONSTRUCTION PROGRESS SCHEDULES

- A. Comply with Section 3 - Construction Progress Schedule

1.5 PROPOSED PRODUCT LIST

- A. Within 10 days after date of Notice to Proceed, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.

- B. For products specified only by reference standards, indicate manufacturer, trade name, model or catalog designation, and reference standards.

1.6 PRODUCT DATA

- A. Product Data: Action Submittal: Submit to Architect/Engineer for review for assessing conformance with information given and design concept expressed in Contract Documents.
- B. Submit electronic submittals via email as PDF electronic files.
- C. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- D. Indicate product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- E. After review, produce copies and distribute according to "Submittal Procedures" Article and for record documents described in Section 8 - Execution and Closeout Requirements.

1.7 ELECTRONIC CAD FILES OF PROJECT DRAWINGS

- A. Electronic CAD Files of Project Drawings: May only be used to expedite production of Shop Drawings for the Project. Use for other Projects or purposes is not allowed.
- B. Electronic CAD Files of Project Drawings: Distributed only under the following conditions:
 - 1. Use of files is solely at receiver's risk. Architect/Engineer does not warrant accuracy of files. Receiving files in electronic form does not relieve receiver of responsibilities for measurements, dimensions, and quantities set forth in Contract Documents. In the event of ambiguity, discrepancy, or conflict between information on electronic media and that in Contract Documents, notify Architect/Engineer of discrepancy and use information in hard-copy Drawings and Specifications.
 - 2. CAD files do not necessarily represent the latest Contract Documents, existing conditions, and as-built conditions. Receiver is responsible for determining and complying with these conditions and for incorporating addenda and modifications.
 - 3. User is responsible for removing information not normally provided on Shop Drawings and removing references to Contract Documents. Shop Drawings submitted with information associated with other trades or with references to Contract Documents will not be reviewed and will be immediately returned.

4. Receiver shall not hold Architect/Engineer responsible for data or file clean-up required to make files usable, nor for error or malfunction in translation, interpretation, or use of this electronic information.
 5. Receiver shall understand that even though Architect/Engineer has computer virus scanning software to detect presence of computer viruses, there is no guarantee that computer viruses are not present in files or in electronic media.
 6. Receiver shall not hold Architect/Engineer responsible for such viruses or their consequences, and shall hold Architect/Engineer harmless against costs, losses, or damage caused by presence of computer virus in files or media.
- C. Costs: TBD per file, plus administrative fee of TBD per request paid in advance by certified check or money order payable to Architect/Engineer.

1.8 SHOP DRAWINGS

- A. Shop Drawings: Action Submittal: Submit to Architect/Engineer for assessing conformance with information given and design concept expressed in Contract Documents.
- B. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. When required by individual Specification Sections, provide Shop Drawings signed and sealed by a professional Engineer responsible for designing components shown on Shop Drawings.
 1. Include signed and sealed calculations to support design.
 2. Submit Shop Drawings and calculations in form suitable for submission to and approval by authorities having jurisdiction.
 3. Make revisions and provide additional information when required by authorities having jurisdiction.
- D. After review, produce copies and distribute according to "Submittal Procedures" Article and for record documents described in Section 8 - Execution and Closeout Requirements.

1.9 OTHER SUBMITTALS

- A. Closeout Submittals: Comply with Section 8 - Execution and Closeout Requirements.
- B. Informational Submittal: Submit data for Architect/Engineer's knowledge as Contract administrator or for Owner.
- C. Submit information for assessing conformance with information given and design concept expressed in Contract Documents.

1.10 TEST REPORTS

- A. Informational Submittal: Submit reports for Architect/Engineer's knowledge as Contract administrator or for Owner.
- B. Submit test reports for information for assessing conformance with information given and design concept expressed in Contract Documents.

1.11 CERTIFICATES

- A. Informational Submittal: Submit certification by manufacturer, installation/application Subcontractor, or Contractor to Architect/Engineer, in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or product but must be acceptable to Architect/Engineer.

1.12 MANUFACTURER'S INSTRUCTIONS

- A. Informational Submittal: Submit manufacturer's installation instructions for Architect/Engineer's knowledge as Contract administrator or for Owner.
- B. Submit printed instructions for delivery, storage, assembly, installation, adjusting, and finishing, to Architect/Engineer in quantities specified for Product Data.
- C. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.13 MANUFACTURER'S FIELD REPORTS

- A. Informational Submittal: Submit reports for Architect/Engineer's knowledge as Contract administrator or for Owner.
- B. Submit report of observation to Architect/Engineer for information.
- C. Submit reports for information for assessing conformance with information given and design concept expressed in Contract Documents.

1.14 **ERECTION DRAWINGS Not Used**

1.15 **CONSTRUCTION PHOTOGRAPHS**

- A. Provide photographs of construction throughout progress of Work produced by a photographer acceptable to Architect/Engineer.
- B. Contractor to submit Photographs with each Application for Payment.
- C. Photographs: May be submitted on a thumb drive.
- D. Take several Site photographs from different directions indicating relative progress of the Work.
- E. Identify each photo by its reference number on the drawing and Housing Unit.
- F. Digital Images: Deliver complete set of digital image electronic files on CD-ROM/Thumb Drive to Owner with Project record documents. Identify electronic media with date photographs were taken.
 - 1. Digital Images: Uncompressed TIFF format, produced by digital camera with minimum sensor size of 4.0 megapixels, and image resolution of not less than 1024 by 768 pixels.
 - 2. Date and Time: Include date and time in filename for each image.
- G. Negatives: Deliver negatives to Owner with Project record documents. Catalog and index negatives in chronological sequence; include typed table of contents.

1.16 **CONTRACTOR REVIEW**

- A. Review for compliance with Contract Documents and approve submittals before transmitting to Architect/Engineer.
- B. Contractor: Responsible for:
 - 1. Determination and verification of materials including manufacturer's catalog numbers.
 - 2. Determination and verification of field measurements and field construction criteria.
 - 3. Checking and coordinating information in submittal with requirements of Work and of Contract Documents.
 - 4. Determination of accuracy and completeness of dimensions and quantities.
 - 5. Confirmation and coordination of dimensions and field conditions at Site.
 - 6. Construction means, techniques, sequences, and procedures.
 - 7. Safety precautions.
 - 8. Coordination and performance of Work of all trades.

- C. Stamp, sign or initial, and date each submittal to certify compliance with requirements of Contract Documents.
- D. Do not fabricate products or begin Work for which submittals are required until approved submittals have been received from Architect/Engineer.

1.17 ARCHITECT/ENGINEER REVIEW

- A. Do not make "mass submittals" to Architect/Engineer. "Mass submittals" are defined as six or more submittals or items in one day or 15 or more submittals or items in one week. If "mass submittals" are received, Architect/Engineer's review time stated above will be extended as necessary to perform proper review. Architect/Engineer will review "mass submittals" based on priority determined by Architect/Engineer after consultation with Owner and Contractor.
- B. Informational submittals and other similar data are for Architect/Engineer's information, do not require Architect/Engineer's responsive action, and will not be reviewed or returned with comment.
- C. Submittals made by Contractor that are not required by Contract Documents may be returned without action.
- D. Submittal approval does not authorize changes to Contract requirements unless accompanied by an approved Change Order from the Owner.
- E. Owner may withhold monies due to Contractor to cover additional costs beyond the second submittal review.

PART 2 - PRODUCTS - **Not Used**

PART 3 - EXECUTION - **Not Used**

END OF SECTION 4

SECTION - 5 QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Quality control.
- B. Tolerances.
- C. References.
- D. Labeling.
- E. Testing and inspection services.
- F. Manufacturers' field services.

1.2 QUALITY CONTROL

- A. Monitor quality control over suppliers, manufacturers, products, services, Site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with specified standards as the minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- C. Perform Work using persons qualified to produce required and specified quality.
- D. Products, materials, and equipment may be subject to inspection by Architect/Engineer and Owner at place of manufacture or fabrication. Such inspections shall not relieve Contractor of complying with requirements of Contract Documents.
- E. Supervise performance of Work in such manner and by such means to ensure that Work, whether completed or in progress, will not be subjected to harmful, dangerous, damaging, or otherwise deleterious exposure during construction period.

1.3 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

- B. Comply with manufacturers' recommended tolerances and tolerance requirements in reference standards. When such tolerances conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

1.4 REFERENCES

- A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current as of date of Contract Documents except where specific date is established by code.
- C. Obtain copies of standards and maintain on Site when required by product Specification Sections.
- D. When requirements of indicated reference standards conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- E. Neither contractual relationships, duties, or responsibilities of parties in Contract nor those of Architect/Engineer shall be altered from Contract Documents by mention or inference in reference documents.

1.5 LABELING

- A. Attach label from agency approved by authorities having jurisdiction for products, assemblies, and systems required to be labeled by applicable code.
- B. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information, as applicable, on each label:
 - 1. Model number.
 - 2. Serial number.
 - 3. Performance characteristics.
- C. Manufacturer's Nameplates, Trademarks, Logos, and Other Identifying Marks on Products: Not allowed on surfaces exposed to view in public areas, interior or exterior.

1.6 TESTING AND INSPECTION SERVICES

- A. Owner may require Contractor to employ and pay for services of an independent testing agency or laboratory acceptable to Owner to perform specified testing.

1. Before starting Work, submit testing laboratory name, address, and telephone number, and names of full-time Professional and responsible officer.
 2. Submit copy of report of laboratory facilities' inspection made by Materials Reference Laboratory of National Bureau of Standards during most recent inspection, with memorandum of remedies of deficiencies reported by inspection.
- B. Independent firm will perform tests, inspections, and other services specified in individual Specification Sections and as required by Architect/Engineer/Owner and authorities having jurisdiction.
1. Laboratory: Authorized to operate locally.
 2. Laboratory Staff: Maintain full-time Professional specialist on staff to review services.
 3. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to National Bureau of Standards or accepted values of natural physical constants.
- C. Testing, inspections, and source quality control may occur on or off Project Site. Perform off-Site testing as required by Architect/Engineer or Owner.
- D. Reports shall be submitted by independent firm to Architect/Engineer, Contractor, and authorities having jurisdiction, in duplicate, indicating observations and results of tests and compliance or noncompliance with Contract Documents.
1. Submit final report indicating correction of Work previously reported as noncompliant.
- E. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
1. Notify Architect/Engineer and independent firm 24 hours before expected time for operations requiring services.
 2. Make arrangements with independent firm and pay for additional Samples and tests required for Contractor's use.
- F. Employment of testing agency or laboratory shall not relieve Contractor of obligation to perform Work according to requirements of Contract Documents.
- G. Retesting or re-inspection required because of nonconformance with specified or indicated requirements shall be performed by same independent firm on instructions from Architect/Engineer. Payment for retesting or re-inspection will be charged to Contractor by deducting testing charges from Contract Sum/Price.
- H. Agency Responsibilities:
1. Test Samples of mixes submitted by Contractor.
 2. Provide qualified personnel at Site. Cooperate with Architect/Engineer and Contractor in performance of services.

3. Perform indicated sampling and testing of products according to specified standards.
 4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 5. Promptly notify Architect/Engineer and Contractor of observed irregularities or nonconformance of Work or products.
 6. Perform additional tests required by Architect/Engineer.
 7. Attend preconstruction meetings and progress meetings.
- I. Agency Reports: After each test, promptly submit copies of report to Architect/Engineer, Contractor, and authorities having jurisdiction. When requested by Architect/Engineer, provide interpretation of test results. Include the following:
1. Date issued.
 2. Project title and number.
 3. Name of inspector.
 4. Date and time of sampling or inspection.
 5. Identification of product and Specification Section.
 6. Location in Project.
 7. Type of inspection or test.
 8. Date of test.
 9. Results of tests.
 10. Conformance with Contract Documents.
- J. Limits on Testing Authority:
1. Agency or laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 2. Agency or laboratory may not approve or accept any portion of the Work.
 3. Agency or laboratory may not assume duties of Contractor.
 4. Agency or laboratory has no authority to stop the Work.

1.7 MANUFACTURER'S FIELD SERVICES

- A. When specified in individual Specification Sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe Site conditions, conditions of surfaces and installation, quality of workmanship, and to initiate instructions when necessary.
- B. Submit qualifications of observer to Architect/Engineer 3 days in advance of required observations. Observer is subject to approval of Architect/Engineer/Owner.
- C. Report observations and Site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturer's written instructions.
- D. Refer to Section 4 - Submittal Procedures, "Manufacturer's Field Reports" Article.

PART 2 - PRODUCTS - **Not Used**

PART 3 - EXECUTION - **Not Used**

END OF SECTION 5

SECTION - 6
TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Temporary facilities under Construction Management Agreement.
- B. Temporary Utilities:
 - 1. Temporary electricity.
 - 2. Temporary lighting for construction purposes.
 - 3. Temporary heating.
 - 4. Temporary cooling.
 - 5. Temporary ventilation.
 - 6. Communication services.
 - 7. Temporary water service.
 - 8. Temporary sanitary facilities.
- C. Construction Facilities:
 - 1. Field offices and sheds.
 - 2. Vehicular access.
 - 3. Parking.
 - 4. Progress cleaning and waste removal.
 - 5. Project identification.
 - 6. Traffic regulation.
 - 7. Fire-prevention facilities.
- D. Temporary Controls:
 - 1. Barriers.
 - 2. Enclosures and fencing.
 - 3. Security.
 - 4. Water control.
 - 5. Dust control.
 - 6. Erosion and sediment control.
 - 7. Noise control.
 - 8. Pest and rodent control.
 - 9. Pollution control.
- E. Removal of utilities, facilities, and controls.

1.2 REFERENCES

1.3 TEMPORARY FACILITIES UNDER CONSTRUCTION MANAGEMENT AGREEMENT

A. Temporary Provisions Provided by Construction Manager:

1. Temporary barriers, barricades, covered walkways, fencing, exterior closures, and interior closures.
2. Temporary field offices.
3. Cleaning during construction.
4. Access roads and approaches.
5. Temporary sanitary facilities.
6. Temporary telephone and internet service.

B. Each Contractor: Coordinate provisions with Construction Manager and provide the following items as necessary for execution of the Work including associated costs:

1. Construction aids.
2. Temporary fire protection, dust control, erosion and sediment control, water control, noise control, and other necessary temporary controls.
3. Temporary barriers, barricades, and similar devices as necessary for safety and protection of construction personnel and public.
4. On Construction Manager's approval, may provide temporary field office including electrical service and temporary telephone.
5. Temporary tree and plant protection.
6. Electrical service required in addition to temporary service and distribution provided by Construction Manager.
7. Temporary provisions for protection of installed Work.

1.4 TEMPORARY ELECTRICITY

- A. Provide temporary electric feeder from existing facility electrical service at a location approved by the Owner. Do not disrupt Owner's use of service.
- B. Complement existing power service capacity and characteristics as required for construction operations.
- C. Provide power outlets with branch wiring and distribution boxes located as required for construction operations. Provide suitable, flexible power cords as required for portable construction tools and equipment.

1.5 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

- A. Construction will be performed outside during daylight hours. Temporary lighting will not be required.

1.6 TEMPORARY HEATING **Not Used**

1.7 TEMPORARY COOLING **Not Used**

1.8 TEMPORARY VENTILATION **Not Used**

1.9 COMMUNICATION SERVICES

- A. Cell phone/Text and Email shall be accessible by the contractor for communication.

1.10 TEMPORARY WATER SERVICE

- A. Owner will pay cost of temporary water. Exercise measures to conserve energy. Use Owner's existing water system, extended and supplemented with temporary devices as needed to maintain specified conditions for construction operations.

1.11 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures. Existing facility use is not permitted. Provide facilities at time of Project mobilization.

1.12 FIELD OFFICES AND SHEDS

- 1. Field offices will not be required. If inclement weather would occur during a meeting time, meeting room in Community Room facility would be accessible.
- 2. The Contractor is responsible for locking and storing his equipment in areas that do not disrupt the daily routine of the housing sites.
- B. Environmental Control: **Not Used**
- C. Maintenance and Cleaning:
 - 1. Maintain walks free of mud, water, snow, and the like.
- D. Removal: At completion of Work remove buildings, foundations, utility services, and debris. Restore areas to same or better condition as original condition.

1.13 VEHICULAR ACCESS

- A. Extend and relocate vehicular access as Work progress requires and provide detours as necessary for unimpeded traffic flow.
- B. Provide unimpeded access for emergency vehicles. Maintain 20 foot-wide driveways with turning space between and around combustible materials.
- C. Provide and maintain access to fire hydrants and control valves free of obstructions.
- D. Provide means of removing mud from vehicle wheels before entering streets.
- E. Use existing on-Site roads for construction traffic.

1.14 PARKING

- A. Owner shall approve suitable location for parking.
- B. Use of designated areas of existing on-Site streets and driveways used for construction traffic is permitted. Tracked vehicles are not allowed on paved areas.
- C. Use of designated areas of existing parking facilities used by construction personnel may be permitted by the Owner.
- D. Do not allow heavy vehicles or construction equipment in parking areas.
- E. Permanent Pavements and Parking Facilities:
 - 1. Avoid traffic loading beyond paving design capacity. Tracked vehicles are not allowed.
- F. Maintenance:
 - 1. Maintain traffic and parking areas in sound condition free of excavated material, construction equipment, products, mud, snow, ice, and the like.
 - 2. Maintain existing paved areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original condition.
- G. Removal, Repair:
 - 1. Remove temporary materials and construction.
 - 2. Repair existing facilities damaged by use, to original condition.
- H. Mud from Site vehicles: Provide means of removing mud from vehicle wheels before entering streets.

1.15 PROGRESS CLEANING AND WASTE REMOVAL

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain Site in clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, before enclosing spaces.
- C. Broom and vacuum clean interior areas before starting surface finishing, and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and rubbish from Site daily and dispose of off-Site.
- E. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.16 PROJECT IDENTIFICATION

- A. Project Identification Sign:
 - 1. To Be Determined by Owner

1.17 TRAFFIC REGULATION

- A. Signs, Signals, and Devices:
 - 1. Post-Mounted and Wall-Mounted Traffic Control and Informational Signs: As approved by authorities having jurisdiction.
 - 2. Traffic Control Signals: As approved by local jurisdictions.
 - 3. Traffic Cones, Drums, Flares, and Lights: As approved by authorities having jurisdiction.
 - 4. Flag Person Equipment: As required by authorities having jurisdiction.
- B. Flag Persons: Provide trained and equipped flag persons to regulate traffic when construction operations or traffic encroach on public traffic lanes.
- C. Flares and Lights: Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.
- D. Haul Routes:
 - 1. Consult with authorities having jurisdiction and establish public thoroughfares to be used for haul routes and Site access.
- E. Traffic Signs and Signals:

1. Provide signs at approaches to Site and on Site, at crossroads, detours, parking areas, and elsewhere as needed to direct construction and affected public traffic.
2. Provide, operate, and maintain traffic control signals to direct and maintain orderly flow of traffic in areas under Contractor's control and areas affected by Contractor's operations.
3. Relocate signs and signals as Work progresses, to maintain effective traffic control.

F. Removal:

1. Remove equipment and devices when no longer required.
2. Repair damage caused by installation.

1.18 FIRE-PREVENTION FACILITIES

- A. Establish fire watch for cutting, welding, and other hazardous operations capable of starting fires. Maintain fire watch before, during, and after hazardous operations until threat of fire does not exist.

1.19 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas.
- B. Tree and Plant Protection: Preserve and protect existing trees and plants designated to remain.
 1. Replace trees and plants damaged by construction operations.
- C. Protect non-owned vehicular traffic, stored materials, Site, and structures from damage.

1.20 ENCLOSURES AND FENCING

- A. Construction: Orange Plastic construction netting around walkways and excavated areas.

1.21 SECURITY

- A. Security Program:
 1. Protect Work on Housing Site from theft, vandalism, and unauthorized entry.
- B. Entry Control:
 1. Coordinate access of Owner's personnel and deliveries to the Site.
- C. Personnel Identification: **Not Used**

D. Security Service: **At the Discretion of the Contractor**

E. Restrictions:

1. Do not allow cameras on Site or photographs taken except by written approval of Owner.
2. Do no work on Sundays or Holidays.

1.22 WATER CONTROL

- A. Grade Site to drain. Maintain excavations free of water. Provide, operate, and maintain necessary pumping equipment.
- B. Protect Site from puddles or running water.

1.23 DUST CONTROL

- A. Execute Work by methods that minimize raising dust from construction operations.
- B. Provide positive means to prevent airborne dust from dispersing into atmosphere and into Owner-occupied areas.

1.24 EROSION AND SEDIMENT CONTROL

- A. Plan and execute construction by methods to control surface drainage from cuts and fills from borrow and waste disposal areas. Prevent erosion and sedimentation.
- B. Minimize surface area of bare soil exposed at one time.
- C. Provide temporary measures including berms, dikes, drains, and other devices to prevent water flow.
- D. Construct fill and waste areas by selective placement to avoid erosive surface silts and clays.
- E. Periodically inspect earthwork to detect evidence of erosion and sedimentation. Promptly apply corrective measures.

1.25 NOISE CONTROL

- A. Provide methods, means, and facilities to minimize noise produced by construction operations.

1.26 PEST AND RODENT CONTROL **Not Used**

1.27 POLLUTION CONTROL

- A. Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances and pollutants produced by construction operations.
- B. Comply with pollution and environmental control requirements,

1.28 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, and materials before inspection.
- B. Clean and repair damage caused by installation or use of temporary Work.
- C. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 - PRODUCTS - **Not Used**

PART 3 - EXECUTION - **Not Used**

END OF SECTION 6

SECTION - 7 PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Products.
- B. Product delivery requirements.
- C. Product storage and handling requirements.
- D. Product options.
- E. Equipment electrical characteristics and components.

1.2 PRODUCTS

- A. At minimum, comply with specified requirements and reference standards.
- B. Specified products define standard of quality, type, function, dimension, appearance, and performance required.
- C. Furnish products of qualified manufacturers that are suitable for intended use. Furnish products of each type by single manufacturer unless specified otherwise. Confirm that manufacturer's production capacity can provide sufficient product, on time, to meet Project requirements.
- D. Do not use materials and equipment removed from existing premises except as specifically permitted by Contract Documents.
- E. Furnish interchangeable components from same manufacturer for components being replaced.

1.3 PRODUCT DELIVERY REQUIREMENTS

- A. Comply with delivery requirements in Section 9 - Construction Waste Management and Disposal.
- B. Transport and handle products according to manufacturer's instructions.
- C. Promptly inspect shipments to ensure products comply with requirements, quantities are *correct, and products are undamaged.*

- D. Provide equipment and personnel to handle products; use methods to prevent soiling, disfigurement, or damage.

1.4 PRODUCT STORAGE AND HANDLING REQUIREMENTS

- A. Store and protect products according to manufacturer's instructions.
- B. Store products with seals and labels intact and legible.
- C. Store sensitive products in weathertight, climate-controlled enclosures in an environment suitable to product.
- D. For exterior storage of fabricated products, place products on sloped supports aboveground.
- E. Provide appropriate off-Site storage and protection when Site does not permit on-Site storage or protection.
- F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- G. Store loose granular materials on solid flat surfaces in well-drained area. Prevent mixing with foreign matter.
- H. Provide equipment and personnel to store products; use methods to prevent soiling, disfigurement, or damage.
- I. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.5 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Products complying with specified reference standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of one of manufacturers named and complying with Specifications; no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions: Submit Request for Substitution for any manufacturer not named, to be approved by Engineer as an "or Equal" product.

PART 2 - PRODUCTS

2.1 EQUIPMENT ELECTRICAL CHARACTERISTICS AND COMPONENTS

- A. Wiring Terminations: Furnish terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Include lugs for terminal box.
- B. Cord and Plug: Furnish minimum 6-foot long cord and plug including grounding connector for connection to electric wiring system. Cord of longer length may be specified in individual Specification Sections.

PART 3 - EXECUTION - **Not Used**

END OF SECTION 7

SECTION - 8
EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Field engineering.
- B. Closeout procedures.
- C. Starting of systems.
- D. Demonstration and instructions.
- E. Testing, adjusting, and balancing.
- F. Project record documents.
- G. Operation and maintenance data.
- H. Manual for materials and finishes.
- I. Manual for equipment and systems.
- J. Spare parts and maintenance products.
- K. Product warranties and product bonds.
- L. Maintenance service.
- M. Examination.
- N. Preparation.
- O. Execution.
- P. Cutting and patching.
- Q. Protecting installed construction.
- R. Final cleaning.

1.2 **FIELD ENGINEERING Survey Data will not be required for this Project**

1.3 **CLOSEOUT PROCEDURES**

A. Prerequisites to Substantial Completion: Complete following items before requesting Certification of Substantial Completion, either for entire Work or for portions of Work:

1. Submit maintenance manuals, Project record documents, digital images of construction photographs and other similar final record data in compliance with this Section.
2. Complete facility startup, testing, adjusting, balancing of systems and equipment, demonstrations, and instructions to Owner's operating and maintenance personnel as specified in compliance with this Section.
3. Conduct inspection to establish basis for request that Work is substantially complete. Create comprehensive list (initial punch list) indicating items to be completed or corrected, value of incomplete or nonconforming Work, reason for being incomplete, and date of anticipated completion for each item. Include copy of list with request for Certificate of Substantial Completion.
4. Obtain and submit releases enabling Owner's full, unrestricted use of Project and access to services and utilities. Include certificate of occupancy, operating certificates, and similar releases from authorities having jurisdiction and utility companies.
5. Discontinue or change over and remove temporary facilities and services from Project Site, along with construction tools, mockups, and similar elements.
6. Perform final cleaning according to this Section.

B. Substantial Completion Inspection:

1. When Contractor considers Work to be substantially complete, submit to Architect/Engineer/Owner:
 - a. Written certificate that Work, or designated portion, is substantially complete.
 - b. List of items to be completed or corrected (initial punch list).
2. Within seven days after receipt of request for Substantial Completion, Architect/Engineer/Owner will make inspection to determine whether Work or designated portion is substantially complete.
3. Should Architect/Engineer/Owner determine that Work is not substantially complete:
 - a. Architect/Engineer/Owner will promptly notify Contractor in writing, stating reasons for its opinion.
 - b. Contractor shall remedy deficiencies in Work and send second written request for Substantial Completion to Architect/Engineer/Owner.
 - c. Architect/Engineer/Owner will reinspect Work.

- d. Redo and Inspection of Deficient Work: Repeated until Work passes Architect/Engineer's/Owner's inspection.
 - 4. When Architect/Engineer/Owner finds that Work is substantially complete, Architect/Engineer/Owner will:
 - a. Prepare Certificate of Substantial Completion on EJCDC C-625 - Certificate of Substantial Completion, accompanied by Contractor's list of items to be completed or corrected as verified and amended by Architect/Engineer and Owner (final punch list).
 - b. Submit Certificate to Owner and Contractor for their written acceptance of responsibilities assigned to them in Certificate.
 - 5. After Work is substantially complete, Contractor shall:
 - a. Allow Owner occupancy of Project under provisions stated in Certificate of Substantial Completion.
 - b. Complete Work listed for completion or correction within time period stipulated.
- C. Prerequisites for Final Completion: Complete following items before requesting final acceptance and final payment.
 - 1. When Contractor considers Work to be complete, submit written certification that:
 - a. Contract Documents have been reviewed.
 - b. Work has been examined for compliance with Contract Documents.
 - c. Work has been completed according to Contract Documents.
 - d. Work is completed and ready for final inspection.
 - 2. Submittals: Submit following:
 - a. Final punch list indicating all items have been completed or corrected.
 - b. Final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
 - c. Specified warranties, workmanship/maintenance bonds, maintenance agreements, and other similar documents.
 - d. Accounting statement for final changes to Contract Sum.
 - e. Contractor's Affidavit of payment of debts and claims on AIA G706 - Contractor's Affidavit of Payment of Debts and Claims.
 - f. Contractor Affidavit of release of liens on AIA G706A - Contractor's Affidavit of Release of Liens.
 - g. Consent of surety to final payment on AIA G707 - Consent of Surety to Final Payment Form.
 - 3. Perform final cleaning for Contractor-soiled areas according to this Section.

D. Final Completion Inspection:

1. Within seven days after receipt of request for final inspection, Architect/Engineer/Owner will make inspection to determine whether Work or designated portion is complete.
2. Should Architect/Engineer/Owner consider Work to be incomplete or defective:
 - a. Architect/Engineer/Owner will promptly notify Contractor in writing, listing incomplete or defective Work.
 - b. Contractor shall remedy stated deficiencies and send second written request to Architect/Engineer/Owner that Work is complete.
 - c. Architect/Engineer/Owner will reinspect Work.
 - d. Redo and Inspection of Deficient Work: Repeated until Work passes Architect/Engineer/Owner inspection.

1.4 STARTING OF SYSTEMS **Not Used**

1.5 DEMONSTRATION AND INSTRUCTIONS **Not Used**

1.6 TESTING, ADJUSTING, AND BALANCING **Not Used**

1.7 PROJECT RECORD DOCUMENTS

- A. Maintain on Site one set of the following record documents; record actual revisions to the Work:
 1. Drawings.
 2. Specifications.
 3. Addenda.
 4. Change Orders and other modifications to the Contract.
 5. Reviewed Shop Drawings, product data, and Samples.
 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress, not less than weekly.
- E. Specifications: Legibly mark and record, at each product Section, description of actual products installed, including the following:
 1. Manufacturer's name and product model and number.
 2. Product substitutions or alternates used.
 3. Changes made by Addenda and modifications.

- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction as follows:
1. Include Contract modifications such as Addenda, supplementary instructions, change directives, field orders, minor changes in the Work, and change orders.
 2. Include locations of concealed elements of the Work.
 3. Identify depth of buried utility lines and provide dimensions showing distances from permanent facility components that are parallel to utilities.
 4. Dimension ends, corners, and junctions of buried utilities to permanent facility components using triangulation.
 5. Identify and locate existing buried or concealed items encountered during Project.
 6. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 7. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 8. Field changes of dimension and detail.
 9. Details not on original Drawings.
- G. Submit marked-up paper copy documents to Architect/Engineer with claim for final Application for Payment.
- H. Submit PDF electronic files of marked-up documents to Architect/Engineer with claim for final Application for Payment.

1.8 OPERATION AND MAINTENANCE DATA

1. Part 3: Project documents and certificates, including the following:
 - a. Shop Drawings and product data.
 - b. Air and water balance reports.
 - c. Certificates.
 - d. Original copies of warranties.

1.9 MANUAL FOR MATERIALS AND FINISHES **Not Used**

1.10 MANUAL FOR EQUIPMENT AND SYSTEMS **Not Used**

1.11 SPARE PARTS AND MAINTENANCE PRODUCTS **Not Used**

1.12 PRODUCT WARRANTIES AND PRODUCT BONDS

- A. Obtain warranties and bonds executed by responsible Subcontractors, suppliers, and manufacturers within ten days after completion of applicable item of Work.

- B. Execute and assemble transferable warranty documents and bonds from Subcontractors, suppliers, and manufacturers.
- C. Verify documents are in proper form, contain full information, and are notarized.
- D. Co-execute submittals when required.
- E. Include table of contents and assemble in three ring binder with durable cover.
- F. Submit prior to final Application for Payment.
- G. Time of Submittals:
 - 1. Make other submittals within ten days after date of Substantial Completion, prior to final Application for Payment.

1.13 MAINTENANCE SERVICE

- A. Furnish service and maintenance of components indicated in Specification Sections for period of time as agreed upon with the Owner from date of Substantial Completion.
- B. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by manufacturer of original component.
- C. Do not assign or transfer maintenance service to agent or Subcontractor without prior written consent of Owner.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that existing Site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- B. Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.
- C. Examine and verify specific conditions described in individual Specification Sections.
- D. Verify that utility services are available with correct characteristics and in correct locations.

3.2 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance according to manufacturer's instructions.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer-required or -recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

3.3 EXECUTION

- A. Comply with manufacturer's installation instructions, performing each step in sequence. Maintain one set of manufacturer's installation instructions at Project Site during installation and until completion of construction.
- B. When manufacturer's installation instructions conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- C. Verify that field measurements are as indicated on approved Shop Drawings or as instructed by manufacturer.
- D. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.
 - 1. Secure Work true to line and level and within specified tolerances, or if not specified, industry-recognized tolerances.
 - 2. Physically separate products in place, provide electrical insulation, or provide protective coatings to prevent galvanic action or corrosion between dissimilar metals.
 - 3. Exposed Joints: Provide uniform joint width and arrange to obtain best visual effect. Refer questionable visual-effect choices to Architect/Engineer for final decision.
- E. Allow for expansion of materials and building movement.
- F. Climatic Conditions and Project Status: Install each unit of Work under conditions to ensure best possible results in coordination with entire Project.
 - 1. Isolate each unit of Work from incompatible Work as necessary to prevent deterioration.
 - 2. Coordinate enclosure of Work with required inspections and tests to minimize necessity of uncovering Work for those purposes.
- G. Mounting Heights: Where not indicated, mount individual units of Work at industry recognized standard mounting heights for particular application indicated.

1. Refer questionable mounting heights choices to Architect/Engineer for final decision.
 2. Elements Identified as Accessible to Handicapped: Comply with applicable codes and regulations.
- H. Adjust operating products and equipment to ensure smooth and unhindered operation.
- I. Clean and perform maintenance on installed Work as frequently as necessary through remainder of construction period. Lubricate operable components as recommended by manufacturer.

3.4 CUTTING AND PATCHING

- A. Employ skilled and experienced installers to perform cutting and patching.
- B. Submit written request in advance of cutting or altering elements affecting:
1. Structural integrity of element.
 2. Integrity of weather-exposed or moisture-resistant elements.
 3. Efficiency, maintenance, or safety of element.
 4. Visual qualities of sight-exposed elements.
 5. Work of Owner or separate contractor.
- C. Execute cutting, fitting, and patching including excavation and fill to complete Work and to:
1. Fit the several parts together, to integrate with other Work.
 2. Uncover Work to install or correct ill-timed Work.
 3. Remove and replace defective and nonconforming Work.
 4. Remove samples of installed Work for testing.
 5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.
- D. Execute Work by methods to avoid damage to other Work and to provide proper surfaces to receive patching and finishing.
- E. Cut masonry and concrete materials using masonry saw or core drill.
- F. Restore Work with new products according to requirements of Contract Documents.
- G. Fit Work tight to pipes, sleeves, ducts, conduits, and other penetrations through surfaces.
- H. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for assembly, refinish entire unit.

- I. Identify hazardous substances or conditions exposed during the Work to Architect/Engineer for decision or remedy.

3.5 PROTECTING INSTALLED CONSTRUCTION

- A. Protect installed Work and provide special protection where specified in individual Specification Sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate Work area to prevent damage.
- C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- D. Use durable sheet materials to protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects.
- E. Prohibit traffic or storage upon waterproofed or roofed surfaces. When traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- F. Prohibit traffic from landscaped areas.

3.6 FINAL CLEANING

- A. Execute final cleaning prior to final Project assessment.
 - 1. Employ experienced personnel or professional cleaning firm.
- B. Clean debris from roofs, gutters, downspouts, and drainage systems.
- C. Clean Site; sweep paved areas, rake clean landscaped surfaces.
- D. Remove waste and surplus materials, rubbish, and construction facilities from Site.

END OF SECTION 8

SECTION - 9
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Construction waste management plan.
2. Construction waste recycling.
3. Construction waste adaptive reuse.

1.2 PLAN REQUIREMENTS

A. Develop and implement construction waste management plan.

B. Intent:

1. Divert construction, demolition, and land-clearing debris from landfill disposal.
2. Redirect recyclable material back to manufacturing process.
3. Generate cost savings or increase minimal additional cost to Project for waste disposal.

1.3 SUBMITTALS

A. Section 4 - Submittal Procedures contains requirements for submittals.

B. Construction Waste Management Plan: Submit construction waste management plan describing methods and procedures for implementation and monitoring compliance including the following:

1. Transportation company hauling construction waste to waste processing facilities.
2. Recycling and adaptive reuse processing facilities and waste type each facility will accept.
3. Construction waste materials anticipated for recycling and adaptive reuse.
4. On-Site sorting and Site storage methods.

C. Submit documentation substantiating construction waste management plan was maintained and goals achieved.

1. Trash: Quantity by weight deposited in landfills. Include associated fees, transportation costs, container rentals, and taxes for total cost of disposal.
2. Salvaged Material: Quantity by weight with destination for each type of material salvaged for resale, recycling, or adaptive reuse. Include associated fees,

transportation costs, container rentals, taxes for total cost of disposal, and reimbursements due to salvage resale.

3. Total Cost: Indicate total cost or savings for implementation of construction waste management plan.

1.4 CONSTRUCTION WASTE MANAGEMENT PLAN

- A. Construction Waste Landfill Diversion: To be implemented by the Contractor when feasible.
- B. Implement construction waste management plan at start of construction.
- C. Review construction waste management plan at preconstruction meeting and progress meetings specified in Section 2 - Administrative Requirements.
- D. Distribute approved construction waste management plan to Subcontractors and others affected by plan requirements.
- E. Oversee plan implementation, instruct construction personnel for plan compliance, and document plan results.
- F. Purchase products to prevent waste by:
 1. Ensuring correct quantity of each material is delivered to Site.
 2. Choosing products with minimal or no packaging.
 3. Requiring suppliers to use returnable pallets or containers.
 4. Requiring suppliers to take or buy back rejected or unused items.

1.5 CONSTRUCTION WASTE RECYCLING

- A. Use source separation method or comingling method suitable to sorting and processing method of selected recycling center. Dispose nonrecyclable trash separately into landfill.
- B. Source Separation Method: Recyclable materials separated from trash and sorted into separate bins or containers, identified by waste type, prior to transportation to recycling center.
- C. Comingling Method: Recyclable materials separated from trash and placed in unsorted bins or container for sorting at recycling center.
- D. Materials suggested for recycling include:
 1. Packing materials including paper, cardboard, foam plastic, and sheeting.
 2. Recyclable plastics.
 3. Organic plant debris.
 4. Earth materials.

5. Native stone and granular fill.
6. Asphalt and concrete paving.
7. Wood.
8. Glass.
9. Metals.
10. Gypsum products.
11. Acoustical ceiling tile.
12. Carpet.
13. Equipment oil.

1.6 CONSTRUCTION WASTE ADAPTIVE REUSE

- A. If feasible, arrange with processing facility for salvage of construction material and processing for reuse. Do not reuse construction materials on-Site except as allowed by Architect/Engineer/Owner.
- B. Materials include:
 1. Concrete and crushed concrete.
 2. Masonry units.
 3. Lumber suitable for re-sawing or refinishing.
 4. Equipment and appliances.

PART 2 - PRODUCTS - **Not Used**

PART 3 - EXECUTION

3.1 CONSTRUCTION WASTE COLLECTION

- A. Collect construction waste materials in marked bins or containers and arrange for transportation to recycling centers or adaptive salvage and reuse processing facilities.
- B. Maintain recycling and adaptive reuse storage and collection area in orderly arrangement with materials separated to eliminate co-mingling of materials required to be delivered separately to waste processing facility.
- C. Store construction waste materials to prevent environmental pollution, fire hazards, hazards to persons and property, and contamination of stored materials.
- D. Cover construction waste materials subject to disintegration, evaporation, settling, or runoff to prevent polluting air, water, and soil.

3.2 CONSTRUCTION WASTE DISPOSAL

- A. Deliver construction waste to waste processing facilities. Obtain receipt for deliveries.
- B. Dispose of construction waste not capable of being recycled or adaptively reused by delivery to landfill, incinerator, or other legal disposal facility. Obtain receipt for deliveries.

END OF SECTION 9

DIVISION 2 – EXISTING CONDITIONS

SECTION – 2-1 CUTTING AND PATCHING

PART 1. GENERAL

1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements for cutting and patching.
- B. Refer to other Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

PART 2. PRODUCTS

2.1 MATERIALS

- A. Use materials that are identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials whose installed performance will equal or surpass that of existing materials.

PART 3. EXECUTION

3.1 INSPECTION

- A. Before cutting existing surfaces, examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.
- B. Before proceeding, meet at the site with parties involved in cutting and patching, including all trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.
- C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining.

- D. Take all precautions necessary to avoid cutting existing pipe, conduit or ductwork serving the building, but scheduled to be removed or relocated until provisions have been made to by pass them.

3.3 PERFORMANCE

- A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.
- B. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.
- C. Cutting: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible review proposed procedures with the original installer; comply with the original installer's recommendations.
- D. Where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots neatly to size required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
- E. To avoid marring exiting finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
- F. Cut through concrete and masonry using a cutting machine such as carborundum saw or diamond core drill.
- G. Comply with requirements of applicable Sections of Division-2 where cutting and patching requires excavating and backfilling.
- H. Patching: Patch with durable seams that are invisible as possible. Comply with specified tolerances.
- I. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
- J. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
- I. Patching: Patch with durable seams that are invisible as possible. Comply with specified tolerances.

3.4 CLEANING

- A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damage pipe covering to it original condition.

END OF SECTION 2-1

SECTION 2-2 SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Demolition and removal of selected site and protection elements.
 - 2. Identification of demolition as indicated on the Drawings.
- B. Related Sections include the following:
 - 1. Division 01 Section 1 "Summary of Work" for use of premises and Owner-occupancy requirements.
 - 2. Division 01 Section 6 "Temporary Facilities and Controls" for temporary construction and environmental-protection measures for selective demolition operations.
 - 3. Division 01 Section 8 "Execution" for cutting and patching procedures.

1.2 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to Owner ready for reuse.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.3 SUBMITTALS

- A. Qualification Data: For demolition firm.
- B. Schedule of Selective Demolition Activities: Indicate the following:
 - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
 - 2. Interruption of utility services. Indicate how long utility services will be interrupted.

3. Means of protection for items to remain and items in path of waste removal from building.

1.4 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Standards: Comply with ANSI A10.6 and NFPA 241.

1.5 PROJECT CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
 1. Comply with requirements specified in Division 01 Section 1 "Summary of Work."
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: No hazardous materials have been documented in or around the work area.
- E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1.6 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before affected work is to begin.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- E. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.

3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.

3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - 1. Proceed with selective demolition systematically, replacing one panel at a time. Coordinate with adjacent areas of work.
 - 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding,

not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.

3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
4. Maintain adequate ventilation when using cutting torches.
5. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
6. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
7. Dispose of demolished items and materials promptly.

B. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

C. Removed and Reinstalled Items:

1. Pack or crate items after cleaning and repairing. Identify contents of containers.
2. Protect items from damage during transport and storage.
3. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition & cleaned and be reinstalled in their indicated locations after selective demolition operations are complete.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Concrete: Demolish in small sections. Cut concrete to a depth of at least 3/4 inch at junctures with construction to remain, using power-driven saw. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete indicated for selective demolition. Neatly trim openings to dimensions indicated.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

3.8 SELECTIVE DEMOLITION SCHEDULE

A. As indicated on the Drawings or as necessary.

END OF SECTION 2-2

DIVISION 3 - CONCRETE

SECTION – 3-1
MAINTENANCE OF CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Epoxy adhesive injection materials.
2. Epoxy mortar materials and mixing.
3. Cementitious mortar materials and mixing.
4. Reinforcement materials.

B. Related Requirements:

1. Section 3-2 - Cast-in-Place Concrete: Cast-in-place or in-situ concrete for structural building frames, slabs on grade, and other concrete components.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Price and Payment Procedures: Contract Sum/Price modification procedures.

B. Surface Repair:

1. Basis of Measurement: Refer to units as depicted on the Bid Schedule.
2. Basis of Payment: Includes surface preparation, reinforcement concrete repair, and finishing.

C. Crack Repair:

1. Basis of Measurement: Refer to units as depicted on the Bid Schedule.
2. Basis of Payment: Includes surface preparation, injection ports, repair materials, and surface finishing.

1.3 REFERENCE STANDARDS

A. ASTM International:

1. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
2. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
3. ASTM C33/C33M - Standard Specification for Concrete Aggregates.
4. ASTM C150/C150M - Standard Specification for Portland Cement.

5. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete.
6. ASTM C293/C293M - Standard Test Method for Flexural Strength of Concrete (Using Simple Beam With Center-Point Loading).
7. ASTM C404 - Standard Specification for Aggregates for Masonry Grout.
8. ASTM C882/C882M - Standard Test Method for Bond Strength of Epoxy-Resin Systems Used With Concrete By Slant Shear.
9. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh To Hardened Concrete.
10. ASTM D638 - Standard Test Method for Tensile Properties of Plastics.
11. ASTM D695 - Standard Test Method for Compressive Properties of Rigid Plastics.

1.4 SUBMITTALS

- A. Section 4 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit product standards, physical and chemical characteristics, technical specifications, limitations, maintenance instructions, and general recommendations regarding each material.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- D. Delegated Design Submittals: Submit signed and sealed Shop Drawings with design calculations and assumptions for design reinforcement splices.
- E. Manufacturer Instructions: Submit mixing instructions.
- F. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
- G. Qualifications Statements:
 1. Submit qualifications for manufacturer, applicator, and licensed professional.
 2. Submit manufacturer's approval of applicator.

1.5 SUSTAINABLE DESIGN SUBMITTALS (Not Used)

1.6 CLOSEOUT SUBMITTALS

- A. Section 8 - Execution and Closeout Requirements: Requirements for submittals.

1.7 QUALITY ASSURANCE

- A. Perform Work according with typical construction standards.

- B. Maintain a copy of each standard affecting Work of this Section on Site.

1.8 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum 10 years' of experience.
- B. Applicator: Company specializing in performing Work of this Section with minimum 5 years' of experience.

1.9 MOCKUPS (Not Used)

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Section 7 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Store materials according to manufacturer instructions.
- D. Protection:
 - 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
 - 2. Provide additional protection according to manufacturer instructions.

1.11 EXISTING CONDITIONS

- A. Field Measurements:
 - 1. Verify field measurements prior to fabrication.
 - 2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 EPOXY ADHESIVE (Not Used)

2.2 EPOXY MORTAR

- A. Manufacturers:
 - 1. Furnish materials according to industry standards.

B. Description:

1. Type: Three-part binding resin and aggregate mortar mixture.

C. Binding Resin:

1. Two-part epoxy resin.
2. Solids Content: 100 percent.
3. Minimum Characteristics:
 - a. Bond Strength:
 - 1) 2,700 psi.
 - 2) Comply with ASTM C882.
 - b. Tensile Strength:
 - 1) 6,600 psi.
 - 2) Comply with ASTM D638.
 - c. Elongation:
 - 1) 2 percent at seven days at 70 deg. F
 - 2) Comply with ASTM D638.
 - d. Flexural Strength:
 - 1) 8,000 psi.
 - 2) Comply with ASTM D790.
 - e. Compressive Strength:
 - 1) 6,500 psi.
 - 2) Comply with ASTM D695.

D. Aggregate Type: As recommended by mortar manufacturer.

2.3 CEMENTITIOUS MORTAR

A. Description: Packaged portland-cement patching mortar.

B. Minimum Characteristics:

1. Compressive Strength:
 - a. 2,000 psi after one day and 5,000 psi after 28 days.
 - b. Comply with ASTM C109/C109M.

2. Bond Strength:
 - a. 2,500 psi after 28 days.
 - b. Comply with ASTM C882/C882M
3. Flexural Strength:
 - a. 1500 psi after 28 days.
 - b. Comply with ASTM C293/C293M.

C. Sand:

1. Description: Uniformly graded and clean.
2. Comply with ASTM C33/C33M.

D. Water: Clean and potable.

E. Air Entrainment Admixture: Comply with ASTM C260/C260M.

F. Calcium Chloride: Not permitted.

G. Bonding Agent:

1. Description:
 - a. Dispersed in water while mixing and non-coagulant in mix.
 - b. Water resistant when cured.
2. Emulsion: Polyvinyl acetate.

H. Cleaning Agent:

1. Commercial muriatic acid.

2.4 REINFORCEMENT MATERIALS

A. Reinforcing Steel:

1. Description: Axle-steel deformed bars.
2. Yield Grade: 60 ksi.
3. Comply with ASTM A996/A996M.
4. Finish: Unfinished.

B. Stirrup Steel: Comply with ASTM A1064/A1064M.

2.5 SUSTAINABILITY CHARACTERISTICS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 8 - Execution and Closeout Requirements: Requirements for application examination.
- B. Verify that surfaces are ready to receive Work.

3.2 PREPARATION

- A. Section 8 - Execution and Closeout Requirements: Requirements for application preparation.
- B. Cleaning:
 - 1. Clean concrete surfaces of dirt, laitance, corrosion, and other contamination.
 - 2. Scrub with wire brush using water.
 - 3. Rinse surface and allow to dry.
 - 4. Flush out cracks and voids with chemical solvent to remove laitance and dirt.
 - 5. Chemically neutralize by rinsing with water.
- C. Ports:
 - 1. Provide temporary entry ports spaced to facilitate movement of fluids between ports.
 - 2. Size: Not deeper than depth of crack to be filled, or diameter not greater than thickness of crack.
- D. Provide temporary seal at concrete surface to prevent leakage of adhesive.
- E. Remove broken and soft concrete ¼ inch deep and remove corrosion from steel.
- F. Clean surfaces mechanically, wash with acid, and rinse with water.
- G. Reinforcement:
 - 1. Sandblast exposed reinforcement steel surfaces.
 - 2. Mechanically cut away damaged portions of bar.

3.3 MIXES

- A. Epoxy Mortar:

1. Mix to consistency for intended purpose.
2. Mix components in clean equipment or containers.
3. Comply with pot life and workability limits.

B. Cementitious Mortar:

1. Mix to consistency required for intended purpose.
2. Include bonding agent as additive to mix.

3.4 APPLICATION

A. Repairs:

1. Reinforcement: Weld new bar reinforcement to existing reinforcement with sleeve splices.
2. Strength of Welded Splices and Reinforcement: Exceed original stress values.
3. Exposed Structural, Shrinkage, and Settlement Cracks in Concrete: As indicated on Drawings by epoxy injection, epoxy application bonding agent and cementitious paste method.
4. Fill voids flush with surface.
5. Apply surface finish.

B. Epoxy Resin Injection:

1. Inject epoxy-resin adhesive into prepared ports under pressure, using equipment appropriate for particular application.
2. Begin injection at lower entry port and continue until adhesive appears in adjacent entry port, continuing from port to port until entire crack is filled.
3. Remove temporary seal and excess adhesive.
4. Clean surfaces adjacent to repair and blend finish.

C. Epoxy Mortar:

1. Trowel-apply mortar mix to average thickness of existing surface and tamp into place, filling voids at spalled areas.
2. Patching of Honeycombed Areas:
 - a. Trowel mortar onto surface, and work mortar into honeycomb to bring surface flush with surrounding area.
 - b. Finish trowel surface to match surrounding area.
3. Cover exposed steel reinforcement with epoxy mortar and feather edges to flush surface.

D. Cementitious Mortar:

1. Bonding Agent:

- a. Apply sprayed coating to dry concrete surfaces.
 - b. Provide full surface coverage.
- 2. Steel trowel to average thickness of existing surface and tamp into place, filling voids at spalled areas.
- 3. Work mix into honeycombed areas.
- E. Damp cure cementitious mortar for four days.

3.5 FIELD QUALITY CONTROL

- A. Section 5 - Quality Requirements: Requirements for inspecting and testing.

3.6 ATTACHMENTS

END OF SECTION 3-1

SECTION 3-2
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents:
 - 1. Drawings and general provisions of the Subcontract apply to this Section.
 - 2. Review these documents for coordination with additional requirements and information that apply to work under this Section.
- B. Section Includes:
 - 1. Cast-in-place concrete.
- C. Related Sections:
 - 1. Section 1- Summary

1.2 REFERENCES

- A. General:
 - 1. The following documents form part of the Specifications to the extent stated. Where differences exist between codes and standards, the one affording the greatest protection shall apply.
 - 2. Unless otherwise noted, the referenced standard edition is the current one at the time of commencement of the Work.
- B. American Concrete Institute (ACI):
 - 1. ACI 211.1 Proportioning Concrete Mixtures
 - 2. ACI 301 Specifications for Structural Concrete
 - 3. ACI 303.1 Specification for Cast-in-Place Architectural Concrete
 - 4. ACI 305 Hot Weather Concreting
 - 5. ACI 306 Specifications for Cold Weather Concreting
 - 6. ACI 308 Specifications for Curing Concrete
 - 7. ACI 309 Consolidation of Concrete
 - 8. ACI 318 Building Code Requirements for Structural Concrete
- C. American Society for Testing and Material (ASTM)
 - 1. ASTM C31 Practice for Making and Curing Concrete Test Specimens in the Field
 - 2. ASTM C33 Specification for Concrete Aggregates
 - 3. ASTM C94 Specification for Ready Mix Concrete
 - 4. ASTM C143 Test Method for Slump of Hydraulic Concrete
 - 5. ASTM C150 Specification for Portland Cement

6. ASTM C156 Standard Test Method for Water Retention by Liquid Membrane Forming Curing Compounds for Concrete
 7. ASTM C171 Specification for Sheet Materials for Curing Concrete
 8. ASTM C172 Practice for Sampling Freshly Mixed Concrete
 9. ASTM C260 Specifications for Air Entraining Admixtures for Concrete
 10. ASTM C309 Specification for Liquid Membrane - Forming Compounds for Curing Concrete
 11. ASTM C330 Specification for Lightweight Aggregates for Structural Concrete
 12. ASTM C494 Specification for Chemical Admixtures for Concrete
 13. ASTM C567 Test Method for Determining Density of Structural Lightweight Concrete
 14. ASTM C618 Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
 15. ASTM C881 Specification for Epoxy - Resin - Base Bonding Systems for Concrete
 16. ASTM E1745 Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs
- D. American Association of State Highway and Transportation Officials (AASHTO):
1. M182-60 - Burlap Cloth Made for Jute or Kelat
- E. American Institute of Steel Construction (AISC):
1. Code of Standard Practice for Steel Buildings and Bridges

1.3 SUBMITTALS

- A. Submit under provisions of Division 01 Section 4 "Submittal Procedures."
- B. Product Data: Provide data from proprietary materials, including admixtures curing materials, and finish materials.
- C. Submit Placement Shop Drawings, showing location of construction joints. Clearly indicate the construction joints in different locations than those shown in the Drawings.
- D. Samples: As requested by Testing Laboratory.
- E. Mix design for each concrete mix sealed by an engineer registered in Pennsylvania.
1. Include compression test data used to establish mix proportions.
- F. Submit certification that the facilities of the ready-mix plant comply with the requirements of ASTM C94.
- G. Material Certificates.
1. Cementitious materials, including supplemental cementitious material.
 2. Aggregates, including gradation and combined gradation.

3. Admixtures. Where more than one admixture is proposed, include statement from admixture manufacturer indicating that admixtures proposed for use are compatible, such that desirable effects of each admixture will be realized.
- H. Submit ticket to Testing Laboratory for each batch of concrete delivered, bearing the following information. Refer to "Field Quality Control" Article of this Section.
 1. Mix identification.
 2. Weights of cementitious materials, aggregates, water and admixtures, and aggregate size.

1.4 QUALITY ASSURANCE

- A. Quality assurance and inspection shall be in accordance with Division 01 Section 5 "Quality Requirements."
- B. Standards: Comply with provisions of ACI 301, except where more stringent requirements are indicated. Evaluation and acceptance of concrete structures will be in accordance with ACI 301.
- C. Concrete Mix Design: Testing Laboratory shall, under direction of its Pennsylvania registered Civil Engineer, design concrete mixes. Each mix shall bear the signature, seal and registration expiration date of the engineer directing the design work. For mixes containing greater than twenty five percent fly ash, the Testing Laboratory shall produce calculations and test batches in accordance with the recommendations of ACI 211.1 to determine the minimum water content and to confirm workability, curing time and compressive strength.
- D. Certificates of Compliance: Acceptability of the following materials will be based upon documentation furnished by the manufacturer identifying each batch of material and certifying compliance with the requirements specified:
 1. Portland cement.
 2. Fly ash.
 3. Chemical admixtures.
- E. Certified Laboratory Test Reports: Before delivery of materials submit certified copies of the reports of the tests required in referenced standards or otherwise specified here. The testing shall have been performed by an independent laboratory approved by the University within one year of submittal of test reports for approval. Test reports on a previously tested material shall be accompanied by notarized certificates from the manufacturer certifying that the previously tested material is of the same type, quality, manufacture and make as that proposed for use in the Project. Certified test reports are required for the following:
 1. Portland Cement.
 2. Aggregates.
 3. Admixtures.

PART 2 - PRODUCTS

2.1 CONCRETE MATERIALS

- A. Cementitious materials and aggregates for exposed concrete shall be from same source throughout the work.
- B. Cementitious Material: An intimate blend of Portland cement and supplemental cementitious material. Cementitious material shall include [15 percent minimum to a maximum of 25 percent] fly ash or ground blast furnace slag by weight unless the strength is specified to be achieved in 7 or 14 days. Cementitious material shall comply with ACI 318 Chapter 4 requirements for exposure class S1.
- C. Supplemental Cementitious Materials:
 - 1. Fly Ash: ASTM C618, Class F with the following Modified ASTM requirements:
 - a. Loss of Ignition (L.O.I.): maximum 1 percent.
 - b. Sulfur Trioxide (SO₃) shall not exceed 3 percent by weight.
 - c. Water requirement maximum: 100 percent control.
 - 1) $R = (\text{CaO} - 5 \text{ percent}) / (\text{Fe}_2\text{O}_3)$, where R (sulfate resistance) is 0.75 maximum and CaO/Fe₂O₃ is the percentage from fly ash oxide analysis.
 - 2. Ground Blast Furnace Slag: ASTM C989.]
- D. Aggregate for Standard Weight Concrete: ASTM C33, except as modified herein.
 - 1. Coarse Aggregates: Cleanliness Value of not less than 75 when tested as per CMM-Test Method No. California 227.
 - 2. Coarse Aggregate for Shrinkage Controlled Concrete: Lonestar, or Hanson Clayton, or Sechelt, B.C., or equal.
 - 3. Fine Aggregates: Sand Equivalent of not less than 75 when tested per CMM-Test Method No. California 217.
- E. Aggregate for Lightweight Concrete: ASTM C330. Lightweight aggregate shall be vacuum saturated expanded shale or clay produced by rotary kiln.
- F. Water: Mixing water shall be clean, potable, and free from deleterious material.
- G. Admixtures
 - 1. General:
 - a. Admixtures containing more than 0.05 percent chloride ions are not permitted.
 - b. Where mix contains more than one admixture, all admixtures shall be supplied by one manufacturer. Manufacturer shall certify that admixtures are compatible such that desirable effects of each admixture will be realized.
 - c. Liquid admixtures shall be considered part of the total water.

- H. Lightweight Concrete shall contain an air entrainment admixture conforming to ASTM C260, to produce an air content of 3 to 5 percent at point of placement.
- I. Water Reducing Admixture: ASTM C494, Type A. Provide in all concrete at necessary dosage to facilitate placement.
- J. Mid to High Range Water Reducing Admixture: ASTM C494, Type F; polycarboxylate formulation. Provide in mid-range or high-range dosage as necessary for placement at the maximum water to cement ratio specified.
- K. Set Accelerating Admixture: ASTM C494, Type E, non-chloride. Subject to approval of Architect, provide in necessary dosage to accelerate set.
- L. Set Retarding Admixture: ASTM C494, Type D. Subject to approval of Architect, provide in necessary dosage to retard set.

2.2 ACCESSORIES

- A. Curing Compounds: ASTM C309, [Type I, clear or translucent without dye,] [Type 1-D, clear or translucent with fugitive dye] or Type 2, white pigmented] and which will not discolor concrete or affect bonding of other finishes applied thereover, and which restricts loss of water to not more than 0.500 grams per square centimeter of surface when tested per ASTM C156, "Test Method for Water Retention by Concrete Curing Materials."
- B. Slab Curing Membrane: Membrane conforming to ASTM C171, non-staining.
- C. Burlap Sheet: AASHTO M182, class 3 or 4.
- D. Surface Hardener: Lapidolith, Hornolith, Kemi-Kal Liquid or equal.
- E. Rock Base: Clean, hard and durable gravel or crushed rock conforming to the requirements of PENDOT Standard Specifications for Class 1, Type A permeable material.
- F. Vapor Barrier: ASTM D2103, "Polyethylene Film and Sheeting."
- G. Sand Cover: Uniformly graded, clean sand free from excessive fines, organic materials or other deleterious substances.
- H. Form Tie Cone Hole Plugs: Burke Co., Grey, Recessed, Jumbo Cone, "Snaplug", or equal (no known equal) with waterproof adhesive.
- I. Filter drains such as behind concrete walls: Type A drain rock conforming to Division 31 Section "Backfilling" or prefabricated drain manufactured with polyethylene stranded or molded core and a geotextile fabric bonded to one side. Filter drains shall be manufactured by Mirafi, Exxon, or equal approved by the Architect-Engineer.
- J. Embedded Reglets and Dovetail Anchor Slots: 18 gauge galvanized steel.

- K. Bonding Agent: Burke Acrylic Bondcrete, Thorobond, or equal.

2.3 CONCRETE MIXES

- A. Schedule of Concrete Classes:

Mix ID/Use	Aggregate Size	Slump	Min. Strength	Other Req'ts
Mix A Drilled Piers, Foundations	Size 57 (1 inch) (25 mm)	4 to 6 inches (100 to 150 mm)	4000 psi (27.6 MPa)	
Mix B Walls, Columns, Suspended Slabs & Beams	Size 57 (1 inch) (25 mm)	4 to 6 inches (100 to 150 mm)	4000 psi (27.6 MPa)	Req't E.1, Req't E.2
Mix C Floor Slabs on Grade, Miscellaneous Concrete	Size 57 (1 inch) (25 mm)	3 to 5 inches (75 to 125 mm)	4000 psi (27.6 MPa)	Req't E.1, Req't E.2
Mix D Lightweight Concrete Fill on Metal Decking	1/2 inch (13 mm) by #4 lightweight	3 to 5 inches (75 to 125 mm)	4000 psi (27.6 MPa)	Req'ts E.2 and E.3
Mix E Miscellaneous concrete for curbs, pads, etc.	Size 57 (1 inch) (25 mm)	3 to 5 inches (75 to 125 mm)	3500 psi (24.1 MPa)	
Lean Concrete	Size 57 (1 inch) (25 mm)	3 to 5 inches (75 to 125 mm)	1500 psi (10.3 MPa)	

- B. Aggregate: Coarse aggregate size number in accordance with ASTM C33 for normal-weight aggregate. Coarse aggregate size in accordance with ASTM C330 for lightweight aggregates.
- C. Slump: Minimum-maximum slump at point of placement in inches when tested in accordance with ASTM C143.
- D. Strength: Minimum compressive strength in psi after 14 days, tested in accordance with ASTM C39.
- E. Other Requirements (apply only where indicated in Schedule of Concrete Mixes)
- Shrinkage Controlled Concrete: Use special coarse aggregates specified. Select materials and proportion mix to achieve shrinkage less than 0.040 percent (ASTM C157 modified).

2. Water to Cementitious Material Ratio: Mixes "B", "C" and "D" shall have a water-to-cementitious-material ratio not exceeding 0.45 by weight. Weight of water shall include all free moisture, including liquid admixtures. Mixes shall contain specified high range water reducing admixture at mid-range dosage as required to achieve specified slump.
 3. Lightweight Concrete: Equilibrium weight (at 100 days air dry) of 113 pcf plus or minus 3 pcf, ASTM C567. Mix shall contain 4 percent, plus or minus 1 percent, entrained air by volume at point of placement.
- F. Proposed mixes shall produce concrete to strengths specified with adequate workability and proper consistency to permit concrete to be worked into forms and around reinforcement without excessive segregation or bleeding.
- G. Mix design shall be subject to review by the Owner's Representative and the Testing Laboratory. Submit mixes in a timely manner to allow for review and adjustment, if necessary.
- H. Add air entraining agent to normal weight concrete mix for work exposed to exterior.
- I. Concrete mixes used for liquid nitrogen tank foundations shall comply with ACI 318 Chapter 4 requirements for exposure class F1.
- J. For any concrete mix that uses greater than 45% total cementitious material the maximum water-cement ratio shall not exceed 0.38.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify site conditions.
- B. Verify requirements for concrete cover over reinforcement.
- C. Verify that anchor bolts, embedded plates, reinforcement, sleeves, and other items to be cast into concrete are accurately placed, positioned securely, and will not cause hardship in placing concrete.

3.2 FORMWORK ERECTION

- A. Verify lines, levels, and measurement before proceeding with formwork.
- B. Hand trim sides and bottom of earth forms; remove loose dirt.
- C. Align form joints.

- D. Do not apply form release agent to concrete surfaces which receive special finishes or applied coatings that may be affected by agent.
 - 1. Coordinate work of other sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, and other inserts.

3.3 REINFORCEMENT AND EMBEDDED ITEMS

- A. Place, support, and secure reinforcement and embedded items against displacement.
- B. Installation tolerances for anchor bolts for structural steel columns shall comply with the AISC Code of Standard Practice for Steel Buildings and Bridges requirements for tolerances.

3.4 PLACING CONCRETE

- A. Notify the Owner at least 48 hours prior to commencement of concreting operations. No concrete shall be placed until all subgrade, formwork, reinforcing steel, embedded items, and surfaces against which concrete is to be placed have been accepted by the Architect. The rate of delivery, haul time, missing time, and hopper capacity shall be such that all mixed concrete delivered shall be placed in forms within 90 minutes from the time of the introduction of cement and water into the mixer. No water shall be added after transit mixer leaves the batching plant without the approval of the Owner.
- B. Prepare previously placed concrete by cleaning with steel brush or sandblasting [waterblasting wet sandblasting] and applying bonding agent in accordance with manufacturer's instruction.
- C. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with [non-shrink grout] or [epoxy grout].
- D. Foundation surfaces against which concrete is to be placed must be free from standing water, mud and debris. Surfaces shall be clean and free from oil, objectionable coatings, and loose or unsound material.
- E. All surfaces of forms and embedded items shall be free of grout before placing concrete.
- F. Install joint fillers and waterstops in accordance with manufacturer's instructions. Install 1/2-inch (13 mm) thick joint filler to separate slabs on grade from vertical surfaces. Extend joint filler from bottom of slab to within 1/4-inch (6 mm) of finished slab surface.
- G. Locate construction joints where indicated on the Structural Drawings.
- H. When ambient temperature is expected to exceed 80 degrees F during placing or finishing operations, steps shall be taken in accordance with ACI 305, "Recommended Practices for Hot Weather Concreting", to reduce concrete temperature and water evaporation by proper attention to the ingredients, production methods, handling, placing, protection and

curing. The Subcontractor shall submit a detailed hot weather concreting procedure to the A/E for approval at least two business days before concrete placement is planned. The Subcontractor's testing agency will produce trial batches in accordance with ACI 305. Slabs will be fog sprayed from the completion of screeding until curing is begun; the fog spray may be discontinued on sections during troweling.

3.5 SCHEDULE OF FORMED SURFACES

- A. Smooth surface finish at all locations.

3.6 CURING AND PROTECTION

- A. The requirements of this section may be modified only by the Structural Engineer of Record (SER) for the design. In those cases where the Structural Engineer of record is under subcontract to the Laboratory, approval by a Laboratory Structural Engineer is required prior to modification of the requirements of this section.
- B. Wheeling, working and walking on concrete shall be avoided for at least 24 hours after casting. Protect concrete from sun and rain. Do not permit concrete to become dry during curing period. Concrete shall not be subjected to any loads until concrete is completely cured, and until concrete has attained its 28 day strength and 14 days minimum.
- C. Protect concrete during and after curing from damage during subsequent building construction operations.
- D. Cover traffic areas with plywood or other suitable means for as long as necessary to protect concrete from damage.
- E. Specific curing requirements for slabs shall include the following: Immediately upon completion of finishing operation, the surface of slabs shall be sealed against moisture loss by the application of a curing blanket made of polyethylene bonded to burlap in accordance with the manufacturer's instructions. Alternatively, waterproof curing paper may be used with edges lapped and sealed with tape. The curing membrane shall be weighted down. Tears and rips in curing membrane shall be repaired immediately during curing period. Curing shall be maintained for 21 days.
- F. Specific curing requirements for walls, beams and columns shall include the following: Concrete in forms shall be kept moist until removal. Immediately upon removal of forms, an approved sprayed-on curing compound shall be applied to the concrete surfaces in strict compliance with the manufacturer's recommendations. Curing shall be maintained for 14 days.
- G. For above grade concrete sections over three feet thick in all three orthogonal directions except lean concrete:
 - 1. Ten days before placing concrete, the results of thermal test performed by the Subcontractor will be submitted to the Architect for approval. Thermal tests shall

consist of a three foot test cube of the design mix for the thick section instrumented with thermocouples by the Subcontractor's testing agency and monitored to determine whether the heat of hydration exceeds 150 deg F (66 deg C). If the temperature exceeds 150 deg F (66 deg C) , the mix design will be revised or standard aggregate cooling utilized and a second test cube cast and tested at no additional cost to the Owner.

2. The temperature gradient between the center and the surface of the section must not exceed 20 deg F (6.6 deg C) during the first ten days of the controlled curing period. Thermocouples shall be installed by the Subcontractor's testing agency in the center and six inches from the surface at twenty foot intervals and at the corners. The thermocouples are to be monitored continuously by the Subcontractor's testing agency and, if the temperature gradient exceeds 20 deg (6.6 deg C), insulating blankets shall be placed over the surface. On surfaces with protruding reinforcing, such as the top of a wall, loose insulation will be used.

3.7 FIELD QUALITY CONTROL

- A. Inspection and Testing will be performed under provisions of Division 01.
- B. Testing Laboratory will:
 1. Collect and review tickets for each batch of concrete delivered. Annotate water or admixtures added subsequent to batching.
 2. Slump: ASTM C143; one test at point of placement at start of each day's pour; additional tests when concrete consistency appears to have changed.
 3. Compressive Strength: Test concrete for compressive strength in accordance with ASTM C39. Take 4 specimens per sample, test one at seven days, two at 28 days, and retain one specimen.
 4. Temperature: ASTM C1064; one test hourly. Take additional tests where warranted by weather conditions or delays in delivery.
 5. Air Content: ASTM C173; for mixes with more than 3 percent air, take one test hourly at point of placement.
- C. The Subcontractor will be responsible for all Testing Laboratory costs for investigating low-strength compressive test results.

END OF SECTION 3-2

DIVISION 5 - METALS

SECTION – 5-1
METAL RAILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Materials of preexisting railings, balusters, and fittings.
2. Handrails

B. Related Requirements:

1. Section 3-2 - Cast-In-Place Concrete: Execution requirements for placement of anchors, as specified in this Section, in concrete.
2. Section 5-1 - Metal Stairs: Handrails other than those specified in this Section.

1.2 REFERENCE STANDARDS

A. Aluminum Association:

1. AA ADM 1 - Aluminum Design Manual.
2. AA ASM 35 - Aluminum Sheet Metal Work in Building Construction.

B. American Architectural Manufacturers Association:

1. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum.
2. AAMA 2603 - Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.
3. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
4. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.

C. ASTM International:

1. ASTM A53 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
2. ASTM A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
3. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

4. ASTM A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
5. ASTM A167 - Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
6. ASTM A312 - Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes.
7. ASTM A312M - Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes.
8. ASTM A500 - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
9. ASTM A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
10. ASTM A501 - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
11. ASTM A513 - Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing.
12. ASTM A513M - Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing.
13. ASTM A554 - Standard Specification for Welded Stainless Steel Mechanical Tubing.
14. ASTM A743 - Standard Specification for Castings, Iron Chromium, Iron Chromium Nickel, Corrosion Resistant, for General Application.
15. ASTM A743M - Standard Specification for Castings, Iron-Chromium, Iron-Chromium-Nickel, Corrosion Resistant, for General Application.
16. ASTM B177 - Standard Guide for Engineering Chromium Electroplating.
17. ASTM B177M - Standard Guide for Engineering Chromium Electroplating.
18. ASTM B211 - Standard Specification for Aluminum and Aluminum-Alloy Rolled or Cold Finished Bar, Rod, and Wire.
19. ASTM B211M - Standard Specification for Aluminum and Aluminum-Alloy Rolled or Cold Finished Bar, Rod, and Wire.
20. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
21. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
22. ASTM B241 - Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube.
23. ASTM B241M - Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube.
24. ASTM E985 - Standard Specification for Permanent Metal Railing Systems and Rails for Buildings.

D. Green Seal:

1. GC-03 - Anti-Corrosive Paints.

E. National Association of Architectural Metal Manufacturers:

1. NAAMM Metal Finishes Manual.
- F. National Ornamental & Miscellaneous Metals Association:
 1. NOMMA Guideline 1 - Joint Finishes.
- G. SSPC: The Society for Protective Coatings:
 1. SSPC - Steel Structures Painting Manual.
 2. SSPC Paint 15 - Steel Joist Shop Primer/Metal Building Primer.
 3. SSPC Paint 20 - Zinc-Rich Coating, Type I - Inorganic and Type II - Organic.

1.3 SUBMITTALS

- A. **Contractor shall match proposed handrails with existing in type, color and material.**
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.
- C. Qualifications Statements:
 1. Submit qualifications for fabricator and erector.
 2. Submit manufacturer's approval of fabricator and erector.

1.4 SUSTAINABLE DESIGN SUBMITTALS **Not Used**

1.5 QUALITY ASSURANCE

- A. Perform Work for structural aluminum according to AA ADM 1 and AA ASM 35.
- B. Perform Work of this Section according to ASTM E985.
- C. Finish joints according to NOMMA Guideline 1.
- D. Perform Work according to ADA standards.
- E. Maintain copies of each standard affecting the Work of this Section On-Site.

1.6 QUALIFICATIONS

- A. Fabricator: Company specializing in fabricating products specified in this Section with minimum three years' documented experience and approved by manufacturer.

- B. Erector: Company specializing in performing Work of this Section with minimum three years' documented experience and approved by manufacturer.

1.7 EXISTING CONDITIONS

- A. Field Measurements: Verify field measurements prior to fabrication. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 PERFORMANCE AND DESIGN CRITERIA

- A. Design handrail, guardrail, and attachments to resist forces as required by ASTM E985 code. Apply loads non-simultaneously to produce maximum stresses.
 - 1. Guard Top Rail and Handrail Concentrated Load: 200 lb. applied at any point in any direction.
 - 2. Guard Top Rail Uniform Load: 50 plf applied in any direction.
 - 3. Intermediate Rails, Panels, and Baluster Concentrated Load: 50 lb. applied to 1 sq. ft. area.

2.2 HANDRAILS AND RAILINGS

- A. Manufacturers:
 - 1. Substitutions: Not permitted.
 - 2. **Furnish materials according to existing material conditions.**

2.3 SUSTAINABILITY CHARACTERISTICS Not Used

2.4 MATERIALS

- A. Aluminum Railing System:
 - 1. Rails and Posts: Contractor to Match Existing.
 - 2. Posts: Contractor to Match Existing.
 - 3. Fittings: Contractor to Match Existing.
 - 4. Mounting: Adjustable brackets and flanges, with steel inserts for casting in concrete.
 - 5. Splice Connectors: Concealed spigot; cast machined aluminum.
 - 6. Exposed Fasteners: Flush countersunk screws or bolts; consistent with design of railing.
 - 7. Finish coatings to conform to AAMA 611 and AAMA 2603.
 - 8. Exterior Aluminum Surfaces:

- a. Exterior Hardcoat Two-step anodized to match existing.
 9. Apply 2 coats of bituminous paint to concealed aluminum surfaces in contact with cementitious or dissimilar materials.
- B. Stainless Steel Railings:
1. Materials:
 - a. Tubing: ASTM A554, Grade MT 304 MT 316.
 2. Railing System:
 - a. Rails and Posts: Contractor to Match Existing.
 - b. Posts: Contractor to Match Existing.
 - c. Fittings: Contractor to Match Existing.
 - d. Mounting: Adjustable brackets and flanges, with stainless-steel inserts for casting in concrete with stainless-steel brackets for embedding in masonry.
 - e. Exposed Fasteners: Flush countersunk screws or bolts; consistent with design of railing.
 - f. Splice Connectors: Stainless-steel concealed spigots.
 3. Finish railings to conform to NAAMM Metal Finishes Manual for recommendations relative to application and designations of finishes.
 - a. Remove or blend tool and die marks, and stretch lines into finish.
 - b. Grind and polish surfaces to produce uniform, directional textured polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.
 - c. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.
- C. Steel Railing System:
1. Rails and Posts: Contractor to Match Existing.
 2. Posts: Contractor to Match Existing.
 3. Fittings: Contractor to Match Existing.
 4. Mounting: Adjustable brackets and flanges, with steel inserts for casting in concrete with steel brackets for embedding in masonry.
 5. Exposed Fasteners: Flush countersunk screws or bolts; consistent with design of railing.
 6. Splice Connectors: Steel concealed spigots.
 7. Galvanizing: According to ASTM A123 (A123M); hot-dip galvanized after fabrication.
 8. Touchup Primer for Galvanized Surfaces: Paint 20, Type II - Organic, zinc-rich.
 9. Touchup Primer: Match shop primer.

2.5 FABRICATION

- A. Fit and shop-assemble components in largest practical sizes for delivery to Site.
- B. Fabricate components with joints tightly fitted and secured. Furnish spigots and sleeves to accommodate Site assembly and installation.
- C. Form simple and compound curves by bending pipe in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross section of pipe throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of pipe.
- D. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- E. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.
- F. Exterior Components: Continuously seal joined pieces by continuous welds. Drill condensate drainage holes at bottom of members at locations not encouraging water intrusion.
- G. Interior Components: Continuously seal joined pieces by continuous welds.
- H. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
- I. Accurately form components to suit stairs and landings, to each other and to building structure.
- J. Accommodate expansion and contraction of members and building movement without damage to connections or members.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 8 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify that field conditions are acceptable and are ready to receive Work.
- C. Verify that concealed blocking and reinforcement are installed and correctly located to receive wall-mounted handrails.

3.2 PREPARATION

- A. Section 8 - Execution and Closeout Requirements: Requirements for installation preparation.
- B. Clean and strip primed steel items to bare metal where Site welding is required.
- C. Supply items required to be cast into concrete with setting templates to appropriate Sections.

3.3 INSTALLATION

- A. Install components plumb and level, accurately fitted, free from distortion or defects.
- B. Anchor railings to structure with anchors, plates and angles.
- C. Field-weld anchors as indicated on Shop Drawings. Touch up welds with primer. Grind welds smooth.
- D. Conceal bolts and screws whenever possible. Where not concealed, use flush countersunk fastenings.
- E. Assemble with spigots and sleeves to accommodate tight joints and secure installation.

3.4 TOLERANCES

- A. Section 5 - Quality Requirements: Requirements for tolerances.
- B. Maximum Variation from Plumb: ¼ inch per story, noncumulative.
- C. Maximum Offset from Alignment: ¼ inch.
- D. Maximum Out-of-Position: ¼ inch.

3.5 ATTACHMENTS

- A. Stairs A and B: Flat steel bar railing system, plastic handrail cover, primed finish.
- B. Stair C: Aluminum pipe railings, enameled finish.
- C. Stair D: Stainless steel, NAAMM Metal Finishes Manual, AMP 503, "Finishes for Stainless Steel," No. 4 finish.

END OF SECTION 5-1

DIVISION 13 – SPECIAL CONSTRUCTION

DIVISION 13 – SPECIAL CONSTRUCTION
SECTION – 13-1
CONCRETE SIDEWALK GRINDING

PART 1. GENERAL

Sidewalk joints and cracks with vertical offsets between 3/8 inch and 2 inches shall be ground. The maximum taper of ground areas shall conform to the Americans with Disabilities Act (ADA) requirements and not exceed 8.33% in the direction of travel. The minimum width of grind shall be 6". Grinding work shall include defects running perpendicular to the direction of pedestrian travel; parallel to the direction of travel (primarily at driveways); and those areas at the sidewalk return where the sidewalk is raised above the curb. At locations where the sidewalk is sunken in relation to the top of the curb, between 3/8 inch and 3/4 inch, the top of the curb shall be ground. Where the sidewalk is raised 3/8 inch to 2 inches in relation to the curb return, the sidewalk shall be ground.

1.2 REPAIR LIMITS

The area of grinding work is depicted on the construction plans. The contractor shall review the site conditions prior to submitting their bid.

1.3 FINISH AND APPEARANCE

Offsets shall be ground so as to produce a smooth non-skid surface closely resembling the appearance of the adjacent concrete. The finish shall approximate a transverse broomed surface texture. The ground taper shall have a "squared off" geometric shape with straight borders. Sharp edges left by the grinding operations shall be smoothed. Grinding shall be performed so that the sidewalk surface has essentially the same or slightly rougher texture adjacent to either side of the joint or crack. Ground surfaces shall not be smooth. Grinding shall be performed so that the finish grind has a rectangular appearance consisting of straight back line with no stray grinding marks. The adjacent concrete shall remain untouched by the grinding process without scar or damage.

1.4 DEMONSTRATION

The Contractor shall demonstrate the sidewalk grinding operation and resulting finish and appearance at one location of the project. Should the Engineer of HACP Representative deem the quality of the taper to be unacceptable, the Contractor shall modify his methods and/or equipment and proceed to an additional test sites. This sequence shall be repeated until the acceptable quality is achieved. Approval of the test results shall be obtained prior to the commencement of the full scale grinding operation. Only the methods and equipment that produce acceptable results shall be employed on the project.

1.5 HAND GRINDING

Areas inaccessible to the grinding machine shall be ground with a hand held grinder.

1.6 SCARIFIER MACHINES

Scarifier machines are drum-style flailing surfacers available in different size and weight classes, from portable hand-helds, to walk-behinds, self-propels and ride-ons. Productivity is dependent upon machine weight, horsepower, cutter size and drum width. Finishes can be controlled by the operator's skill, equipment selection and the flail-it cutter drum set-up pattern.

The raised panel "riser" shall be tapered using the following formula to produce an even transition:

Riser	Tapered		Riser	Tapered
1/4"	2"		1-1/4"	10"
1/2"	4"		1-1/2"	12"
3/4"	6"		1-3/4"	14"
1"	8"		2"	16"

1.7 DUST CONTROL AND CLEAN UP

Any remaining concrete powders shall be collected from the sight by broom. A dust collector can be connected to the vacuum port to contain airborne fine concrete powders.

1.8 PAYMENT

Payment for all materials, labor and equipment necessary to grind and finish the concrete, as described herein, shall be made at the unit bid price as noted in the Bid Schedule.

END OF SECTION 13-1

DIVISION 13 – SPECIAL CONSTRUCTION
SECTION – 13-2
CONCRETE SLAB RAISING

PART 1. GENERAL

1.1 SECTION INCLUDES

- A. These specifications cover the furnishing, boring, drilling, pumping cementitious grout slurry and appurtenances for raising existing concrete slabs to their original lines and grade, or filling the void between the bottom of the existing concrete slab and the subgrade.
- B. The work described in each Item includes the furnishing of all materials, equipment, supplies, tools, the performance of all labor and services, and all incidentals necessary to complete the concrete slab raising and / or void filling under the concrete slab in a neat, substantial and workman-like manner.

PART 2. PRODUCTS

2.1 MATERIALS

- A. Cement Slurry Mixture: The slurry mixture used for raising concrete slabs shall be composed of lime, sand, ground clay, Portland Cement (Type 1A conforming to A.S.T.M. C150), and fly ash in the following proportions by volume:

Lime / Fly Ash Mixture passing #50 sieve 100%	27%
Sand passing #4 sieve 100%	15%
Ground clay passing #4 sieve 100%	50%
Portland Cement – 3 ½ bag mix (approx.)	8%

(Should Fly Ash and/or Lime not be readily available, increase the amount of Sand by 27% to mixture.)

This shall be accomplished by use of continuous mixer. All aggregate shall be metered for precise mix design to assure consistent quality control.

- B. All materials for job site shall at all times be mobile and not stored in the road or walk area, unless agreed upon between Contractor and Customer at bid submittal.
- C. Slurry material for Slab and Curb Raising shall be mixed with enough potable water to a workable consistency (3 to 6 inch slump). Material once mixed shall be utilized within one hour and may not be retempered (unless so directly by the Engineer, if applicable).

- D. There will be NO deviation from the specified mix design.
- E. All holes drilled for injection pumping shall be repaired with an aggregate mixture to match existing surface as best as possible. Holes will be patched utilizing a mixture of Portland Type 1A Cement and mason sand in a 2 to 1 proportion.
- F. If crack repair is required by contract, install a 2-part epoxy to within 3/4" of the top surface and allow to dry. Grout remaining crack to surface with 2-part sand, 1-part cement. If applicable, apply matching crushed aggregate blend as best possible.

Alternative method is to install backer rod to within 3/8" from top surface and fill remaining gap with a self-leveling polyurethane caulk.

2.2 EQUIPMENT

- A. Mixing equipment shall be a self-contained continuous mixer, with calibrated mixing and delivery capability, carrying all water, cement and aggregate needed for the job site. The continuous mixer shall meet or exceed the Standards of Calibration as set forth by the Volumetric Mixer Manufacturer Bureau (VMMB), a member of the National Ready Mix Concrete Association (NRMCA), and conforming to ASTM 685, ACI 304.6 and CSA 23.7.
- B. All materials pumped shall be of a minimum of 500 PSI to a maximum of 1,000 PSI mix design.

PART 3. EXECUTION

3.1 WORK

- A. Holes: The Contractor shall drill holes by whatever means convenient to him, however Contractor shall exercise caution to prevent cracking of concrete slab in which the hole is being drilled. The hole size for slab raising operations shall be a minimum of one inch (1") up to a maximum of two inches (2") in diameter. The holes shall be spaced as necessary to uniformly to assure complete communication of slurry between holes.
- B. Slab Raising: Slabs shall be raised to the required elevation and pitched at one-quarter (1/4) inch per twelve (12) inches of lineal run, or as directed by the inspector. If required, saw cuts shall be made at joints to allow free movement of the work. Saw cutting is incidental to the unit price as bid for slab raising, unless otherwise specified in the bid.
- C. Patching Holes: Holes shall be cleaned the full depth of the slab by removing excess slurry and wire brushing exposed sidewalls. Prior to placement of the Portland Cement,

the surface around the holes shall be damp.

Slab raising holes shall not be cleaned out and patched until the slurry that was pumped has been allowed to stabilize.

- D. Clean Up: Slabs raised shall be thoroughly scraped and swept after completion, but prior to patching. Surrounding grass areas adjacent to slab raising shall be left in a clean, non-debris condition. Clean up is included in the unit price as bid for slab raising.

3.2 DAMAGE

- A. Any concrete that is damaged by the Slab Raising operation shall be replaced or repaired by the Contractor at the Contractor's expense.
- B. Repair of damage caused by Slab Raising operation:
 - a. In lieu of following replacement specifications, a monetary damage compensation may be agreed upon between the Contractor and the customer in form of a written Change Order.
 - b. Removal shall be accomplished by whatever means considered practical by the Contractor (subject to the approval of the Engineer, if applicable). Removal and replacement limits shall be defined by the nearest existing contraction joint.
 - c. If the Contractor damages any utilities, he will immediately notify the appropriate utility provider (and the Engineer, if applicable), and pay for all costs of repair.
- C. Replacement:
 - a. Sidewalk replacement shall be in accordance with the Code of General Ordinances of the respective city / state. Slab Repair and Replacement shall conform to Local / State Municipal Standards.
- D. Restoration
 - a. Grass areas that are damaged by the Contractor shall be restored to existing conditions at Contractor's expense.

3.3 CLEANUP AND FINAL INSPECTION

- A. The Contractor shall have thorough and systematic clean-up operations following closely

behind the construction work. He shall remove and properly dispose of all dirt and debris resulting from execution of the work. Defects of any nature whatsoever shall be promptly corrected.

END OF SECTION 13-2

DIVISION 31 - EARTHWORK

SECTION – 31-1 EXCAVATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Soil densification.
2. Excavating for paving, roads, and parking areas.
3. Excavating for slabs-on-grade.
4. Excavating for site structures.
5. Excavating for landscaping.

B. **Common construction practices, General Details and Engineering approvals shall apply.**

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Excavating Soil Materials:

1. Basis of Measurement: Most Units are included with specific items of work. Otherwise refer to “Bid Schedule”.
2. Basis of Payment: Includes general excavating to required elevations, loading and removing from site. Over Excavating: Payment will not be made for over excavated work nor for replacement materials.

1.3 REFERENCES

- A. Local utility standards when working within 24 inches of utility lines.

1.4 SUBMITTALS

- A. Section 4 - Submittal Procedures: Requirements for submittals.
- B. Excavation Protection Plan: Describe sheeting, shoring, and bracing materials and installation required to protect excavations and adjacent structures and property; include structural calculations to support plan.
- C. Shop Drawings: Indicate soil densification grid for each size and configuration footing requiring soils densification.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with City Public Work's standard.
- B. Maintain copies of each document on site.

1.6 QUALIFICATIONS

- A. Prepare excavation protection plan under direct supervision of Professional Engineer experienced in design of this Work and licensed in the state of Pennsylvania.

PART 2 - PRODUCTS

- 2.1 Not Used.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Call Local Utility Line Information service at **811 Call Before you Dig** not less than three working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Identify required lines, levels, contours, and datum.
- C. Notify utility company to remove/relocate utilities.
- D. Protect utilities indicated to remain from damage.
- E. Protect plant life, lawns and other features remaining as portion of final landscaping.
- F. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

3.2 SOIL DENSIFICATION - VIBRO-COMPACTION **Not Used**

3.3 EXCAVATION

- A. Underpin adjacent structures which may be damaged by excavation work.

- B. Excavate subsoil to accommodate building foundations, slabs-on-grade, paving, and site structures, construction operations.
- C. Excavate to working elevation for piling work.
- D. Compact disturbed load bearing soil in direct contact with foundations to original bearing capacity.
- E. Slope banks with machine to angle of repose or less until shored.
- F. Do not interfere with 45 degree bearing splay of foundations.
- G. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- H. Trim excavation. Remove loose matter.
- I. Remove lumped subsoil, boulders, and rock from excavated areas.
- J. Notify Architect/Engineer of unexpected subsurface conditions.
- K. Correct areas over excavated with structural fill as directed by Architect/Engineer.
- L. Remove excess and unsuitable material from site.
- M. Stockpile excavated material in area designated on site in accordance with Owner's approval.
- N. Repair or replace items indicated to remain damaged by excavation.

3.4 FIELD QUALITY CONTROL

- A. Request visual inspection of bearing surfaces by Architect/Engineer before installing subsequent work.

3.5 PROTECTION

- A. Prevent displacement or loose soil from falling into excavation; maintain soil stability.
- B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.
- C. Protect structures, utilities and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth operations.

END OF SECTION 31-1

DIVISION 32 – EXTERIOR IMPROVEMENTS

SECTION – 32-1
FLEXIBLE PAVING REHABILITATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Heating, scarifying, milling, remixing, placing, and compacting existing asphaltic concrete.

B. Related Sections:

1. Section 32-4 - Painting and Coating: Traffic markings.
2. Section 32-3 - Asphalt Paving.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Pavement Surface Scarifying, Mixing, and Recycling:

1. Basis of Measurement: By square yard.
2. Basis of Payment: Includes surface cleaning, pre-heating, heating and scarifying, milling, mixing, and relaying, compacting and rolling; protection to adjacent surfaces.

B. Recycling Agent:

1. Basis of Measurement: By gallon
2. Basis of Payment: Includes proportioning and mixing.

C. Seal Coat:

1. Basis of Measurement: By square yard.
2. Basis of Payment: Includes preparing surfaces and applying.

1.3 REFERENCES

A. Asphalt Institute:

1. AI MS-19 - Basic Asphalt Emulsion Manual.
2. AI MS-20 - Asphalt Hot-Mix Recycling.

B. Asphalt Recycling and Reclaiming Association:

1. ARRA ARS 5-HR - Hot-Mix Recycling.

C. PENNDOT 408, LATEST EDITION

1.4 SUBMITTALS

- A. Section 4 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit data on **seal coat**.
- C. Mix Design: Submit mix design proposed.
- D. Equipment: Submit list of equipment intended for use on the Work.
- E. Procedures: Submit schedule of intended removal, remixing, and rolling procedures.

1.5 QUALIFICATIONS

- A. Recycler: Company specializing in performing the Work of this section with minimum 10 years documented experience.

1.6 PRE-INSTALLATION MEETINGS

- A. Section 2 Administrative Requirements: Pre-installation meeting.
- B. Convene minimum one week prior to commencing Work of this section.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Section 2 - Product Requirements: Environmental conditions affecting products on site.
- B. Do not perform Work when weather conditions will not permit successful completion of the Work.
- C. When ambient air temperature is below 45 degrees F, obtain Architect/Engineer's approval prior to proceeding with the Work.

PART 2 - PRODUCTS

- A. This section includes requirements for paved area restoration. Paved areas include municipal highway shoulders, municipal highways, PennDOT highway shoulders, PennDOT highways, and private driveways. Cost of flagmen and inspectors required for all work on the highways shall be paid by the Contractor.

- B. Unless specifically stated to the contrary, paving and surfacing shall be placed to correspond to that removed during construction, i.e., concrete paving shall be replaced by concrete paving.
- C. Pavement materials shall conform to requirements of Publication Title 67, Pennsylvania Code Chapter 459, Latest Edition. Pavement materials shall be as follows:
 - 1. Superpave HMA 25.0mm Binder Course – conforming to PennDOT Publication 408, Section 409.
 - 2. Superpave Standard and RPS HMA 9.5mm Fine Grade Wearing Course – conforming to PennDOT Publication 408, Section 409.
 - 3. Cement Concrete
 - a. Roadway Replacement - High early strength conforming to PennDOT Publication 408, Section 704.
 - b. All Others - Type B conforming to Division 3 of these Specifications.
 - 4. Bituminous Surface Treatment shall conform to PennDOT Publication 408, Section 480.
 - 5. Prime Coat - MC-30 or MC-70 conforming to PennDOT Publication 408, Section 461.
 - 6. Tack Coat - E-1 Emulsified Asphalt conforming to PennDOT Publication 408, Section 460.
 - 7. Joint Sealer - shall conform to PennDOT Publication 408, Section 401.3(j)(3).
- D. 2A aggregate shall be as specified in PennDOT Form 408, Section 703.2.
- E. Geotextile, Class 4 – shall be in accordance with PennDOT Publication 408, Section 735.

2.2 Municipal Highway Shoulder Restoration (Stabilized Local Road Shoulders and Driveways) - NOT USED

- A. Municipal highway shoulder restoration shall be as shown on the typical details and to the lines and grades that existed prior to the work.
 - 1. Municipal shoulder restoration shall be a stabilized type, graded and rolled to neat straight lines.
 - 2. Existing turf shoulders shall be restored in kind.
 - 3. The restoration of dirt, stone or gravel private driveways shall use this item as a minimum standard. Surface appearance of restored area shall match appearance of adjacent undisturbed areas.

4. Stabilized surface restoration shall be in accordance with PennDOT Form 408, Section 677.

2.3 Municipal Highway Restoration (Paved Roads and Driveways) – NOT USED

- A. As shown on the typical details, bituminous pavement for municipal highway restoration and other pavement restoration shall be to the lines and grades that existed prior to the work and as follows:

1. Prior to restoration, the existing pavement edge along the trench shall be cut or sawed in a neat straight line to the bottom elevation of the existing base course. Drilling will not be permitted. All existing pavement damaged by the work shall be removed and replaced.
2. Bituminous concrete base course applied as per PennDOT Form 408, Section 305. Depth of pavement shall be as shown on the attached drawings.
3. Bituminous surface course (if required) applied as per PennDOT Form 408, Section 420. Depth of pavement shall be as shown on the attached drawings.
4. Cement Concrete – as per Division 3 as herein specified. Sidewalks and other concrete paved areas – Minimum 4" thickness with 4" No. 57 aggregate base. See drawings for detail and joints.

- B. Conditioning Existing Surfaces

1. Apply prime coat on absorbent, non bituminous base or subbase.
2. Apply tack coat on edges of existing pavement for bonding with new bituminous pavement.

- C. Sealing of Joints

1. After the bituminous wearing course has been placed and compacted flush with the existing adjacent pavement, the joint between the new and existing pavement shall be sealed with a joint sealer placed in a minimum 4" strip (maximum 6" width) and sprinkled with sand to prevent pickup by traffic.
2. The joint between new concrete paving and old concrete shall be sealed by constructing a sealant reservoir, ½" wide and ½" deep along the joint by sawing, forming or tooling. The reservoir shall be sealed with joint sealing material meeting the requirements of PennDOT Form 408, Section 705.4(b).

- D. Stabilized surface for municipal highway and shoulder restoration and for private driveways shall be as shown on the typical details to the lines and grades that existed prior to the work and as follows: **(NOT USED)**

1. This work shall be in accordance with PennDOT Form 408, Section 677.

2.4 Municipal Road Tar And Chip (NOT USED)

- A. Following surface preparation, the disturbed municipal roads shall receive a double bituminous seal coat treatment the entire roadway width. Work to include two applications of bituminous material (E-2 or E-3 asphalt emulsion as specified in PennDOT 408, Section 470.2a) each immediately followed by an application of coarse aggregate (PennDOT Type A, No. 8). On curbed streets, apply bituminous material to within 6" of the curb. Application shall be as follows:
 1. Do not apply bituminous material unless entire surface is in condition to permit satisfactory penetration and adhesion, and unless air, surface, and aggregate temperatures are 60° F or above. Do not apply emulsified asphalt if, in the opinion of the Engineer, rain is imminent or if freezing temperatures are expected within 24 hours after application. Do not use wet aggregates. Damp aggregates may be used.
 2. Use a distributor as specified in PUB 408 Section 460.3(b). For each application, apply bituminous material at a rate of 0.20 to 0.50 gallons per square yard. Provide certification that the distributor application rate has been determined in accordance with Pennsylvania Testing Material (PTM) No. 747 or other acceptable test.
 3. Spread coarse aggregate from a self-propelled mechanical spreader only. Prior to spreading aggregate, calibrate the spreader using a method acceptable to the Engineer. Immediately following the application of bituminous material, use a self-propelled mechanical spreader, to uniformly spread 15 to 25 pounds of coarse aggregate, per square yard, in a single layer.
 4. Roll thoroughly to set the aggregate. Use a sufficient number of pneumatic-tire rollers, as specified in PUB 408, Section 108.05(c)3.f, to cover the width of the stone spread during the first pass. Use a contact pressure of 40-50 psi.
 5. Sweep off loose material. After the bituminous material in the first application is sufficiently cured, apply the second application of bituminous material at a rate of 0.20 to 0.50 gallons per square yard. Spread coarse aggregate as specified for the first application at a rate of 15 to 25 pounds per square yard, in a single layer. Roll thoroughly to set the aggregate as specified above.

2.5 State Highway Restoration (NOT USED)

- A. Contractor shall also follow the requirements outlined in Section IP of this specification along with PennDOT publication 408, publication 72, publication 272 for restoration, compaction & backfill requirements, bonding requirements and inspection requirements.
- B. State highway restoration shall be as shown on the applicable typical details and as required by PennDOT Regulation 67 Pa. Code, Chapter 459, Latest Edition.

Prior to making the permanent restoration, 1' from each edge of the trench shall be sawed or cut, in a neat straight line, to the bottom elevation of the existing base course, and the detached material shall be removed. Drilling shall not be permitted.

- 1. Final paving, FLEXIBLE BASE RESTORATION – Prior to making the permanent restoration 1' from each edge of the trench shall be sawed or cut, in a neat straight line to the bottom elevation of the existing base course, and the detached material shall be removed. Drilling will not be permitted.
 - a. Temporary restoration shall be made and kept in place for a minimum of 90 days. The base material shall consist of either a minimum of 8" stone base, a minimum 5" aggregate bituminous base, a minimum 5" aggregate lime pozzolan or a minimum 4" bituminous concrete, with a surface of 2" bituminous material. Where the existing pavement structure includes a course of subbase material, it shall be replaced to a depth equal to the existing course depth with material meeting the requirements of Section 350, Form 408.
 - b. After the minimum 90 day period, but before 210 days, the temporary restoration shall be removed and permanent restoration made.
 - c. The permanent base course shall consist of bituminous concrete meeting the requirements of Section 305, Form 408 and having a minimum depth of 5" or a depth equal to the existing base course, whichever is greater.
 - d. The permanent binder and surface course shall be placed in accordance with the depths of the existing bituminous surface, but in no case shall the binder course be less than 1 ½" ID-2 and the wearing course be less than 1" ID-2 or FJ-1.
- 2. Final paving, STATE HIGHWAY OVERLAY – The State Highway Overlay, as indicated on the Drawings, shall consist of 1 ½" of ID-2 conforming to Section 420 of PennDOT Form 408.

- C. Should Contractor fail to provide proper notification to PennDOT and PennDOT requires any re-work this shall be performed by the Contractor at NO ADDITIONAL COST TO THE OWNER.

2.6 State Highway Shoulder Restoration

- A. All work shall conform to Publication Title 67 Pennsylvania Code, Chapter 459, Latest Edition.
- B. Paved and stabilized shoulders shall be reconstructed and restored to a serviceable condition of the same type as existed before the start of work.

2.7 Temporary Paving

- A. Scope of Work - This section specifies the materials and general procedure for placement of temporary paving in conjunction with utility construction and its Contractors. Temporary paving is defined as asphaltic pavement that will be in place for up to 6 months located in any area of paved roadways and paved driveways until permanent pavement can be placed in the area. It must be placed over all compacted, (95% proctor) backfilled utility ditches in areas with paved surfaces. Temporary pavement consists of two major items: Flexible Base and High Performance Mix Asphalt.

- 1. Flexible base shall consist of 6" minimum thickness flexible base.
- 2. Temporary paving shall consist of 2" thick (Hot-Cold Asphalt Mix)

2.8 3.1 EQUIPMENT

- A. Milling Unit: Type for intended purpose as follows:
 - 1. Self-propelled; wheel base sufficient to maximize leveling action.
 - 2. Capable of loosening pavement material to 4 inch depth.
- B. Compactor: Pneumatic tired roller for initial compaction; steel wheeled rollers required for additional compaction and smoothness. **Oscillating screeds or tampers are not acceptable.**

4.1 PREPARATION

- C. Mechanically sweep pavement surfaces immediately prior to commencement of Work. Clean pavement surfaces of loose foreign matter. Verify surfaces are dry.
- D. Protect existing improvements, overhanging trees, and plant life from heat damage by individual shielding and water spray.
- E. Remove and store manhole covers and frames.
- F. Do not disfigure adjacent Work.

- G. Heat pavement surface uniformly by continuous movement of heated scarifier.
- H. Execute removal to depth not less than **1/2** inch at each point across full width of surface without detrimental aggregate degradation.

4.2 ROLLING AND COMPACTING

- I. Roll and compact pavement materials to match adjoining grades.
- J. Complete compaction process within 5 minutes of removal.
- K. Compact pavement by rolling. Do not displace or extrude pavement from position.
- L. Develop rolling with consecutive passes to achieve even and smooth finish, without roller marks.
- M. Reinstall manhole covers and frames.

4.3 PROTECTION OF FINISHED WORK

- N. Section 8 - Execution and Closeout Requirements: Protecting finished work.
- O. Do not permit traffic over surface for 2 hours.

END OF SECTION 32-1

SECTION 32-2
ASPHALT PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Aggregate base course for asphalt paving.
- B. Single course bituminous concrete paving.
- C. Double course asphalt paving.
- D. Asphalt patching.
- E. Asphalt paving overlay.
- F. Surface sealer.
- G. Milling & Resurfacing

1.02 RELATED REQUIREMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and PENNDOT 408 LATEST ADDITION

1.03 PRICE AND PAYMENT PROCEDURES

- A. Unit Prices for requirements applicable to this section shall comply with Bid Schedule.
- B. Asphalt Pavement Mix (Base Course): By the ton. Includes preparing base, tack coating surfaces, placing, compacting and rolling, testing. Includes mix design, supplying to site, testing.
- C. Asphalt Pavement Mix (Binder Course): By the ton. Includes preparing base, tack coating surfaces, placing, compacting and rolling, testing. Includes mix design, supplying to site, testing.
- D. Asphalt Pavement Mix (Wearing Course): By the ton. Includes preparing base, tack coating surfaces, placing, compacting and rolling, testing. Includes mix design, supplying to site, testing.
- E. Seal Coat: By the square yard. Includes preparing surfaces and applying.

1.04 REFERENCE STANDARDS

- A. AI MS-2 - Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types; The Asphalt Institute; 1997.
- B. AI MS-19 - A Basic Asphalt Emulsion Manual; The Asphalt Institute; Fourth Edition.
- C. ASTM D946 - Standard Specification for Penetration-Graded Asphalt Cement for Use in Pavement Construction; 2009a.

1.05 SUBMITTALS

- A. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.

1. Job-Mix Designs: Certification, by representatives having jurisdiction, of approval of each job mix proposed for the Work.
2. Job-Mix Designs: For each job mix proposed for the Work.
- B. Shop Drawings: Indicate pavement markings, lane separations, and defined parking spaces. Indicate, with international symbol of accessibility, spaces allocated for people with disabilities.
- C. Samples for Verification: For the following products, in manufacturer's standard sizes unless otherwise indicated:
 1. Each paving fabric, 12 by 12 inches minimum.
 2. Each type and color of preformed traffic-calming device.
 3. Each pattern and color of imprinted asphalt and precut marking material.
- D. Qualification Data: For qualified manufacturer and Installer.
- E. Material Certificates: For each paving material, from manufacturer.
- F. Material Test Reports: For each paving material.

1.06 PERFORMANCE REQUIREMENTS

- B. Design paving and subbase for parking.

1.07 QUALITY ASSURANCE

- A. Perform Work in accordance with State of Pennsylvania Highways standard, Penndot's Specifications Publication 408 most recent edition inclusive of all changes.
- B. Registered Penndot Mixing Plant: Conform to State of Pennsylvania Highways standard, Penndot's Specifications Publication 408 most recent edition inclusive of all changes.
- C. Installer Qualifications: Imprinted-asphalt manufacturer's authorized installer who is trained and approved for installation of imprinted asphalt required for this Project.
- D. Testing Agency Qualifications: Qualified according to ASTM D 3666 for testing indicated.
- E. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of PennDOT for asphalt paving work.
 1. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.
- F. Preinstallation Conference: Conduct conference at Project site.
 1. Review methods and procedures related to hot-mix asphalt paving including, but not limited to, the following:
 - a. Review proposed sources of paving materials, including capabilities and location of plant that will manufacture hot-mix asphalt.
 - b. Review condition of subgrade and preparatory work.
 - c. Review requirements for protecting paving work, including restriction of traffic during installation period and for remainder of construction period.
 - d. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
- G. Obtain materials from same source throughout.

1.08 REGULATORY REQUIREMENTS

- A. Conform to applicable code for paving work on public property.

1.09 DELIVERY, STORAGE, AND HANDLING

- A. Deliver pavement-marking materials to Project site in original packages with seals unbroken and bearing manufacturer's labels containing brand name and type of material, date of manufacture, and directions for storage.
- B. Store pavement-marking materials in a clean, dry, protected location within temperature range required by manufacturer. Protect stored materials from direct sunlight.

1.10 FIELD CONDITIONS

- A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:
 - 1. Asphalt Base Course: Minimum surface temperature of 40 degrees F and rising at time of placement.
 - 2. Asphalt Surface Course: Minimum surface temperature of 90 deg F at time of placement.
 - 3. Prime Coat: Minimum surface temperature of 90 deg F.
 - 4. Tack Coat: Minimum surface temperature of 90 deg F.
- B. Place bituminous mixture when temperature is not more than 15 F degrees below bitumen supplier's bill of lading and not more than maximum specified temperature.
- C. Pavement-Marking Paint: Proceed with pavement marking only on clean, dry surfaces and at a minimum ambient or surface temperature of 40 deg F for oil-based materials 55 deg F for water-based materials, and not exceeding 95 deg F.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Bituminous Material: In accordance with Penndot's Specifications Publication 408 most recent addition and inclusive of all changes, Section 409 and Section 703.
- B. Aggregate for Base Course: AASHTO #57, PA 2B and PA 2A in accordance with Penndot's Specifications Publication 408 most recent edition inclusive of all changes, Section 350 and Section 703 unless noted otherwise.
 - 1. Slag shall not be permitted.
- C. Aggregate for Base Course: AASHTO M147 with a liquid limit of not more than 25; a plasticity index of not more than 5 in accordance with ASTM D4318.
- D. Aggregate for Base Course: Angular crushed washed stone; free of shale, clay, friable material and debris.
 - 1. Graded in accordance with ASTM D2487 Group Symbol GW.
 - 2. Graded in accordance with ASTM C136, within the following limits:
 - a. 2 inch sieve: 100 percent passing.
 - b. 1 inch sieve: 95 percent passing.
 - c. 3/4 inch sieve: 95 to 100 percent passing.

- d. 5/8 inch sieve: 75 to 100 percent passing.
 - e. 3/8 inch sieve: 55 to 85 percent passing.
 - f. No. 4 sieve: 35 to 60 percent passing.
 - g. No. 16 sieve: 15 to 35 percent passing.
 - h. No. 40: 10 to 25 percent passing.
 - i. No. 200: 5 to 10 percent passing.
- E. Aggregate for Binder Course: In accordance with State of Pennsylvania Highways standards, Penndot's Specifications Publication 408 most recent edition inclusive of all changes, Section 309, Section 409 and Section 703.
- F. Aggregate for Binder Course: AASHTO M147 with a liquid limit of not more than 25; a plasticity index of not more than 5 in accordance with ASTM D4318.
- G. Aggregate for Binder Course: Angular crushed washed stone; free of shale, clay, friable material and debris.
 - 1. Graded in accordance with ASTM D2487 Group Symbol GW.
 - 2. Graded in accordance with ASTM C136, within the following limits:
 - a. 2 inch sieve: 100 percent passing.
 - b. 1 inch sieve: 95 percent passing.
 - c. 3/4 inch sieve: 95 to 100 percent passing.
 - d. 5/8 inch sieve: 75 to 100 percent passing.
 - e. 3/8 inch sieve: 55 to 85 percent passing.
 - f. No. 4 sieve: 35 to 60 percent passing.
 - g. No. 16 sieve: 15 to 35 percent passing.
 - h. No. 40: 10 to 25 percent passing.
 - i. No. 200: 5 to 10 percent passing.
- H. Aggregate for Wearing Course: In accordance with State of Pennsylvania Highways standards, Penndot's Specifications Publication 408 most recent edition inclusive of all changes, Section 309, Section 409 and Section 703.
- I. Aggregate for Wearing Course: AASHTO M147, with a liquid limit of not more than 25; a plasticity index of not more than 5 in accordance with ASTM D4318.
- J. Aggregate for Wearing Course: Angular crushed washed stone; free of shale, clay, friable material and debris.
 - 1. Graded in accordance with ASTM D2487 Group Symbol GW.
 - 2. Graded in accordance with ASTM C136, within the following limits:
 - a. 2 inch sieve: 100 percent passing.
 - b. 1 inch sieve: 95 percent passing.
 - c. 3/4 inch sieve: 95 to 100 percent passing.
 - d. 5/8 inch sieve: 75 to 100 percent passing.
 - e. 3/8 inch sieve: 55 to 85 percent passing.
 - f. No. 4 sieve: 35 to 60 percent passing.
 - g. No. 16 sieve: 15 to 35 percent passing.
 - h. No. 40: 10 to 25 percent passing.
 - i. No. 200: 5 to 10 percent passing.
- K. Fine Aggregate: In accordance with State of Pennsylvania Highways standards, Penndot's Specifications Publication 408 most recent edition inclusive of all changes, Section 309, Section 409 and Section 703.

- L. Filler: Use of fly ash shall be prohibited.
- M. Fiber Reinforcement: Synthetic fibers shown to have long-term resistance to deterioration when in contact with alkalis and moisture; 3/4 inch length.
 - 1. Match fiber blend of materials to application installation types, hot mix asphalt (HMA).
 - 2. Manufacturers:
 - a. Forta Corporation: www.forta-fi.com.
 - b. Substitutions: Or Equal
- N. Primer: In accordance with State of Pennsylvania Highways standards, asphalt emulsion prime coat.
- O. Tack Coat: Emulsified asphalt, Class AE-T, in conformance with Penndot's Specifications Publication 408 most recent edition inclusive of all changes.
- P. Seal Coat: AI MS-19, sand type.

2.02 AUXILIARY MATERIALS

- A. Herbicide: Commercial chemical for weed control, registered by the EPA. Provide in granular, liquid, or wettable powder form.
- B. Geotextile Fabric: In accordance with Penndot's Specifications Publication 408 most recent addition inclusive of all changes, Section 212 and Section 735.
 - 1. Construction Class: Class 4.
 - 2. Type: Complying with Stabilization Type B and Reinforcement Type C.
 - 3. Manufacturer: As listed in Penndot's Bulletin 15.
- C. Joint Sealant: AASHTO M 324. Type I, hot-applied, single component, polymer modified bituminous sealant.

2.03 ASPHALT PAVING MIXES AND MIX DESIGN

- A. Use dry material to avoid foaming. Mix uniformly.
- B. Base Course: 3.0 to 6 percent of asphalt cement by weight in mixture in accordance with PENNDOT 408.
- C. Binder Course: 4.5 to 6 percent of asphalt cement by weight in mixture in accordance with PENNDOT408.
- D. Wearing Course: 5 to 7 percent of asphalt cement by weight in mixture in accordance with PENNDOT 408.
- E. Submit proposed mix design of each class of mix for review prior to beginning of work.
 - 1. Fiber Reinforcing for use at all Wearing Courses Only:
 - a. To avoid the formation of fiber balls or not mixed fibers, add sealed plastic bags of fibers into the mixer.
 - b. Add fiber-reinforcement at 1.0 pound per ton.
 - c. Follow manufacturer's recommendations for mixing.
- F. Superpave: Dense, hot-laid, plant mixes approved by authorities having jurisdiction and complying with the following requirements:
 - 1. Provide mixes with a history of satisfactory performance in geographical area where Project is located.

Constructed Layer	SUPERPAVE Mix	Binder Type	Compaction Level	Compacted Thickness (inches)
Surface/Wear	9.5mm	PG 64-22	50 gyrations	1.5
Base/Binder	19mm	PG 64-22	50 gyrations	2
Aggregate Base	---	---	100% of dry weight	6

3. Parking Lots and Light Duty:

Constructed Layer	SUPERPAVE Mix	Binder Type	Compaction Level	Compacted Thickness (inches)
Surface/Wear	9.5mm	PG 64-22	50 gyrations	1.5
Base/Binder	19mm	PG 64-22	50 gyrations	3
Aggregate Base	---	---	100% of dry weight	6

4. Light Industrial:

Constructed Layer	SUPERPAVE Mix	Binder Type	Compaction Level	Compacted Thickness (inches)
Surface/Wear	9.5mm	PG 64-22	75 gyrations	1.5
Base/Binder	25mm	PG 64-22	75 gyrations	5
Aggregate Base	---	---	100% of dry weight	6

5. Heavy Industrial:

Constructed Layer	SUPERPAVE Mix	Binder Type	Compaction Level	Compacted Thickness (inches)
Surface/Wear	9.5mm	PG 64-22	100 gyrations	1.5
Base/Binder	19mm	PG 64-22	100 gyrations	3
Base/Binder	25mm	PG 64-22	100 gyrations	4.5
Aggregate Base	---	---	100% of dry weight	8

6. Overlay of existing and milled paving:

Constructed Layer	SUPERPAVE Mix	Binder Type	Compaction Level	Compacted Thickness (inches)
Surface/Wear	9.5mm	PG 64-22	75 gyrations	1.5

- a. Where overlays are indicated to match existing adjacent improvements to remain, provide overlay in multiple lifts not exceeding 1.5 inches in order to reach indicated elevations.

2.04 SOURCE QUALITY CONTROL

- A. Mixture Acceptance shall be in accordance with PennDOT's Specifications Publication 408 most recent edition inclusive of all changes, Producer Certification of Mixture.
- B. Test mix design and samples in accordance with PENNDOT 408.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that compacted subgrade is dry and ready to support paving and imposed loads.
 1. Proof-roll subgrade below pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
 - a. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
 - b. Proof roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
 - c. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Owner, and replace with compacted backfill or fill as directed.
- B. Proceed with paving only after unsatisfactory conditions have been corrected.
- C. Verify gradients and elevations of base are correct.
- D. Report in writing to Architect all prevailing conditions that will adversely affect satisfactory execution of work. Do not proceed with work until unsatisfactory conditions have been corrected.
 1. Starting work constitutes acceptance of the existing conditions and the Contractor shall be responsible for any delays or changes required to existing conditions at the Contractor's expense.

3.02 COLD MILLING

- A. Clean existing pavement surface of loose and deleterious material immediately before cold milling. Remove existing asphalt pavement by cold milling to grades and cross sections indicated.
 1. Mill to a depth of 1-1/2 inches.
 2. Mill to a uniform finished surface free of excessive gouges, grooves, and ridges.
 3. Control rate of milling to prevent tearing of existing asphalt course.
 4. Repair or replace curbs, manholes, and other construction damaged during cold milling.
 5. Excavate and trim unbound-aggregate base course, if encountered, and keep material separate from milled hot-mix asphalt.
 6. Transport milled hot-mix asphalt to asphalt recycling facility.
 7. Keep milled pavement surface free of loose material and dust.

3.03 PATCHING

- A. Hot-Mix Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompact existing unbound-aggregate base course to form new subgrade.
- B. Portland Cement Concrete Pavement: Break cracked slabs and roll as required to reseal concrete pieces firmly.
 - 1. Pump hot undersealing asphalt under rocking slab until slab is stabilized or, if necessary, crack slab into pieces and roll to reseal pieces firmly.
 - 2. Remove disintegrated or badly cracked pavement. Excavate rectangular or trapezoidal patches, extending into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Recompact existing unbound-aggregate base course to form new subgrade.
- C. Tack Coat: Apply uniformly to vertical surfaces abutting or projecting into new, hot-mix asphalt paving at a rate of 0.05 to 0.15 gal./sq. yd.
 - 1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
 - 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.
- D. Patching: Fill excavated pavements with hot-mix asphalt base mix for full thickness of patch and, while still hot, compact flush with adjacent surface.
- E. Patching: Partially fill excavated pavements with hot-mix asphalt base mix and, while still hot, compact. Cover asphalt base course with compacted, hot-mix surface layer finished flush with adjacent surfaces.

3.04 REPAIRS

- A. Leveling Course: Install and compact leveling course consisting of hot-mix asphalt surface course to level sags and fill depressions deeper than 1 inch in existing pavements.
 - 1. Install leveling wedges in compacted lifts not exceeding 3 inches thick.
- B. Crack and Joint Filling: Remove existing joint filler material from cracks or joints to a depth of 1/4 inch.
 - 1. Clean cracks and joints in existing hot-mix asphalt pavement.
 - 2. Use emulsified-asphalt slurry to seal cracks and joints less than 1/4 inch wide. Fill flush with surface of existing pavement and remove excess.
 - 3. Use hot-applied joint sealant to seal cracks and joints more than 1/4 inch wide. Fill flush with surface of existing pavement and remove excess.

3.05 PAVING GEOTEXTILE INSTALLATION

- A. Install geotextile fabric continuously on prepared subgrade.
 - 1. Place in accordance with Penndot's Specifications Publication 408 LATEST ADDITION.
- B. Install geotextile fabric at overlay.
 - 1. Apply asphalt binder uniformly to existing pavement surfaces at a rate of 0.20 to 0.30 gal./sq. yd.

2. Place paving geotextile promptly according to manufacturer's written instructions. Broom or roll geotextile smooth and free of wrinkles and folds. Overlap longitudinal joints 4 inches and transverse joints 6 inches.
 - a. Protect paving geotextile from traffic and other damage and place hot-mix asphalt paving overlay the same day.

3.06 BASE COURSE

- A. Place and compact aggregate base course in accordance with PennDOT's Specifications Publication 408 most recent edition inclusive of all changes, Section 350.

3.07 PREPARATION - PRIMER

- A. Herbicide Treatment: Apply herbicide according to manufacturer's recommended rates and written application instructions. Apply to dry, prepared surface of compacted-aggregate base before applying paving materials.
 1. Mix herbicide with prime coat if formulated by manufacturer for that purpose.
- B. Apply primer in accordance with State of Pennsylvania Highways standards, PennDOT's Specifications Publication 408 most recent edition inclusive of all changes.
- C. Apply primer uniformly on aggregate base or subbase at uniform rate of 1/3 gal/sq yd.
 1. Apply enough material to penetrate and seal but not flood surface. Allow prime coat to cure.
 2. If prime coat is not entirely absorbed within 24 hours after application, spread sand over surface to blot excess asphalt. Use enough sand to prevent pickup under traffic. Remove loose sand by sweeping before pavement is placed and after volatiles have evaporated.
 3. Protect primed substrate from damage until ready to receive paving.
- D. Apply primer to contact surfaces of curbs, gutters, and utility castings and frames.
- E. Use clean sand to blot excess primer.

3.08 PREPARATION - TACK COAT

- A. Apply tack coat in accordance with State of Pennsylvania Highways standards, in accordance with PennDOT's Specifications Publication 408 most recent edition inclusive of all changes.
- B. Apply tack coat on existing asphalt or concrete surfaces at uniform rate of 1/3 gal/sq yd.
 1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.
- C. Apply tack coat to contact surfaces of curbs and gutters.
- D. Coat surfaces of manhole frames with oil to prevent bond with asphalt pavement. Do not tack coat these surfaces.

3.09 PLACING ASPHALT PAVEMENT - SINGLE COURSE

- A. Install Work in accordance with PennDOT standards.
- B. Place asphalt within 24 hours of applying primer or tack coat.
- C. Place to 1 ½ inch compacted thickness.

- D. Install gutter drainage grilles and frames in correct position and elevation.
- E. Compact pavement by rolling to specified density. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.
- F. Perform rolling with consecutive passes to achieve even and smooth finish without roller marks.

3.10 PLACING ASPHALT PAVEMENT

- A. Conform to Penndot's Specifications Publication 408 most recent edition inclusive of all changes or, if more stringent, requirements below.
- B. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand to areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
 - 1. Place hot-mix asphalt base course in number of lifts and thicknesses indicated.
 - 2. Place hot-mix asphalt surface course in single lift.
 - 3. Spread mix at minimum temperature of 275 deg F.
 - 4. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes unless otherwise indicated.
 - 5. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.
 - 6. At wearing course:
 - a. Avoid over-using long tine rakes or other tools that will align fibers or disrupt the homogeneous, uniform 3-dimensional, fiber dispersion.
 - b. Remove any observed fiber balls from mixture.
 - c. Adjust operations regarding any observed fiber balls.
- C. Joints: Construct joints to ensure a continuous bond between adjoining paving sections. Construct joints free of depressions, with same texture and smoothness as other sections of hot-mix asphalt course.
 - 1. Clean contact surfaces and apply tack coat to joints.
 - 2. Offset longitudinal joints, in successive courses, a minimum of 6 inches.
 - 3. Offset transverse joints, in successive courses, a minimum of 24 inches.
 - 4. Construct transverse joints at each point where paver ends a day's work and resumes work at a subsequent time. Construct these joints.
 - 5. Compact joints as soon as hot-mix asphalt will bear roller weight without excessive displacement.
 - 6. Compact asphalt at joints to a density within 2 percent of specified course density.
- D. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.
 - 1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete a section of asphalt base course before placing asphalt surface course.
- E. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.
- F. Place asphalt binder course within 24 hours of applying primer or tack coat.
- G. Place base course course to 3 ½ inch compacted thickness.

- H. Place wearing course within two hours of placing and compacting binder course.
- I. Place wearing course to 1 ½ inch compacted thickness.
- J. Install gutter drainage grilles and frames in correct position and elevation.
- K. Compaction: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.
 - 1. Complete compaction before mix temperature cools to 225 deg F.
 - 2. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.
 - 3. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density.
 - 4. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
 - 5. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.
 - 6. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.
- L. Compact pavement by rolling to specified density. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.
- M. Perform rolling with consecutive passes to achieve even and smooth finish, without roller marks.

3.11 CURBS

- A. Install extruded asphalt curbs as shown on the plans to a width of 12" and curb height of 6".

3.12 SEAL COAT

- A. Apply seal coat to surface course and asphalt curbs in accordance with PENNDOT 408 LATEST EDITION.

3.13 TOLERANCES

- A. Flatness: Maximum variation of 1/4 inch for base courses and 1/8 inch for surface course measured with 10 foot straight edge.
- B. Compacted Thickness: Within 1/4 inch of specified or indicated thickness.
- C. Variation from True Elevation: Within 1/2 inch.

3.14 FIELD QUALITY CONTROL

- A. See Section 5 - Quality Requirements, for general requirements for quality control.
- B. Owner shall provide field inspection and testing of in place materials.

1. Test results shall be reported in writing to the Architect, Owner and Contractor within 24 hours after tests.
- C. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549.
- D. Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.
- E. In-Place Density: Testing agency will take samples of uncompacted paving mixtures and compacted pavement according to [ASTM D 979].
 1. Reference maximum theoretical density will be determined by averaging results from four samples of hot-mix asphalt-paving mixture delivered daily to site, prepared according to ASTM D 2041, and compacted according to job-mix specifications.
 2. In-place density of compacted pavement will be determined by testing core samples according to ASTM D 1188 or ASTM D 2726.
 - a. One core sample will be taken for every 1000 sq. yd or less of installed pavement, with no fewer than 3 cores taken.
 - b. Field density of in-place compacted pavement may also be determined by nuclear method according to ASTM D 2950 and correlated with ASTM D 1188 or ASTM D 2726.
- F. Replace and compact hot-mix asphalt where core tests were taken.
- G. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements.
- H. Work found to be defective as determined by the Owner or Owner's Representative shall be removed and replaced at no additional cost to the Owner.
- I. Provide field inspection and testing. Take samples and perform tests in accordance with PENNDOT 408 LATEST EDITION.

3.15 PROTECTION

- A. Immediately after placement, protect pavement from mechanical injury for 5 days or until surface temperature is less than 140 degrees F.

3.16 DISPOSAL

- A. Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in a DEP-approved landfill.
 1. Do not allow milled materials to accumulate on-site.

END OF SECTION

CONCRETE, REINFORCEMENT & SPECIALS
SECTION – 32-3

32-3A.1 SCOPE

- A. This section covers materials, forming, placing and curing of all cast-in-place concrete, including reinforcement.

32-3A.2 GENERAL REQUIREMENTS

- A. Coordinate work with work of other trades to provide anchors, sleeves, conduits and other openings or materials to be installed prior to concrete placement.
1. Should equipment or pipe not be delivered to the site in sufficient time for incorporation into concrete, Contractor may provide opening for later incorporation of such equipment, provided written permission is obtained from Engineer at time of request.
- B. Shop Drawings showing all dimensions necessary for fabrication and placing of reinforcing steel and accessories, without reference to Project Drawings, shall be submitted for approval in accordance with these specifications.
1. At the discretion of Engineer, additional Shop Drawings for formwork may be required when safety considerations are involved.
- C. Contractor shall adhere to ACI 304-73, “Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete” and ACI 318-83, “Building Code Requirements for Reinforced Concrete”, in executing requirements of this section.
- D. Contractor shall conform to the following publications.
1. American Concrete Institute:
- a. ACI 301 - Specifications for Structural Concrete.
 - b. ACI 305 - Hot Weather Concreting.
 - c. ACI 306.1 - Standard Specification for Cold Weather Concreting.
 - d. ACI 308.1 - Standard Specification for Curing Concrete.
 - e. ACI 318 - Building Code Requirements for Structural Concrete.

32-3A.3 STORAGE OF MATERIALS

- A. Cement shall be stored in weathertight bins or building that will protect it from dampness and in such manner as to permit easy access for suitable inspection and identification of each carload or equivalent. Cement shall not be stored in excess of eight bags high and shall be covered with tarpaulins. When permission is given by the Engineer to store temporarily open, a platform and adequate waterproof cover shall be provided.
- B. Aggregate stockpiles shall be arranged and used in a manner to avoid excessive segregation or contamination with other materials or with other sizes of like aggregates. To insure that this condition is met, any test for determining conformation to requirements for cleanliness and grading shall be performed on samples secured from the aggregates at the point of batching. Stockpiles shall be built in successive horizontal layer not exceeding 4’ in thickness, with each layer completed before the next one is started. Frozen or partially frozen aggregates shall not be used.

- C. Sand shall be allowed to drain until it has reached uniform moisture content before it is used.
- D. Admixtures shall be stored in such a manner as to avoid contamination or damage. For those used in the form of suspensions or non-stable solutions, suitable agitating equipment shall be provided to assure uniform distribution of the ingredients. Liquid admixtures shall be protected from freezing and other temperature changes which would adversely affect their characteristics.

32-3A.4 MATERIALS

A. Cement

1. Portland Cement Type II conforming to ASTM Designation C-150.
2. Cement shall be delivered only in approved bags or barrels with the brand, type and name of Manufacturer clearly marked thereon or may be delivered in bulk in a manner approved by Engineer. A bag of cement shall contain 94 pounds net. A barrel of cement shall contain 376 lbs. net. Information as to brand, type and Manufacturer must be provided in shipping invoices accompanying bulk cement. Cement shall not be used which has been retrieved or reclaimed from used bags.

B. Aggregate

1. Concrete aggregate shall conform to the specifications for Concrete Aggregate, ASTM Designation C-33.
 - a. Fine Aggregate – natural sand, artificial or manufactured sand will be acceptable.
 - b. Coarse Aggregate – coarse aggregate shall be crushed stone or gravel.
 - i. Maximum size of aggregate shall be no longer than $\frac{1}{5}$ of the narrowest dimension between sides of forms within which the concrete is to be cast, nor larger than $\frac{3}{4}$ of the minimum clear spacing between reinforcing bars and forms. For unreinforced slabs, maximum size of aggregate shall not be larger than $\frac{1}{3}$ the slab thickness. These requirements may be waived if in the opinion of the Engineer, the mixture possesses sufficient workability that the concrete can be placed without honeycombs or voids.
 - ii. In general, the maximum size of aggregate to be used in the various items of concrete work shall be in accordance with the following table, but shall not exceed the limitations of the above paragraph.

RANGE FOR MAXIMUM SIZE OF AGGREGATES* IN INCHES					
Minimum Dimensions of Section in “	Reinforced Wall, Beams and Columns	Unreinforced Walls	Heavily Reinforced Slabs	Lightly Reinforced or Unreinforced Slabs	All Other construction
2 ½ to 5 6 to 12	½ to ¾ ¾ to 1 ½	¾ 1 ½	¾ to 1 1 ½	¾ to 1 ½ 1 ½	¾ to 1 1 ½

12 or more	1 ½	1 ½	1 ½	1 ½	1 ½
*Based on square sieve openings.					

C. Water

1. Water shall be clean, fresh and free from injurious amounts of oils, acid, alkali, organic matter, or other deleterious substances. River and stream water shall not be used.
2. When subjected to the mortar strength test described in AASHTO T26, the 28 day strength of mortar specimens made with the water under examination and normal portland cement shall be at least 100% of the strength of similar specimens made with distilled water.
3. Potable tap water will normally fulfill the above requirements.

D. Admixtures

1. Water-Reducing – "Eucon WR 75" by the Euclid Chemical Company, "Pozzzlith 200N" by Master Builders or "Plastocrete 160" by Sika Chemical Corporation. The admixture shall conform to ASTM C-494, Type A and contain not more than 1% chloride ions.
2. High-Range Water Reducing (Super Plasticizer) – "Eucon Super 37" by the Euclid Chemical Company or "Sikament" by Sika Chemical Corporation. The admixture shall conform to ASTM C-494, Type F or G, and contain not more than 1% chloride ions.
3. Water Reducing, Retarding – "Eucon Retarder 75" by the Euclid Chemical Company, "Pozzololith 100R" by Master Builders or "Plastiment" by Sika Chemical Corporation. The admixture shall conform to ASTM C-494, Type D, and not contain more than 1% chloride ions.
4. Air Entraining – Conform to ASTM C260.
5. Calcium Chloride – Not permitted.

32-3A.5 MIXES

- A. All mix designs shall be proportioned in accordance with Section 4.3 (Field Experience and/or Trial Mixtures) of ACI 318-83.
- B. Concrete for all parts of the work shall be homogenous and, when hardened, shall have the required strength, resistance to deterioration, durability and other specified properties. Types of concrete are designated as follows:
 1. Type A: (Air entrainment is required)-For all concrete used, except those uses listed in Type C.
 2. Type C: (Air entrainment is optional) - For concrete fill in unstabilized areas and certain restoration items.

C. Required concrete strength, f_c' shall be as follows:

Type	Compressive (psi)			Flexural (psi)		
	3-Day	7-Day	28-Day	3-Day	7-Day	28-Day
A	----	3330	4000	----	500	600
C	----	1500	2000	----	350	400

D. **Slump of concrete of normal weight**, as determined by "Method of Test for Slump of Portland Cement Concrete" (ASTM C-143), shall be in accordance with Table 1 unless the HRWR admixture (Super Plasticizer) is used. Water, in excess of that included in the approved mix design, may not be added at the plant or in the field.

TABLE 1		
Type of Construction	Slump in Inches	
	Hand Placed	Vibrator Used
Reinforced Footings	2 to 5	1 to 3
Plain Footings and Substructure Walls	2 to 4	1 to 3
Slabs, Beams and Reinforced Walls	2 to 5	2 to 4
All Other Placements	2 to 5	1 to 3
The maximum slump of concrete containing the HRWR admixture (Super Plasticizer) shall be 8" unless otherwise approved by the Engineer.		

E. Air content of air-entrained concrete shall conform to Table 2. Air content shall be determined in accordance with ASTM C173 (Volumetric Method) or ASTM C231 (Pressure Method).

TABLE 2 – TOTAL AIR CONTENT FOR VARIOUS SIZES OF COARSE AGGREGATES	
Nominal Maximum Size of Coarse Aggregate in Inches	Total Air Content Percent by Volume
½ or Smaller	5 to 7
¾	5 to 7
1	5 to 7
1 ½	5 to 7

F. Admixtures shall be used as follows:

1. All concrete, when placed at ambient air temperatures above 75°F, shall have a water reducing and retarding admixture. When temperatures are below 75°F, a water reducing admixture shall be used. The water reducing and retarding admixture shall conform to ASTM C494 for Type D, and the water reducing admixture shall be Type A. Proportioning and mixing shall be as recommended by the Manufacturer.

2. Admixtures causing accelerated setting of cement in concrete shall not be used.
3. Admixtures shall not contain sugar, calcium chloride or other chlorides. Admixtures shall be stored in a manner so as to prevent contamination, evaporation and damage.
4. Air-entrainment admixtures shall conform to ASTM C260.
5. Calcium chloride is not permitted.

G. Proportion of ingredients shall be selected to produce:

1. Proper placability, durability, strength and other required properties.
2. A mixture which will work readily into corners and angles of the forms and around reinforcements by methods of placing and consolidation employed on the work, but without permitting materials to segregate or excessive free water to collect on the surface.

H. The mix designs shall be proportioned in accordance with Section 4.3 (Field Experience and/or Trial Mixtures) of ACI 318-83. If the proposed mix is based on previous field experience, the mix and supporting data shall be submitted to the Engineer for approval. Otherwise, the mix design shall be prepared in accordance with trial batches (Section 4.3) by an independent laboratory engaged by the Contractor. Tests shall be made in accordance with the following procedures:

1. Concrete trial mixtures having proportions and consistency suitable for the work shall be made using at least three different water-cement ratios which will produce a range of strengths encompassing those required for the work. Trial mixes shall be designed to produce the maximum allowable slump.
2. Proportions of ingredients shall be determined and tests conducted in accordance for "Selecting Proportions for Normal and Heavyweight Concrete," ACI 211.1.
3. For each water-cement ratio, at least three (3) specimens for each age to be tested shall be made and cured in accordance with "Method of Making and Curing Concrete Test Specimens in the Laboratory" ASTM C-192, and tested for strength at 28 days, or at any earlier or later age specified. Tests shall be conducted in accordance with "Method of Test for Compressive Strength of Cylindrical Concrete Specimens." ASTM C-39.
4. From results of these tests, a curve shall be plotted showing relationship between water-cement ratio and compressive strength. The water-cement ratio to be used in the proposed mix design shall be that which achieves an average strength 1200 psi above the specified strength, f'_c .

MAXIMUM PERMISSIBLE WATER-CEMENT RATIOS Maximum Permissible Water-Cement Ratios, By Weight			
Type	Specified 28-Day Compressive Strength in psi	Non-Air Entrained Concrete	Air Entrained Concrete
A	4000	----	0.44
C	2000	0.76	0.62

Concrete subjected to deicers shall have a maximum water-cement ration of 0.44. If concrete is designed to be watertight, concrete shall have a maximum water-cement ratio of 0.44.

- I. Contractor shall submit for approval supporting data for his proposed mix designs.

32-3A.6 MIXING CONCRETE

- A. General – Ready-mixed concrete shall be mixed and delivered in accordance with ASTM C-94, “Standard Specifications for Ready-Mixed Concrete” modified as follows:
1. During a continuous placement, the interval between loads shall not exceed 20 minutes, or be so great that concrete in place becomes partially hardened.
 2. Water used to flush mixer or agitator between loads shall not become a part of concrete in the work.
 3. Truck mixers shall be revolving drum type equipped with water mixing tank. Place only prescribed amount of mixing water in tank for batch type and size unless tank is equipped with device to allow Engineer to read amount of water added and his approval is given.
 4. Prepare delivery tickets for every ready-mixed concrete load delivered. If a laboratory representative is inspecting batching operation, he shall prepare the ticket. Otherwise batch plant operator shall prepare the ticket. Truck drivers shall deliver tickets to Engineer at the site at the time of delivery. Tickets shall contain the following information:
 - a. Number of yards delivered on this truck.
 - b. Quantities of materials in the batch.
 - c. Time at which the truck left the batching plant.
 - d. Time at which the cement was added.
 - e. Outdoor temperature in the shade.
 - f. Numerical sequence of the delivery.

g. Date.

B. Batch Mixing at the Site:

1. Concrete shall be mixed in a batch mixer conforming to requirements of the Mixer Manufacturers Bureau of the Associated General Contractors of America. Mixer shall bear a Manufacturer's rating plate indicating the rated capacity and the recommended revolutions per minute and shall be operated in accordance with these recommendations. It shall be equipped with a suitable charging hopper, water storage tank and a water-measuring device and be capable of thoroughly mixing the aggregates, admixtures, cement and water into a uniform mass with specified mixing time and of discharging the mix without segregation.
2. All equipped admixtures shall be dispensed by means of an automatic dispenser or similar metering device. Powdered admixtures shall be weighed or measured by volume as recommended by Manufacturer. Accuracy of measurement of any admixture shall be within $\pm 3\%$ of the quantity used.
3. The batch shall be so charged into the mixer that some water will enter in advance of the cement and aggregates. Water shall continue to flow for a period which may extend to the end of the first 25% of the specified mixing time. Controls shall be provided to insure that no additional water may be added during mixing. Entire batch shall be discharged before mixer is recharged.
4. Each batch of two cubic yards or less shall be mixed for not less than 1 ½ minutes. Mixing time shall be increased 15 seconds for each additional cubic yard for fraction thereof.
5. Mixer shall be clean and the pick-up and throw-over blades in the drum shall be replaced when they have lost 10% of their original depth.

C. Retempering and Changing Slump:

1. Concrete shall be mixed only in quantities for immediate use. Concrete which has set shall not be retempered but shall be discharged.
2. Addition of water to increase slump shall be prohibited. Ingredients shall be cooled before mixing, or well-crushed ice may be substituted for all or part of the mixing water if, due to high temperature, deemed necessary by the Engineer.

D. Cold Weather:

1. To maintain to temperature of the concrete above minimum placing temperature, the as-mixed temperature shall not be less than 55°F when the mean temperature falls below 40°F.
2. If water or aggregate has been heated, water shall be combined with the aggregate in the mixer before cement is added. Cement shall not be added to mixtures of water and aggregate when temperature of mixture is greater than 100°F.

E. Hot Weather:

1. Ingredients shall be cooled before mixing, if necessary, to maintain temperature of concrete below the maximum placing temperature of 90°F.

32-3A.7 FORMWORK

- A. All formwork shall be as required in ACI 347, "Recommended Practice for Concrete Formwork" except as modified below:
1. Forms shall conform to shape, lines, grades and dimensions of the concrete as called for in the drawings. All lumber used for forms shall be thoroughly cleaned and treated with an approved form oil. Lumber used in forms for exposed surfaces shall be dressed to a uniform thickness and free from loose knots or other defects. For unexposed surfaces and rough work, undressed lumber free of nails and clean of hardened concrete or other foreign material may be used. Lumber once used in forms shall have nails withdrawn and surfaces to be in contact with concrete shall be thoroughly cleaned before being used again. Forms for all exposed concrete shall be carefully built to produce contour and design indicated. Care shall be taken to assure that all form joints are vertical or horizontal. No sloping joints will be accepted.
- B. Form sheathing for exposed surfaces shall be composed of tongue and groove lumber, shiplap, plywood, concrete form board or steel.
- C. Steel lining of wood lagging will not be permitted. Tongue and groove shiplap when used shall conform to American Lumber Standards for No. 2 boards.
- D. Plywood used for sheathing or lining shall be Grade B-B, exterior or better, as described in the Commercial Standards of the Douglas Fir Plywood Association.
- E. Forms used shall produce a concrete surface with "abrupt" irregularities less than ¼" and gradual irregularities less than ½" in 5'.
- F. Where circular or curved surfaces greater than 10'0" radius will be exposed to view, forms may be constructed of panels with a maximum width of 12".
- G. For small radius curves of 10'0" or less, forms shall be circular, conforming to the true shape of the structure.
- H. Forms shall be sufficiently tight to prevent leakage of mortar. They shall be properly braced or tied together to maintain the desired position and shape during and after placing concrete, and so they will not tremble or distort in a high wind.
- I. Temporary openings shall be provided at base of wall forms and other points when necessary to facilitate cleaning and inspection immediately before depositing concrete.
- J. Embedded metal rods of a design approved by Engineer shall be used for internal form-ties. They shall be so designed and arranged that when the forms are removed no metal shall be within ¾" of any concrete surface. Ties used shall be manufactured in such a way that

installation will not necessitate a hole in the form larger than the tie rod. Ordinary wire ties and ties that require removal from concrete will not be permitted. Wall ties shall be submitted to Engineer for approval prior to use on the job.

K. Form surfaces shall be prepared as follows:

1. Forms shall be sufficiently tight to prevent leakage of grout or cement paste. Board forms having joints opened by shrinkage of wood shall be swelled until closed by wetting before concrete is placed.
2. Plywood and other wood surfaces not subject to shrinkage shall be sealed against absorption of moisture from concrete by either:
 - a. A field-applied commercial form oil or sealer.
 - b. A factory-applied nonabsorptive liner. Excess oil or sealers shall be removed prior to placing of concrete.
3. When steel forms are coated to prevent bond with concrete, it shall be done prior to placing of reinforcing steel. Excess material shall not be allowed to stand in puddles in the forms, nor allowed to come in contact with concrete or reinforcing against which fresh concrete will be placed.
4. Where as-cast finishes are required, materials which will impart a stain to the concrete shall not be applied to form surfaces. Where finished surface is required to be painted, material applied to form surfaces shall be compatible with type of paint to be used. All form surfaces shall be cleaned before reuse.

L. No form or form support shall be removed from formed surface for at least 24 hours. Exposed surfaces shall receive moisture curing as soon as the fresh concrete will accept it without damage. Forms shall be removed in such manner as to insure complete safety of structure. Responsibility for removal of forms shall be with Contractor. However, the following minimum requirements shall be adhered to:

1. In cold or inclement weather, requirement for removal of forms shall be as stated in the article under "Placing Concrete in Cold Weather".
2. Forms for supporting reinforced concrete roofs or floors shall not be removed nor form supports slackened for a period of 28 days unless Contractor can produce satisfactory evidence that concrete has attained the specified 28-day strength characteristic.
3. Portions of the structure subjected to construction loads or backfill shall have attained sufficient strength to withstand these loads, and Contractor will be required to produce evidence that such strength has been attained.
4. No construction loads exceeding structural design loads shall be supported upon any unshored portion of the structure under construction.

- M. Evidence that concrete has attained strength sufficient for the above conditions shall consist of reports of compression tests made on job-cured cylinders. Cost of such tests shall be borne by Contractor.
- N. In case Contractor shall remove any form or slacken any supports before above conditions have been met, concrete elements may be condemned even though there is not an apparent defect.

32-3A.8 PLACING CONCRETE

A. General:

- 1. Placing of concrete shall be done in accordance with ACI 304, "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete," except as modified or revised by these specifications.

B. Preparation Before Placing:

- 1. Hardened concrete and foreign materials shall be removed from inner surfaces of the conveying equipment.
- 2. Chutes shall be of metal or metal-lined.
- 3. If two or more lengths of chute are used, they shall have approximately the same slope. Slopes shall neither exceed one vertical to two horizontal, or be less than one vertical to three horizontal.
- 4. If the distance of the discharge end of the chute above the surface of the concrete is more than three times the thickness of the layer being deposited, or more than 4' total, a spout shall be used and the lower end maintained as near to the surface of deposit as practical. When operation is intermittent, the chute shall discharge into a hopper.
- 5. The chute shall be thoroughly cleaned before and after each run and the debris from any water used shall be discharged outside the forms.

C. Placing:

- 1. Concrete shall be deposited continuously or in layers of such thickness that no concrete will be deposited on concrete which has hardened sufficiently to cause the formation of seams or places of weakness within the section.
- 2. If a section cannot be placed continuously, construction joints shall be located at approved points.
- 3. Placing shall be carried on at such a rate that concrete which is being integrated with fresh concrete is still plastic. Concrete which has partially hardened, or has been contaminated by foreign materials, shall not be deposited.

4. Concrete shall be deposited in the forms as nearly as practical in its final position to avoid rehandling.
5. Temporary spreaders in forms shall be removed when concrete placing has reached an elevation rendering their service unnecessary. They may remain embedded in the concrete only if made of metal or concrete and if prior approval is obtained.
6. Forms for walls or thin sections of considerable height shall be provided with openings or other devices that will prevent segregation and accumulation of hardened concrete on the forms or on the metal reinforcement above the level of the concrete.
7. Before depositing new concrete on or against concrete which has hardened and to which it is to bond, the forms shall be retightened. Surface of hardened concrete shall be roughened in a manner that will not leave loosened particles of aggregate or damaged concrete at the surface. It shall be thoroughly cleaned of foreign matter and laitance, and dampened with water. New concrete shall be placed after the bonding compound has dried.
8. Where a smooth finish is required, the concrete shall be carefully placed and consolidated to assure a full surface of mortar against the form without formation of excessive surface voids.
9. Mechanical vibrators shall have a minimum frequency of 8,000 vibrations per minute and be operated by competent workmen. Over vibration and use of vibrators to transport concrete within forms shall not be allowed. Vibrators shall be inserted and withdrawn (approximately vertical) at many points from 18"-30" apart for five to ten seconds duration. A spare vibrator shall be kept on the job site during all concrete placing operations.
10. Accumulation of water on the surface of the concrete due to water gain, segregation or other causes during placement and consolidation shall be prevented as far as possible by adjustments in the mixture. Provisions shall be made for the removal of such accumulated water so that under no circumstances will concrete be finished with such "bleed water" on the surface.
11. Unless adequate protection is provided, or prior approval is obtained from the Engineer, concrete shall not be placed during rain, sleet or snow.
12. Rainwater shall not be allowed to increase the mixing water, nor to damage the surface finish.

D. Cold Weather Placing:

1. Concrete shall be placed in cold weather in accordance with ACI 306 – "Recommended Practice for Cold Weather Concrete" except as modified or revised below:
 - a. Before placing concrete during cold weather, forms shall be free from frost and ice.
 - b. During those seasons of the year (after the first frost in the fall and until daily mean temperature in the spring reaches 40°F for three successive days) when freezing

temperatures can be anticipated, Contractor shall maintain facilities to keep concrete from freezing for at least 48 hours after placing.

- c. When daily mean temperature drops below 40°F for more than one day, concrete shall be maintained at a temperature of 50°F for a minimum of seven days. During this period, concrete and adjacent form surfaces shall be kept moist at all times. When heating enclosures are to be provided, care shall be taken to provide adequate space around outer edges and top of concrete structure to permit circulation of the heater air so that neither freezing nor excessive heating of these extremities can occur. Method proposed for protection must have the approval of the Engineer and all facilities for protection and heating must be on hand before concrete is placed.
- d. After required protection period is over, heat shall be removed gradually so that a temperature differential of no more than 40°F will occur over the first 24 hours.
- e. Forms shall not be removed from concrete surfaces during protection period stipulated above, nor shall forms be removed for a period of three days during those seasons of the year previously specified when the difference between daily high and low temperatures may reasonably be expected to exceed 40°F.

E. Hot Weather Placing:

- 1. Concrete shall be placed in hot weather in accordance with ACI 305, "Recommended Practice for Hot Weather Concreting," except as modified below:
 - a. At air temperature of 90°F or above, concrete shall be kept as cool as possible during placing. Exposed concrete surfaces shall be kept continuously moist by wet-curing for at least 24 hours after concrete has been placed. After the period of wet-curing, a suitable heat-reflecting plastic membrane or white-pigmented curing compound may be used.

32-3A.8 REPAIR OF SURFACE DEFECTS

- A. After forms have been removed, any concrete not formed as shown, or which shows a defective surface which cannot be properly repaired or patched, shall be removed. Adequacy of surfaces will be governed by the judgment of the Engineer.
- B. All tie holes and repairable defective areas shall be patched immediately after form removal.
- C. All honeycombed and other defective concrete shall be removed to sound concrete, but in no case to a depth of less than 1". Area to be patched, and an area at least 6" wide surrounding it, shall be dampened to prevent absorption of water from patching mortar. The bonding compound, "Euco Weld" by the Euclid Chemical Company or "Weld-crete" by Larson Products, or approved equal, shall be applied. The patching mortar shall be placed after the bonding compound has dried.

- D. Patching mixture shall be made of same material and of approximately same proportions as used for concrete, except that coarse aggregate shall be omitted and mortar shall consist of not more than one part cement to 2 ½ parts sand by damp, loose volume.
- E. Quantity of mixing water shall be no more than necessary for handling and placing. Patching mortar shall be mixed in advance and allowed to stand with frequent manipulation with a trowel, without addition of water, until it has reached the stiffest consistency that will permit placing.
- F. Tie holes shall be cleaned, dampened and filled solid with patching mortar.
- G. With prior approval of the Engineer as to method and procedures, the compounds used for all structural repairs shall be "Euco Epoxy #456, #460 or #463" by the Euclid Chemical Company; "Colma Dur Mortar," "Sikadur Hi-Mod L.V." or "Sikadur Hi-Mod" by Sika Chemical Corporation, or approved equal.

32-3A.9 FLATWORK

- A. Edge forms and intermediate screed strips shall be set accurately to produce designed elevations and contours in the finished surface, and shall be sufficiently strong to support vibrating bridge screeds or roller pipe screeds if the nature of finish specified requires the use of such equipment. Concrete surface shall be aligned to contours of screed strips by use of strike-off templates or approved compacting type screeds.
- B. Concrete in slabs shall be thoroughly consolidated. Internal vibration shall be used along bulkheads of slabs on grade. Consolidation of slabs shall be obtained with vibrating bridge screeds, roller pipe screeds or other approved means. Concrete to be consolidated shall be as dry as practicable and surfaces shall not be manipulated prior to finishing operations.

32-3A.10 CONCRETE FINISH

- A. All concrete surfaces shall be finished as specified as soon after placing the concrete as conditions will permit. Placing of concrete and removal of forms shall be scheduled so that finishing surfaces can be completed as soon as possible without jeopardizing the structure. No cement plaster or cement brush coats will be acceptable.
- B. Formed concrete surfaces which are not exposed to view in the finished work shall be finished by removing the form ties below surface of concrete, pointing up and rubbing down to remove fins and irregularities and leaving a reasonable smooth surface.
- C. Formed concrete surfaces exposed to view in the finished work shall be finished by removing the forms as early as is practical, immediately removing the form ties to a depth of at least ¾" beneath the surface and pointing up the holes and filling all cavities and depressions with a cement mortar similar to that in concrete, and finishing flush with a wood float or trowel.

- D. Cement mortar shall not be applied except to fill holes or cavities.
- E. Fins, form marks, projections and uneven spots shall be removed by rubbing or grinding the surfaces. Entire surface of concrete shall then be thoroughly drenched with water and rubbed with a carborundum brick or other approved abrasive until all fins, joint marks and mortar spots have been eliminated and a smooth finish of uniform texture and appearance has been produced.
- F. Similar finishes on exterior exposed walls shall be carried 1' below finished grade. All exposed concrete surfaces shall be required to present a smooth and uniform surface.
- G. Concrete for slabs shall be placed, consolidated, struck off and leveled to established grade. After the surface has stiffened sufficiently to permit the operation and the water sheen has disappeared, float the surface at least twice to a uniform sandy texture. Where required, the surface shall then be troweled, at least twice, to a smooth, hard, dense finish. The floating operation shall not begin until all excess water has been removed or evaporated.
- H. All interior floors and platforms exposed to view shall receive a steel trowel finish.
- I. All exterior slabs, sidewalks, etc. shall receive a broomed finish after the surface has received a float finish. Texture shall be as directed by the Engineer.
- J. All interior floor slabs (structural and on-grade) shall receive a surface hardener.
 - 1. Apply hardware at a rate recommended by Manufacturer, but not less than 1.0 lb/ft². Cure floor slabs in accordance with hardener Manufacturer recommendations.
 - 2. Hardener shall be "Colorcron" as manufactured by Master Builders or approved equal. After application of the hardener material, floor shall be cured with "Kurowax" at the application rate of 400 square feet per gallon. Color of hardener to be selected by the Engineer.

3A.11 CURING AND PROTECTION

- A. Freshly deposited concrete shall be protected from premature drying and excessively hot or cold temperatures and maintained without drying at a relatively constant temperature for a period of seven days or for a longer time if necessary for hydration of the cement and proper strength gain.
- B. Initial curings shall immediately follow finish operation. Concrete shall be kept continuously moist at least 24 hours.
- C. Immediately following initial curing and before concrete has dried, additional curing shall be accomplished by one of the following materials or methods:
 - 1. Continuing the method used in initial curing.

2. Building paper or polyethylene sheeting as specified.
 3. Liquid membrane-curing compound except on surfaces to receive coatings or additional lifts of concrete. Curing compounds conforming to "Specifications for Liquid Membrane-Forming Compounds for Curing Concrete" (ASTM C-309). Such compounds shall be applied in accordance with recommendations of the Manufacturer and shall not be used on any surfaces against which additional concrete or other cementitious finishing materials are to be bonded, not on surfaces on which such curing is prohibited by these specifications.
- D. Final curing shall continue until cumulative number of days during which temperature of the air in contact with concrete is above 50°F has totaled seven days.
- E. Rapid drying at the end of the curing period shall be prevented.
- F. During curing period, concrete shall be protected from damaging mechanical disturbances, particularly load stresses, heavy shock and excessive vibration. All finished concrete surfaces shall be protected from damage caused by construction equipment, materials or methods and by rain or running water. Self-supporting structures shall not be loaded in such a way to overstress concrete.

3A.13 REINFORCEMENT

- A. Reinforcing bars shall conform to requirements of ASTM A615, "Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement". All reinforcing bars shall be Grade 60 unless otherwise noted on the drawings.
- B. Welded wire fabric for concrete reinforcement shall be electrically-welded wire fabric of cold-drawn wire conforming to ASTM A185, "Specification for Welded Wire Fabric for Concrete Reinforcement".
- C. Reinforcement shall be accurately formed to the dimensions indicated on the drawings. Stirrups and tie bars shall be bent around a pin having a diameter not less than two times the minimum thickness of the bar except for hooks. Bends for other bars shall be made around a pin having a diameter not less than six times the minimum thickness, except for bars larger than 1", in which case the bend shall be made around a pin of eight bar diameters. All bars shall be bent cold.
- D. Bars used for concrete reinforcement shall meet the following requirements for fabricating tolerances:
1. Sheared length: $\pm 1"$
 2. Depth of truss bars: $+0. - \frac{1}{2}"$
 3. Stirrups, ties and spirals: $\pm \frac{1}{2}"$
 4. All other bends: $\pm \frac{1}{2}"$

- E. Metal reinforcement shall not be straightened or rebent in a manner that will injure the material. Bars with kinks or bends not shown on the drawings shall not be used. Heating the reinforcement will not be permitted.
- F. Metal reinforcement shall be accurately positioned in accordance with information on the drawings and secured against displacement by using annealed iron wire ties or suitable clips at intersections, and shall be supported by concrete or metal supports, spacers or metal hangers.
- G. Bars shall be placed to the following tolerances:
 - 1. Concrete cover to formed surfaces: $\pm \frac{1}{4}$ "
 - 2. Minimum spacing between bars: $\pm \frac{1}{4}$ "
 - 3. Top bars in slabs and beams:
 - a. Members 3" deep or less: $\pm \frac{1}{4}$ "
 - b. Members more than 8" but not over 2' deep: $\pm \frac{1}{2}$ "
 - 4. Crosswise of members: Spaced evenly within 2"
 - 5. Lengthwise of members: ± 2 "
 - 6. 3" members more than 2' deep: ± 1 "
- H. Bars may be moved as necessary to avoid interference with other reinforcing steel, conduits or embedded items. If bars are moved more than one bar diameter, or enough to exceed the above tolerances, the resulting arrangement of bars shall be subject to approval.
- I. If it is necessary to splice reinforcement at points other than shown on the drawings, the character of the splice shall be determined by the Engineer. The overlap in splices shall be in accordance with the Table "Reinforcing Steel Lap Splices and Embedments" on the Drawings.
- J. Welded wire fabric shall be lapped at least 1 $\frac{1}{2}$ meshes plus end extension of wires, but not less than 12" in structural slabs. It shall be lapped at least $\frac{1}{2}$ mesh plus end extension of wires, but not less than 6" in slabs on the ground. All laps of wire mesh shall be securely tied together with No. 14 tie wire, one tie for each two running feet. Wires shall be staggered and tied in such a manner that they cannot slip. The mesh shall be extended across supporting beams and walls. Adequate support for mesh shall be used during placing of concrete so that mesh is completely surrounded by concrete and not less than 2" above bottom of slabs on the ground, or $\frac{1}{2}$ " above the formwork.
- K. Metal reinforcement, before positioned, shall be free from loose mill and rust scale, and from coatings, including ice and form oil, that destroy or reduce the bond. Where there is delay in depositing concrete, reinforcement shall be reinspected and cleaned where necessary.
- L. Unless permitted, reinforcement shall not be bent after being partially embedded in hardened concrete.

32-3A.14 JOINTS AND EMBEDDED ITEMS

A. Construction Joints

1. The location of critical joints throughout the structures is shown on the Drawings but all construction joints are not shown on the Drawings. The other joints shall be located in accordance with the following requirements and meet the Engineer's approval.
 - a. The horizontal length between wall joints shall not exceed 30' in a continuous wall. At corners or other intersections of two or more walls, a joint shall be provided in each wall at a distance of 15'-20' from the intersection point in all directions.
 - b. Slabs shall have joints placed approximately 30' in each direction although some adjustments, as approved by the Engineer, may be permitted due to column spacings and details.
 - c. Where the specific location of construction joints is not indicated on the Drawings, the joint location will be selected by the Contractor, but subject to the approval of the Engineer. Requests for approval of joint location shall be submitted to the Engineer 7 days prior to the scheduled pour and the pour shall not be made unless the joint location has been approved by the Engineer. Joints not indicated on the Drawings shall be so made and located to least impair the strength of the structure.
 - d. Construction joints in floors shall be located near the middle of the span of slabs, beams, or girders. If a beam intersects a girder at this point, the joint in the girders shall be offset a distance equal to twice the width of the beam and adequate shear reinforcement as determined by the Engineer shall be provided.
 - e. Walls and slabs shall be placed in alternate sections. At least 5 days shall elapse before concrete is placed against an adjacent vertical joint.
 - f. Unless otherwise directed or shown on the Drawings, all joints shall be provided with keyways that are approximately 2" deep and have a width equal to $\frac{1}{3}$ of the thickness of the thinner section. Reinforcement shall be made continuous through construction joints.
 - g. Waterstops shall be placed in construction joints where indicated on the Drawings. Construction joints which are below the maximum water level of hydraulic structures and below finished ground shall have waterstops.
 - h. When concreting is to be discontinued for more than 45 minutes, an approved type of construction joint shall be made. In structures where waterstops are being used, the Contractor shall install waterstops in such joints. He shall keep on hand at all times a sufficient stock of waterstop material for that purpose. If the Contractor allows a "cold joint" to develop without providing an approved key joint and waterstop, that particular pour shall be removed and replaced at the Contractor's expense.

- i. Special joints, such as expansion joints or control joints, shall be detailed on the Drawings.

B. Expansion Joints

1. Expansion joint locations shall be as shown on the drawings; however, if not shown, in no case shall expansion joints be placed at intervals greater than 75'.
 - a. Reinforcement or other embedded metal items bonded to concrete shall not be permitted to extend continuously through expansion joints.
 - b. Premolded expansion joint filler shall be of size shown on the project drawings, and shall conform to "Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction", (ASTM D1752).

C. Other Embedded Items

1. All sleeves, inserts, anchors and embedded items required for adjoining work, or for its support, shall be placed prior to concreting.
 - a. Waterstops shall be vinyl ribbed with lengths and locations as shown on the Drawings.

D. Placing Embedded Items

1. Expansion joint material and embedded items shall be positioned accurately and supported against displacement. Voids in sleeves, inserts and anchor slots shall be filled temporarily with readily removable material to prevent entry of concrete into the voids.

32-3A.15 QUALITY CONTROL TESTING DURING CONSTRUCTION

- A. General – The Contractor will employ at no additional cost an independent testing laboratory to perform tests and to submit test reports.
- B. Notification to the testing agency for observation of installed
- B. Additional sampling and testing for quality control during placement of concrete shall be as directed by the Engineer and at no additional cost to the owner.
- C. Sampling Fresh Concrete – ASTM C-172, except modified for slump to comply with ASTM C-94 and contract specifications as outlined in Section 32-3A.5.D

END OF SECTION

GROUT SECTION 32-4

32-4B.1 SCOPE

- A. This section covers material, mixing, forming and placing of grout.

32-4B.2 GENERAL REQUIREMENTS

- A. Unless otherwise amended by this section, the requirements of Section 32-3 Concrete Reinforcement and Specials regarding handling, storage, mixing, placement, repairs, finish, curing, forming and protection shall apply to this section.

32-4B.3 REFERENCES

- A. American Concrete Institute:
1. ACI 301 - Specifications for Structural Concrete.
 2. ACI 318 - Building Code Requirements for Structural Concrete.
- B. American Society of Testing and Materials:
1. ASTM C33 - Standard Specification for Concrete Aggregates.
 2. ASTM C40 - Test Method for Organic Impurities in Fine Aggregates for Concrete.
 3. ASTM C150 - Standard Specification for Portland Cement.
 4. ASTM C191 - Test Method for Time of Setting of Hydraulic Cement by Vicat Needle.
 5. ASTM C307 - Test Method for Tensile Strength of Chemical-Resistant Mortar, Grouts, and Monolithic Surfacing.
 6. ASTM C531 - Test Method for Linear Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes.
 7. ASTM C579 - Test Method for Compressive Strength of Chemical-Resistant Mortars, Grouts, monolithic Surfacing and Polymer Concretes.
 8. ASTM C827 - Test Method for Change in Height at Early Ages of Cylindrical Specimens from Cementitious Mixtures.
- C. U. S. Army Corps of Engineers Concrete Research Division (CRD):
1. CRD C621 - Non-Shrink Grout.

32-4B.3 MATERIALS

- A. Fill grout for manholes, wetwells, tank bottoms, etc. shall be a mixture of Type I Portland Cement and fine aggregate, both as specified in Section 3A.
1. Ratio of cement to sand shall be 1:2.5.
 2. Course aggregate may be permitted by the Engineer in grout fills 2" thick or greater. Aggregate size will be determined by the Engineer.

32-4B.4 Placement

- A. Place special non-shrink grout in strict accordance with Manufacturer's instructions.

CONCRETE SIDEWALKS, DRIVEWAYS, CURBS
SECTION 32-5

32-5D.1 SCOPE

- A. This section contains the requirements for cement to be used for waterline thrust blocking, encasement, concrete sidewalk, driveways, etc. and for the construction of concrete sidewalks, driveways, curbs, etc.

- B. Concrete:
 - 1. Concrete for waterline thrust blocking, encasement shall be Class C per PennDOT Publication 408, Section 704, 2000 Edition.
 - 2. Concrete for sidewalks and driveways shall be Class A per PennDOT Publication 408, Section 704, 2000 Edition.

- C. Sidewalk & Driveways:
 - 1. Construction shall be in accordance with PennDOT Publication 408, Section 676.
 - 2. Class A concrete shall be in accordance with PennDOT Publication 408, Section 704.
 - 3. The Contractor shall construct expansion joints every twelve feet (12') center to center. Expansion joints shall be one-half inch (1/2") dimension with sealant recessed three-sixteenths of an inch (3/16") from the surface. Expansion joints shall also be constructed where the concrete meets building walls, foundation, and curbs. Expansion joints shall be constructed at any change of direction or where new pavement abuts old existing pavement.
 - 4. The Contractor shall construct contraction joints every four feet (4') center to center. Contraction joints shall be one-quarter inch (1/4") in width and shall be one inch (1") in depth with joint sealing material recessed three-sixteenths of an inch (3/16") from the surface.
 - 5. The surface finish shall match the existing concrete or, at a minimum, shall be as follows: (a) broom finish steel trowel smooth or roughness exceeding one-eighth of one inch (1/8") is not acceptable; (b) general sequence to be screed, float, and broom; (c) water curing recommended.

- D. Concrete Curb:
 - 1. The Contractor shall construct the curb in accordance with PennDOT Publication 408, Section 630 and as shown on the Drawings. This includes standard and depressed curb construction.

32-5D.2 CONCRETE FINISHING

A. BROOM FINISHING:

1. All concrete surfacing shall be finished with a light brush finish.
2. Brushing shall be uniform and transverse at right angles to the centerline of the walk and shall be sufficient to eliminate any marks left by prior operations.

CONCRETE SEALANT
SECTION 32-6

32-6E.1 GENERAL

- A. This work shall consist of furnishing and application of concrete acrylic polymer immediately after concrete finishing.
- B. Sealant shall be Cure & Seal 25 UV EX by SPECICHEM, LLC or approved equal.

32-6E.2 APPLICATION AND STANDARDDDS

- A. Refer to Product Technical Data for more information.
- B. Refer to Product Material and Safety Datasheet for more information.

SECTION 32-7
TACTILE WARNING SURFACING

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents:
1. Drawings and general details apply to this Section.
 2. Review these documents for coordination with additional requirements and information that apply to work under this Section.
- B. DOME GEOMETRY: In accordance with ADA Regulations for Detectable Warning on Curb Ramps: raised truncated domes with a diameter of nominal 0.9", a height of nominal 0.2", and a center-to-center spacing of nominal 1.67" minimum and 2.35" maximum.
- C. TWS PANEL DIMENSIONS: TWS Panels are available in 24"x36", 24"x48", 24"x60", 36"x48", and 36"x60" sizes and measure 3/16" thick. Panels can be custom cut to fit field conditions. All four edges of each panel have a 1/2" beveled edge. Each panel has 12 to 24 pre-formed fastener locations based upon panel size.
- D. MATERIAL: A homogenous glass and carbon reinforced composite which is colorfast and UV stable. Truncated domes are fiberglass reinforced for enhanced durability. The TWS panel color is uniform throughout and does not rely on any type of paint coating to achieve color stability. Standard colors include: Federal Yellow, Brick Red, Clay Red, Safety Red, Gray, Black, and Blue.

1.2 PHYSICAL CHARACTERISTICS

A.	Compressive Strength	28,900 psi	ASTM D 695
B.	Flexural Strength	29,300 psi	ASTM D 790
C.	Water Absorption	07%	ASTM D 570
D.	Slip Resistance	1.18 Dry/1.05 We	ASTM C 1028
E.	Flame Spread Index	20	ASTM E 84
F.	Salt Spray	No Change (200 hours)	ASTM B 117
G.	Chemical Stain Testing	No Deterioration	ASTM 1308
H.	Abrasion Resistance	549	ASTM C 501
I.	Accelerated Weathering	Delta E <5.0 (2,000 hours)	ASTM G 155
J.	Tensile Strength	11,600 psi	ASTM D 638

- | | | | |
|----|-----------------------------------|--------------------------------|-------------|
| K. | Adhesion to Conc.(20-180 degrees) | No Delamination or Degradation | ASTM C 903 |
| L. | Freeze/Thaw/Heat | No Disintegration | ASTM C 1026 |

1.3 INSTALLATION

- A. See sheet GD-1, GD-2 for Detail.
- B. The installation area should be cleaned of all debris, oil and grease, making sure the area is completely free of moisture. Tactile Panel may be surface mounted on existing pre-cleaned substrate.
- C. Lay out the Tactile Panel on the substrate as it will appear when installed. If required, the Tactile Panel may be cut using a table saw and marble tipped blade.
- D. Place a 3/8" bead of adhesive on the frame of the bottom of each Tactile Panel. Adhesive yield: 10SF per 10 ounce cartridge.
- E. Set the Tactile Panel in the installation area. Make all necessary adjustments prior to fastening.
- F. Fasteners shall be installed in pre-formed fastener locations. Holes shall be drilled using a hammer drill with 1/4" x 2" min SDS bits. The drilled holes must be a minimum of 2" deep. Place fasteners in hole and hammer into place. If additional fasteners are required use 1/2", six point, 82 degree countersink to add a new fastener location. Follow the same drilling method for installing the fastener.
- G. Caulk around perimeter of entire installation using BASF NP1 or equivalent. All concrete dust present on the Tactile Panel resulting from the drilling process must be cleaned off of the Tactile Panel prior to using any caulking materials.
- H. Surface Applied Tactile Panels shall be mechanically fastened and adhered to the underlying substrate.
- I. INCIDENTALS: Fasteners: 1/4" x 1 5/8" composite sleeve anchor with SS pins. Adhesive: one component structural urethane adhesive. Sealant: BASF NP1, Sikaflex 1A, or equivalent.

END OF SECTION 32-7

SECTION 32-8
SEEDING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fertilizing.
2. Seeding.
3. Hydro seeding.
4. Mulching.
5. Maintenance.

UNIT PRICE - MEASUREMENT AND PAYMENT

B. Grassed Areas:

1. Basis of Measurement: As Depicted on BID SCHEDULE.
2. Basis of Payment: Includes seeding, watering and maintenance to specified time limit.

1.2 REFERENCES

A. ASTM International:

1. ASTM C602 - Standard Specification for Agricultural Liming Materials.

1.3 DEFINITIONS

- A. Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning Glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy Ragwort, Bermuda Grass, Johnson Grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel, and Brome Grass.

1.4 SUBMITTALS

- A. Section 4 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit data for seed mix, fertilizer, mulch, and other accessories.
- C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.5 CLOSEOUT SUBMITTALS

- A. Section 8 - Execution and Closeout Requirements: Requirements for submittals.
- B. Operation and Maintenance Data: Include maintenance instructions, cutting method and maximum grass height; types, application frequency, and recommended coverage of fertilizer.

1.6 QUALITY ASSURANCE

- A. Provide seed mixture in containers showing percentage of seed mix, germination percentage, inert matter percentage, weed percentage, year of production, net weight, date of packaging, and location of packaging.
- B. Perform Work according existing field conditions.
- C. Maintain copies of each document on site.

1.7 QUALIFICATIONS **Not Used**

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Section 7 - Product Requirements: Product storage and handling requirements.
- B. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.
- C. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

1.9 MAINTENANCE SERVICE

- A. Section 8 - Execution and Closeout Requirements: Requirements for maintenance service.
- B. Maintain seeded as outlined in the Maintenance Requirements per the signed agreement.

PART 2 - PRODUCTS

2.1 SEED MIXTURE

- A. Description:
 - 1. Embankments - PENNSYLVANIA DEPARTMENT OF TRANSPORTATION Pub. 408 Section 840.2(b), Formula C mix.
 - 2. Lawn areas - PENNSYLVANIA DEPARTMENT OF TRANSPORTATION Pub. 408 Section 804.2(b), Formula B mix.

2.2 SUSTAINABILITY CHARACTERISTICS **Not Used**

2.3 ACCESSORIES

- A. Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.

2.4 SOURCE QUALITY CONTROL

Lime shall be raw ground limestone, with not less than 90% total carbonates, 100% passing a 10 mesh sieve, and a maximum of 40% of content passing a 100 mesh sieve.

Commercial fertilizer (5-10-5) shall have the following composition by weight: Nitrogen, five (5%) percent; Phosphoric Acid, ten (10%) percent; Potash, five (5%) percent. These elements may be organic, inorganic or a combination thereof.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 2 - Administrative Requirements: Verification of existing conditions before starting work.
- B. Verify prepared soil base is ready to receive the Work of this section.

3.2 FERTILIZING

- A. Apply lime at rate of 800 pounds per one thousand square yards.
- B. Apply fertilizer at rate of 192 pounds per one thousand square yards.
- C. Work lime and fertilizer into soil to a depth of at least 2" by raking, dicing or harrowing.

3.3 SEEDING

- A. Apply seed at rate of 3 lbs per 1000 sq ft in two intersecting directions. Rake in lightly.
- B. Do not seed areas in excess of that which can be mulched on same day.
- C. Planting Season: Seeding may be accomplished between April 1 and May 15, or between September 1 and October 15

- D. Do not sow immediately following rain, when ground is too dry, or when winds are over 12 mph
- E. Apply water with fine spray immediately after each area has been mulched. Saturate to 4 inches of soil.

3.4 HYDROSEEDING Not Used

3.5 SEED PROTECTION

- A. Cover seeded slopes where grade is 4 inches per foot or greater with erosion fabric. Roll fabric onto slopes without stretching or pulling.
- B. Lay fabric smoothly on surface, bury top end of each section in 6 inch deep excavated topsoil trench. Overlap edges and ends of adjacent rolls minimum 12 inches. Backfill trench and rake smooth, level with adjacent soil.
- C. Secure outside edges and overlaps at 36 inch with stakes.
- D. Lightly dress slopes with topsoil to ensure close contact between fabric and soil.
- E. At sides of ditches, lay fabric laps in direction of water flow. Lap ends and edges minimum 6 inches

3.6 MAINTENANCE

- A. Mow grass at regular intervals to maintain at maximum height of 2.5 inches Do not cut more than 1/3 of grass blade at each mowing. Perform first mowing when seedlings are 40 percent higher than desired height.
- B. Neatly trim edges and hand clip where necessary.
- C. Immediately remove clippings after mowing and trimming. Do not let clippings lay in clumps.
- D. Water to prevent grass and soil from drying out.
- E. Roll surface to remove minor depressions or irregularities.
- F. Control growth of weeds. Apply herbicides. Remedy damage resulting from improper use of herbicides.
- G. Immediately reseed areas showing bare spots.
- H. Repair washouts or gullies.
- I. Protect seeded areas with warning signs during maintenance period.

3.7 SCHEDULE

- A. Front Seeded Area: Grass seed mixture specified, 3 inch top soil.
- B. Rear Seeded Area: Grass seed mixture specified except substitute Clover for Kentucky Blue Grass, 2 inch top soil.

END OF SECTION 32-7

SECTION 32-9
PAINTED PAVEMENT MARKINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Parking lot markings, including parking bays, crosswalks, arrows, handicapped symbols, curb markings, and striping for aisle accessways.
- B. Roadway lane markings and crosswalk markings.
- C. "No Parking" curb painting.

1.02 RELATED REQUIREMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division I Specification Sections, apply to this Section.
- B. Section 32 1216 - Asphalt Paving.
- C. Section 32 1313 - Concrete Paving.
- D. Section 32 1726 - Tactile Warning Surfacing: Plastic tactile and detectable warning tiles for pedestrian walking surfaces.

1.03 PRICE AND PAYMENT PROCEDURES

- A. See Section 01 2100 - Allowances, for cash allowances affecting this section.
- B. See Section 01 2200 - Unit Prices, for additional unit price requirements.
- C. See Section 01 2300 - Alternatives, for product alternates affecting this section.

1.04 REFERENCE STANDARDS

- A. FS TT-B-1325 - Beads (Glass Spheres); Retro-Reflective; Rev. D, 2007.
- B. FS TT-P-1952 - Paint, Traffic Black, and Airfield Marking, Waterborne; Rev. E, 2007.
- C. MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association; current edition, www.paintinfo.com.
- D. FHWA MUTCD - Manual on Uniform Traffic Control Devices for Streets and Highways; U.S. Department of Transportation, Federal Highway Administration; <http://mutcd.fhwa.dot.gov>;

A. PART 1 – GENERAL:

- 1. Areas indicated or illustrated on the contract drawings to be stripped shall be performed in accordance with these Penn DOT Publication 408-sections, 961 and 962, Latest edition and these specifications.
- 2. The work shall be performed in coordination with Asphalt Sealing Operations (if applicable).

3. Type of markings will be as follows:
 - a. Parking lines - four (4") inches wide.
 - b. Stop line - twenty-four (24") inches wide.
 - c. No parking and handicap area - each four (4") inches wide
 - d. Painted markings shall be in accordance with Publication 408, Section 962.
4. Pavement Marking Colors
 - a. Standard parking stall lines shall be white.
 - b. Handicap stall lines shall be blue.

B. CONSTRUCTION

1. Equipment: Use a machine that is:
 - a. capable of simultaneously applying two 4-inch parallel lines, in either solid or broken patterns or various combinations thereof;
 - b. capable of automatically dispensing glass beads onto the painted surface, at the required application rate, by the pressurized glass-gun method; and
 - c. equipped with a measuring device, which automatically and continuously measures the length of each line placed, to the nearest foot.
2. Application Rates
 1. Paint. Dispense in a wet-film thickness of 15 mils \pm 1 mil, except that edge markings may be 12 mils \pm 1 mil.
 2. Glass Beads. Apply at a rate of 6 pounds per gallon of paint.
 3. Surface Preparation. The Inspector-in-Charge will determine the need for cleaning prior to painting operations. Satisfactorily clean and dry the roadway surfaces. Blow or sweep free of loose dirt and other debris.
 4. Temperature Restriction. Do not apply when the air temperature is less than 40F

C. PROTECTION OF PAINTED SURFACES

1. Provide satisfactory protection for center lines, lane lines, edge lines, crosswalks, stop bars, symbols, and legends for at least 30 minutes or until paint is dry and track free from vehicular traffic. Barrier cones are satisfactory protection.
2. Repaint marked or damaged areas, as directed.

D. MATERIAL

1. Paint shall be **FastTrack 2706** all-acrylic emulsion, or approved equal, manufactured by **Dow Chemical Company**, or approved equal.

FASTRACK™ 2706 (OR APPROVED EQUAL)

Use FASTRACK™ 2706 polymer emulsion to create waterborne traffic marking paints that offer substantial safety, application, and environmental advantages over alkyds. Incorporates patented Quick Set technology for improved dry under humid conditions, resistance to early rain, and track-free time.

Used in:

In traffic marking paints

Typical Properties

These properties are typical but do not constitute specifications.

Density Dry (g/ml)	1.13
Class	ACRYLIC
Solids (%)	49.5-50.5
Density Dry (lb/gal)	9.43
Density Wet (g/ml)	1.05
Density Wet (lb/gal)	8.76
Part Size (Micron)	0.20
pH	10.0-10.6
Tg	25.0
Viscosity (cps)	<250

Advantages:

Environmentally Acceptable – Can be formulated to V.O.C.s as low as 0.8 pounds/gallon, meeting or exceeding most regulations for traffic marking paints.

Better Retention of Glass Beads – Paints formulated with waterborne acrylics retain their flexibility on aging and retain glass beads longer than typical alkyds.

Longer “Useful Life” – When properly formulated and applied, waterborne traffic paints retain their retroreflectivity longer, so reapplication is required less frequently.

Increased Worker Safety – Exposure to volatile organic solvents is greatly reduced.

Easier, Safer Cleanup – Can be done almost exclusively using water and mild solvents or detergents.

Significantly Reduced Disposal Costs – Waterborne acrylic paints can be solidified easily and disposed of as non-hazardous waste.

current edition.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver paint in containers of at least 5 gallons accompanied by batch certificate.
- B. Deliver glass beads in containers suitable for handling and strong enough to prevent loss during shipment accompanied by batch certificate.
- C. Store products in manufacturer's unopened packaging until ready for installation.

- D. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.07 FIELD CONDITIONS

- A. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Line and Zone Marking Paint: MPI No. 97 Latex Traffic Marking Paint; color(s) as indicated.
 - 1. Roadway Markings: As required by authorities having jurisdiction.
 - 2. Parking Lots: Yellow.
 - 3. Handicapped Symbols and Associated Striping: Blue.
 - 4. FastTrack 2706 made by Dow Chemical Company.
 - 5. Substitutions: See Section 01 6000 - Product Requirements.
- B. Line and Zone Marking Paint: Refer to Section 09 9000.
- C. Paint For Obliterating Existing Markings: FS TT-P-1952; black for bituminous pavements, gray for portland cement pavements.
 - 1. Line Block-out Paint made by Sealmaster.
 - 2. Substitutions: See Section 01 6000 - Product Requirements.
- D. Reflective Glass Beads: FS TT-B-1325, Type I (low index of refraction), Gradation A (coarse, drop-on); with silicone or other suitable waterproofing coating to ensure free flow.
- E. Temporary Marking Tape: Preformed, reflective, pressure sensitive adhesive tape in color(s) required; Contractor is responsible for selection of material of sufficient durability as to perform satisfactorily during period for which its use is required.
- F. Tactile Warning Surfaces: See Section 32 1726.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Report in writing to Architect all prevailing conditions that will adversely affect satisfactory execution of work. Do not proceed with work until unsatisfactory conditions have been corrected.
 - 1. Starting work constitutes acceptance of the existing conditions and the Contractor shall be responsible for any delays or changes required to existing conditions at the Contractor's expense.

3.02 PREPARATION

- A. Allow new pavement surfaces to cure for a period of not less than 14 days before application of marking materials.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Obliteration of existing markings using paint is acceptable in lieu of removal; apply the black paint in as many coats as necessary to completely obliterate the existing markings.
- D. Clean surfaces thoroughly prior to installation.
 - 1. Remove dust, dirt, and other granular surface deposits by sweeping, blowing with compressed air, rinsing with water, or a combination of these methods.
 - 2. Completely remove rubber deposits, existing paint markings, and other coatings adhering to the pavement, by scraping, wire brushing, sandblasting, mechanical abrasion, or approved chemicals.
 - 3. Sandblasting: Use equipment of size and capacity necessary, providing not less than 150 cfm of air at pressure not less than 90 psi at each nozzle used.
- E. Where oil or grease are present, scrub affected areas with several applications of trisodium phosphate solution or other approved detergent or degreaser, and rinse thoroughly after each application; after cleaning, seal oil-soaked areas with cut shellac to prevent bleeding through the new paint.
- F. Establish survey control points to determine locations and dimensions of markings; provide templates to control paint application by type and color at necessary intervals.
- G. Temporary Pavement Markings: When required or directed by Architect, apply temporary markings of the color(s), width(s) and length(s) as indicated or directed.
 - 1. After temporary marking has served its purpose, remove temporary marking by carefully controlled sandblasting, approved grinding equipment, or other approved method so that surface to which the marking was applied will not be damaged.
 - 2. At Contractor's option, temporary marking tape may be used in lieu of temporary painted marking; remove unsatisfactory tape and replace with painted markings at no additional cost to the Owner.

3.03 INSTALLATION

- A. Begin pavement marking as soon as practicable after surface has been cleaned and dried.
- B. Do not apply paint if temperature of surface to be painted or the atmosphere is less than 50 degrees F or more than 95 degrees F.
- C. Apply in accordance with manufacturer's instructions using an experienced technician that is thoroughly familiar with equipment, materials, and marking layouts.
- D. Comply with FHWA MUTCD manual (<http://mutcd.fhwa.dot.gov>) for details not shown.
- E. Apply markings in locations determined by measurement from survey control points; preserve control points until after markings have been accepted.
- F. Apply uniformly painted markings of color(s), lengths, and widths, where not indicated width shall be two (2) inches, as indicated on the drawings true, sharp edges and ends.
 - 1. Apply paint in one coat only.

2. Wet Film Thickness: 0.015 inch, minimum.
 3. Length Tolerance: Plus or minus 3 inches.
 4. Width Tolerance: Plus or minus 1/8 inch.
- G. Roadway Traffic Lanes: Use suitable mobile mechanical equipment that provides constant agitation of paint and travels at controlled speeds.
1. Conduct operations in such a manner that necessary traffic can move without hindrance.
 2. Place warning signs at the beginning of the wet line, and at points well in advance of the marking equipment for alerting approaching traffic from both directions. Place small flags or other similarly effective small objects near freshly applied markings at frequent intervals to reduce crossing by traffic.
 3. If paint does not dry within expected time, discontinue paint operations until cause of slow drying is determined and corrected.
 4. Skip Markings: Synchronize one or more paint "guns" to automatically begin and cut off paint flow; make length of intervals as indicated.
 5. Use hand application by pneumatic spray for application of paint in areas where a mobile paint applicator cannot be used.
 6. Distribute glass beads uniformly on the paint lines within ten seconds without any waste, applied at rate of 6 pounds per gallon of paint; if the marking equipment does not have a glass bead dispenser, use a separate piece of equipment adjusted and synchronized with the paint applicator; remove and replace markings having faulty distribution of beads.
- H. Parking Lots: Apply parking space lines, entrance and exit arrows, painted curbs, and other markings indicated on drawings.
1. Mark the International Handicapped Symbol at indicated parking spaces.
 2. Hand application by pneumatic spray is acceptable.
- I. Symbols: Use a suitable template that will provide a pavement marking with true, sharp edges and ends, of the design and size indicated.

3.04 DRYING, PROTECTION, AND REPLACEMENT

- A. Protect newly painted markings so that paint is not picked up by tires, smeared, or tracked.
- B. Provide barricades, warning signs, and flags as necessary to prevent traffic crossing newly painted markings.
- C. Allow paint to dry at least the minimum time specified by the applicable paint standard and not less than that recommended by the manufacturer.
- D. Remove and replace markings that are applied at less than minimum material rates; deviate from true alignment; exceed length and width tolerances; or show light spots, smears, or other deficiencies or irregularities.
- E. Remove markings in manner to avoid damage to the surface to which the marking was applied, using carefully controlled sand blasting, approved grinding equipment, or other approved method.

F. Replace removed markings at no additional cost to the Owner.

END OF SECTION

DIVISION 33 - UTILITIES

SECTION 33-1
UNDERSLAB DRAINAGE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Slab-on-grade drainage system.
2. Filter aggregate and fabric.
3. Bedding.

B. Related Requirements:

1. Section 33-2 - Stormwater Utility Drainage Piping.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Pipe and Fittings:

1. Basis of Measurement: By linear foot.
2. Basis of Payment: Includes excavating, hand trimming, bedding, pipe and fittings, filter aggregate, filter fabric, connecting to municipal stormwater conveyance.

1.3 REFERENCE STANDARDS

A. ASTM International:

1. ASTM D2729 - Standard Specification for Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.

1.4 COORDINATION

A. Section 2 - Administrative Requirements: Requirements for coordination.

B. Coordinate Work of this Section with connections to existing appurtenances.

1.5 SUBMITTALS

- A. Section 4 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit manufacturer information on pipe drainage products and pipe accessories.
- C. Shop Drawings: Indicate dimensions, layout of piping, high and low points of pipe inverts, gradient of slope between corners and intersections.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- E. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.
- F. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
- G. Qualifications Statement:
 - 1. Submit qualifications for manufacturer.

1.6 SUSTAINABLE DESIGN SUBMITTALS (NOT USED)

- A. Manufacturer's Certificate:
 - 1. Certify that products meet or exceed specified sustainable design requirements.
 - 2. Materials Resources Certificates:
 - a. Certify source and origin for salvaged and reused products.
 - b. Certify recycled material content for recycled content products.
 - c. Certify source for regional materials and distance from Project Site.
- B. Product Cost Data:
 - 1. Submit cost of products to verify compliance with Project sustainable design requirements.
 - 2. Exclude cost of labor and equipment to install products.
 - 3. Provide cost data for following products:
 - a. Salvaged, refurbished, and reused products.
 - b. Products with recycled material content.
 - c. Regional products.

1.7 CLOSEOUT SUBMITTALS

- A. Section 8 - Execution and Closeout Requirements: Requirements for submittals.

- B. Project Record Documents: Record actual locations of pipe runs, connections, cleanouts, and principal invert elevations.

1.8 QUALITY ASSURANCE

- A. Perform Work according to PUB 408 standards.
- B. Maintain copies of each standard affecting Work of this Section on Site.

1.9 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' documented experience.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Section 7 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- C. Store materials according to manufacturer instructions.
- D. Protection:
 - 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
 - 2. Provide additional protection according to manufacturer instructions.

1.11 EXISTING CONDITIONS

- A. Field Measurements:
 - 1. Verify field measurements prior to fabrication.
 - 2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 PIPING

- A. Manufacturers:
 - 1. ADS, Nyoplast, North American Pipe Corp.

2. Substitutions: As specified in Section 7 - Product Requirements.

B. Description

1. Nominal Diameter: As indicated on Drawings.
2. Ends: Plain.
3. Fittings: PVC

2.2 SUSTAINABILITY CHARACTERISTICS **(NOT USED)**

A. Material and Resource Characteristics:

1. Recycled Content Materials: Furnish materials with maximum available recycled content.
2. Regional Materials: Furnish materials extracted, processed, and manufactured within 500 miles.

2.3 MATERIALS

- A. Filter Aggregate and Bedding Materials: Fill Type 2B.

2.4 ACCESSORIES

- A. Pipe Couplings: Solid plastic.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 8 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify that trench cut is ready to receive Work.
- C. Verify that excavations, dimensions, and elevations are as indicated on Drawings.

3.2 PREPARATION

- A. Correct over-excavation with lean concrete

3.3 INSTALLATION

- A. See drawing and detail sheets.
- B. Slope:
 - 1. Lay pipe to slope gradients as indicated on Drawings.
 - 2. Maintain positive flow to outlet.
- C. Compaction:
 - 1. Do not displace or damage pipe while compacting.
- D. Cover:
 - 1. Install aggregate at sides, over joint and over top of pipe.
- E. Place filter fabric over leveled top surface of aggregate cover prior to subsequent backfilling operations.
- F. Consider including following Paragraph if impervious fill is used to limit or restrict moisture movement.
- G. Place impervious fill over drainage pipe aggregate cover, and compact.
- H. Connect to stormwater conveyance system using unperforated pipe.

3.4 FIELD QUALITY CONTROL

- A. Section 5 - Quality Requirements: Requirements for inspecting and testing.
- B. Request inspection by Architect/Engineer prior to and immediately after placing aggregate cover over pipe.
- C. Equipment Acceptance: Adjust, repair, modify, or replace components failing to perform as specified and rerun tests.

3.5 PROTECTION

- A. Section 8 - Execution and Closeout Requirements: Requirements for protecting finished Work.
- B. Protect pipe and aggregate cover from damage or displacement until backfilling operation begins.

3.6 ATTACHMENTS

- A. Basement Floor Slab Drainage:
 - 1. Location: Underside of slab.
 - 2. Slope to drain at 1/4 inch per foot to sump pit.

END OF SECTION 33-1

SECTION 33 -2

STORM UTILITY DRAINAGE PIPING

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes gravity site storm sewerage drainage piping, fittings and accessories, bedding, detention basin, toe key drains, and manholes.
- B. Work shall be conducted in accordance with the Drawings, General Conditions, and the requirements of this Section.
- C. Related Sections:
 - 1. Section 31 05 13 – Soils for Earthwork.
 - 2. Section 31 05 16 – Aggregates for Earthwork
 - 3. Section 31 05 19.13 – Geotextiles for Earthwork.
 - 4. Section 31 25 00 – Erosion and Sedimentation Control.
 - 5. Section 31 23 16 – Excavation.
 - 6. Section 31 23 16.13 – Trenching.
 - 7. Section 31 23 23.13 – Backfill.

1.02 REFERENCES

- A. American Association of State Highway and Transportation Officials (AASHTO):
 - 1. AASHTO M170.
 - 2. AASHTO M294.
- B. American Society for Testing and Materials (ASTM):
 - 1. ASTM A536 – 84.
 - 2. ASTM C76.
 - 3. ASTM C443.
 - 4. ASTM C969.
 - 5. ASTM D2321.
 - 6. ASTM D3786.
 - 7. ASTM D4491.
 - 8. ASTM D4533.
 - 9. ASTM D4632.
 - 10. ASTM D4833.
 - 11. ASTM F667.

12. ASTM F2418-05.

C. Pennsylvania Department of Transportation (PennDOT) Publication 408 Specifications, latest edition.

1.03 SUBMITTALS

A. Product Requirements: Submittal procedures.

B. Product Data: Submit data indicating pipe, pipe accessories, storm drainage structures and cast iron specialties.

C. Manufacturer's Installation Instructions: Submit special procedures required to install products specified.

D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.04 CLOSEOUT SUBMITTALS

A. Closeout Procedures.

B. Project Record Documents:

1. Accurately record actual locations of pipe runs, connections, inlets, cleanouts, and invert elevations.

2. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.05 COORDINATION

A. Coordinate the Work with trenching and installation of storm sewer and underdrains.

PART 2 PRODUCTS

2.01 PIPE MATERIALS

A. Site Storm Sewer Pipe and Underdrain Materials:

1. High Density Polyethylene Corrugated Pipe (SLCPP) shall be equal to N-12 by ADS, Hi-Q by Hancor.

a. Pipe shall be solid.

b. Conform to AASHTO M294 Type S and PennDOT Publication 408, Section 601.2(a)3d.

c. Pipe Couplings and Fittings: Polyethylene with neoprene gaskets provided by manufacturer of SLCPP piping, conforming to same standards.

d. Joint Cover - Perforated Pipe: Single wall polyethylene snap coupler.

e. Substitutions: Product Requirements

2. High Density Polyethylene Pipe (HDPE), AASHTO M252, Type S, of the sizes indicated on the Drawings and conforming to the Publication 408 Specifications, Section 601.2(a)3d.

3. Reinforced Concrete Pipe and Fittings, AASHTO M170, Type III, of the sizes indicated on

the Drawings and conforming to the Publication 408 Specifications, Section 601.2(a)3a.

4. Reinforced Concrete Pipe Joint Device: ASTM C443, rubber compression gasket joint.
5. Plastic Pipe: ASTM D2751, SDR 35, Acrylonitrile-Butadiene-Styrene (ABS) material; inside nominal diameter, as listed on drawings, bell and spigot style solvent sealed joint end.
6. Plastic Pipe - Perforated:
 - a. ASTM D2729, Poly(Vinyl Chloride) (PVC) material
 - b. Inside nominal diameter, as shown on drawings, bell and spigot solvent sealed joint end.
 - c. Shall conform to the Publication 408 Specifications, Section 601.2(a)3e.
7. Plastic Pipe - Unperforated:
 - a. ASTM D3034, Type PSM, Poly(Vinyl Chloride) (PVC) material.
 - b. Inside nominal diameter, as shown on Drawings, bell and spigot style rubber ring sealed gasket joint.
 - c. SDR 35.
 - d. Shall conform to the Publication 408 Specifications, Section 601.2(a)3e.

2.02 ACCESSORIES

- A. Pipe Joints: As specified in Subsection 2.01 of this Section.
- B. Fittings: Same material as pipe molded or formed to suit pipe size and end design, in required tee, bends, elbows, cleanouts, reducers, traps and other configurations required.
- C. Geotextile: Refer to Section 31 05 19.13.
- D. Polyvinyl Chloride (PVC) liner: 30 mil PVC liner with 8 ounce non-woven reinforcement fabric underlayment and overlayment. Meets requirements ADS 0601 or equal.
- E. Trace Wire: Magnetic detectable conductor, brightly colored plastic covering, imprinted with "Storm Sewer Service" in large letters.
- F. Grout: Specified in Section 03 60 00.
- G. Sleeve: PVC type for foundation wall.

2.03 ENDWALLS, HEADWALLS AND INLETS

- A. Precast Structures:
 1. Section 605, PennDOT Publication 408 Specifications, and Standard Drawings RC-31, Publication No. 72 (Endwalls), RC-34 (Inlets).
- B. Locations and sizes as indicated on the Drawings.
- C. Riprap: Refer to Section 31 25 00.

2.04 CAST IRON SPECIALTIES

- A. Manufacturers:

1. Neenah Foundry Company.
- B. Material: Cast iron shall conform to ASTM A48 and AASHTO M105, Class 35 gray cast iron.
- C. Inlet Grade and Frame: Cast iron construction, hinged grate where indicated:
 1. Grate Design: Bicycle safe.
 2. Nominal Lid and Frame Size: Refer to Drawings.

2.05 PIPE BEDDING AND COVER MATERIALS

- A. Bedding: Refer to Section 31 05 16.
- B. Cover: Refer to Section 31 05 16.
- C. Subsoil Fill: Refer to Section 31 05 13.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify trench cut or excavation base is ready to receive work and excavations, dimensions, and elevations are as indicated on Drawings.

3.02 PREPARATION

- A. Hand trim excavations to required elevations; correct over excavation with select stone aggregate granular material.
- B. Remove large stones or other hard matter which could damage piping or impede consistent backfilling or compaction.

3.03 PIPE BEDDING

- A. Excavate pipe trench in accordance with Section 31 23 16.13 for Work of this Section; hand trim excavation for accurate placement of pipe to elevations indicated.
- B. Place bedding material at trench bottom, level materials in continuous layer not exceeding 6 inches compacted depth.
- C. Maintain optimum moisture content of bedding material to attain required compaction density.

3.04 INSTALLATION - PIPE

- A. Thermoplastic Pipe Installation - General: Install pipe, fittings, and accessories in accordance with ASTM D2321, unless more stringent requirements are specified in the Project Manual; seal joints of unperforated pipe watertight.
- B. Place pipe on minimum 6 inch deep bed of filter aggregate.
- C. Lay pipe to slope gradients noted on Drawings.
- D. Clean and inspect pipe before lowering into the trench; start pipe laying at the low end and proceed upgrade, unless otherwise approved by the Geotechnical Engineer; bed the pipe for its full length.

- E. Lay bell and spigot pipe with the spigot inserted the full depth of the socket and with the bell end upgrade.
- F. Install aggregate at sides.
- G. Refer to Section 31 23 23.13 for backfilling and compacting requirements; do not displace or damage pipe when compacting.
- H. Connect to storm drainage system.
- I. Install trace wire continuous buried 6 inches below finish grade, above pipe line; coordinate with Section 31 23 16.13.

3.05 INSTALLATION - INLETS

- A. Locate inlets as indicated on Drawings; perform excavation as specified in Section 31 23 16.
- B. Construct drainage channels and swales to the lines and grades and cross sections indicated on the Drawings.
- C. Form bottom of excavation clean and smooth to correct elevation.
- D. Construct inlets as shown on Standard Drawing RC-34, Publication No. 72.
- E. Establish elevations and pipe inverts for inlets and outlets as indicated on Drawings.
- F. Mount grate and frame level in grout, secured to top cone section to elevation indicated.

3.06 INSTALLATION - ENDWALLS AND HEADWALLS

- A. Locate endwalls and headwalls as indicated on the Drawings; perform excavation as specified in Section 31 23 16.
- B. Construct drainage channels and swales to the lines and grades and cross-sections indicated on the Drawings.
- C. Placement of riprap shall be as specified in PENNDOT Pub 408.
- D. Construct precast sections or cast-in-place construction to the dimensions as indicated on the Drawings.
 - 1. Place precast units on a 6 inch compacted crushed stone subbase.
 - 2. Construct cast-in-place units on undisturbed earth.
- E. Construct endwalls as indicated on Standard Drawing RC-31, Publication No. 72, and of the type indicated on the Drawings.

3.07 INSTALLATION – UNDERDRAIN

- A. Install perforated underdrains according to the Construction Drawings.
- B. Install drains according to the locations designated and detail according to the Construction Drawings.
- C. Ensure positive drainage to outlet structures.
- D. Underdrains shall be perforated HDPE or PVC in accordance with PART 2 above

3.08 FIELD QUALITY CONTROL

- A. Request inspection prior to and immediately after placing aggregate cover over pipe.
- B. Compaction Testing: In accordance with ASTM D698.
- C. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.
- D. Frequency of Tests: as required.
- E. Infiltration Test: Test in accordance with ASTM C969.

3.09 PROTECTION OF FINISHED WORK

- A. Protect pipe and aggregate cover from damage or displacement until backfilling operation is in progress.
 - 1. Take care not to damage or displace installed pipe and joints during construction of pipe supports, backfilling, testing, and other operations.
 - 2. Repair or replace pipe that is damaged or displaced from construction operations.

END OF SECTION

SUPPLEMENT – SITE PHOTO PAGES

MOHLER COURT REHABILITATION



Photo 1 – Sidewalk along Mohler Street near dumpster pad [Plan Sheet SP-1]



Photo 2 – Staircase along Mohler Street near dumpster pad [Plan Sheet SP-1]



Photo 3 – Slab to be foam lifted [Plan Sheet SP-1]



Photo 4 – Grind & clean crack seal 4' slab [Plan Sheet SP-1]

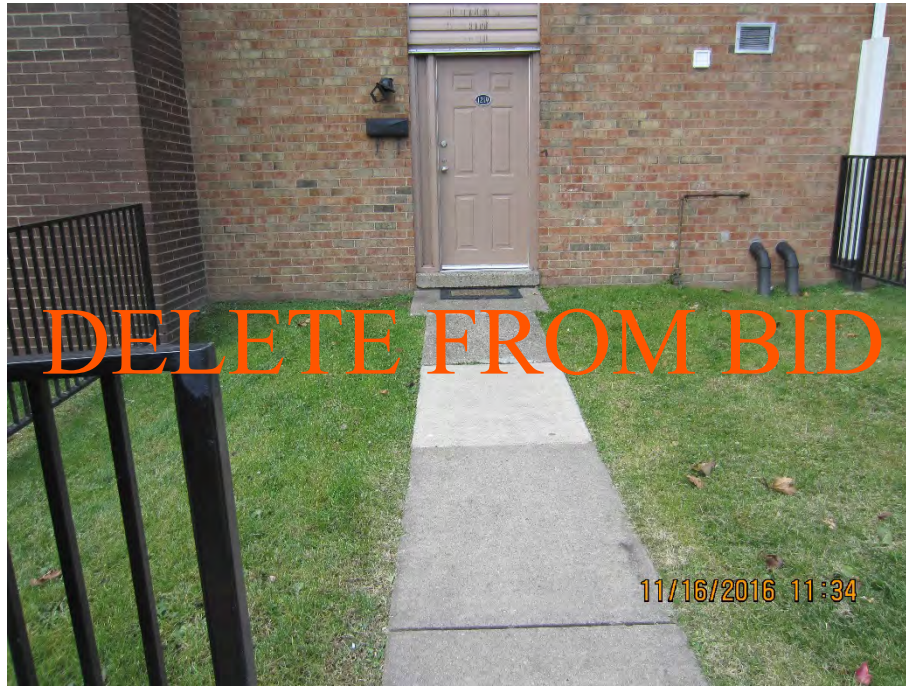


Photo 5 – Foam lift slab, neoprene seal and caulk [Plan Sheet SP-1]



Photo 6 – Crack seal & caulk handicapped parking area [Plan Sheet SP-1]



Photo 7 – Crack seal & caulk 3 cracks [Plan Sheet SP-1]



Photo 8 – Grind & remove jagged concrete of first step [Plan Sheet SP-2]



Photo 8a – Clean crack & joint seal [Plan Sheet SP-2]



Photo 8b – Clean crack & joint seal [Plan Sheet SP-2]



Photo 9 – Foam lift slab [Plan Sheet SP-2]



Photo 10 – Foam lift slab [Plan Sheet SP-2]



Photo 10a – Remove & replace railroad tie wall [Plan Sheet SP-2]



Photo 10b – Remove & replace railroad tie wall [Plan Sheet SP-2]



Photo 10c – Foam lift slab [Plan Sheet SP-2]



Photo 10d – Replace section of sidewalk [Plan Sheet SP-2]



Photo 11 – Grind & caulk 6' slab [Plan Sheet SP-2]



Photo 11a – Replace missing 6.5' handrail [Plan Sheet SP-2]



Photo 12 – Remove & replace 3' high railroad tie wall [Plan Sheet SP-2]

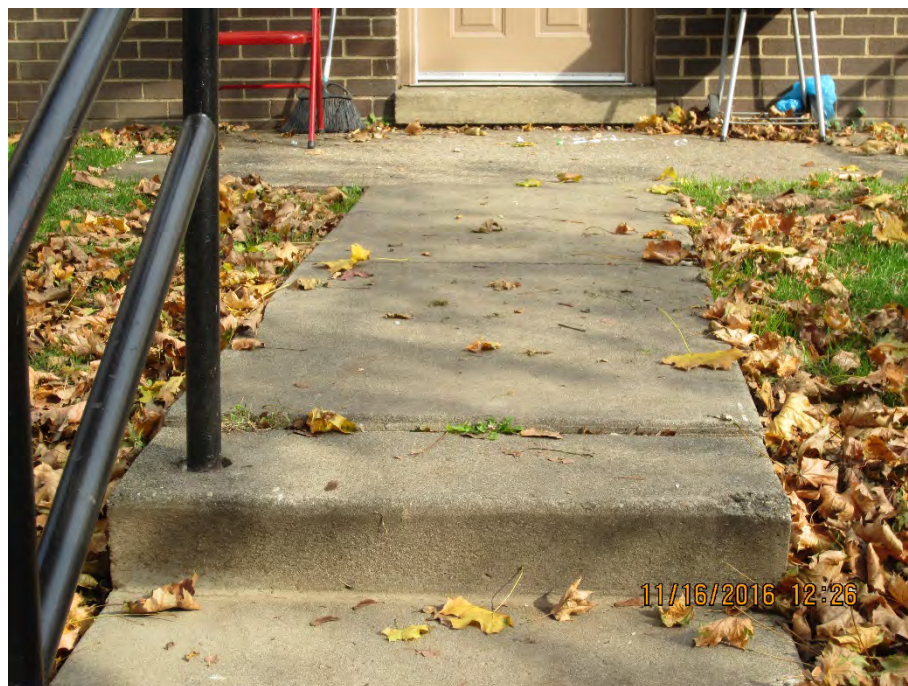


Photo 14 – Grind & caulk 3' slab [Plan Sheet SP-2]



Photo 15 – Grind & caulk 3' slab [Plan Sheet SP-2]



Photo 16 – Foam lift slab, grind & caulk 3' slab [Plan Sheet SP-2]



Photo 17 – Regrade & topsoil area [Plan Sheet SP-2]



Photo 18 – Unclog drain [Plan Sheet SP-2]



Photo 19 – Foam lift slab [Plan Sheet SP-2]



Photo 20 – Foam lift slab [Plan Sheet SP-2]



Photo 21 – Foam lift slab [Plan Sheet SP-2]

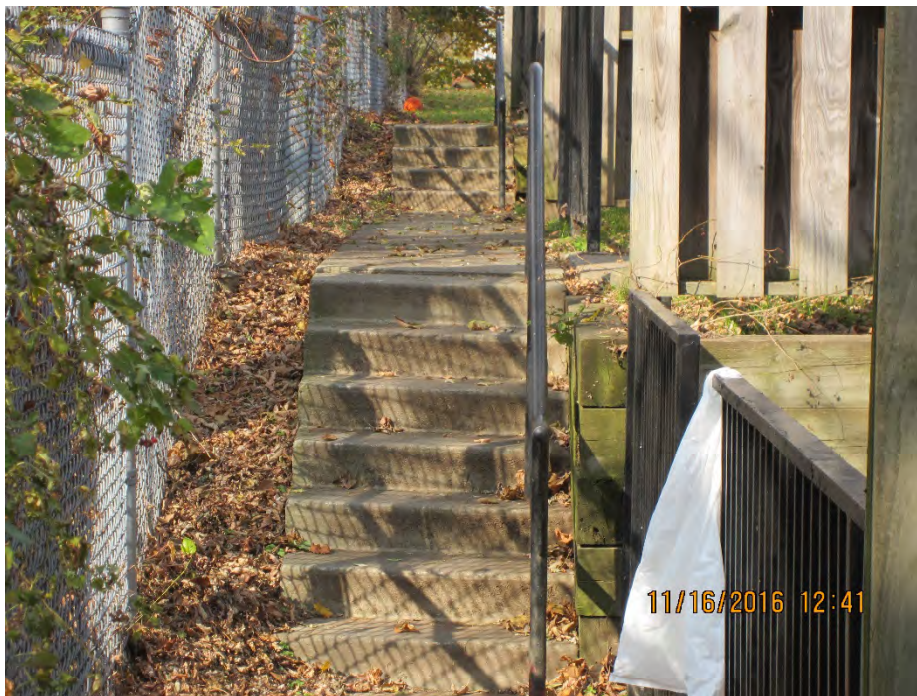


Photo 22 – Grind & caulk top step [Plan Sheet SP-2]

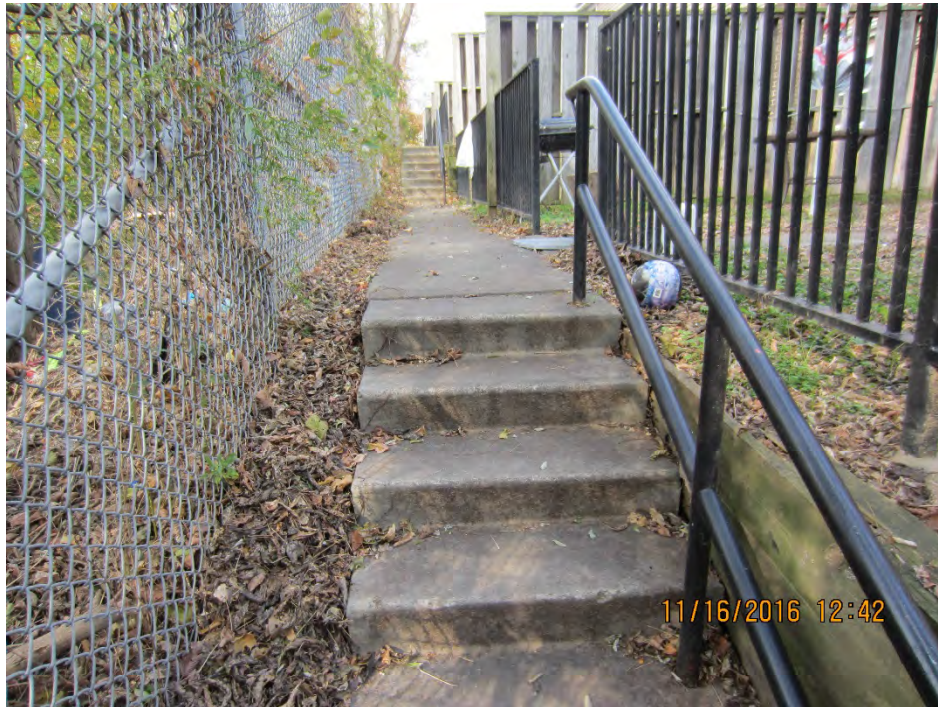


Photo 23 – Grind & caulk top step [Plan Sheet SP-2]
NOLAN COURT REHABILITATION



Photo 25 – Foam lift slab [Plan Sheet SP-3]



Photo 26 – Foam lift slab [Plan Sheet SP-3]



Photo 27 – Foam lift slab [Plan Sheet SP-3]



Photo 28 – Repair concrete wall [Plan Sheet SP-3]



Photo 29 – Repair concrete wall [Plan Sheet SP-3]



Photo 30 – Repair exposed rebar [Plan Sheet SP-3]



Photo 31 – Repair exposed rebar [Plan Sheet SP-3]



Photo 32 – Neoprene pad joint fill [Plan Sheet SP-3]



Photo 33 – Neoprene pad joint fill [Plan Sheet SP-3]



Photo 34 – Foam lift slab [Plan Sheet SP-3]



Photo 35 – Foam lift slab [Plan Sheet SP-3]



Photo 36 – Replace completely heaved sidewalk [Plan Sheet SP-3]



Photo 37 – Replace completely heaved sidewalk [Plan Sheet SP-3]



Photo 38 – Foam lift slab [Plan Sheet SP-3]



Photo 39 – Foam lift slab & neoprene joint fill [Plan Sheet SP-3]



Photo 40 – Clean crack & joint seal [Plan Sheet SP-3]



Photo 41 – Neoprene joint fill [Plan Sheet SP-3]



Photo 42 – Repair spalling on concrete staircase [Plan Sheet SP-3]



Photo 43 – Topsoil and seed area [Plan Sheet SP-4]



Photo 45 – Clean joint & neoprene joint fill [Plan Sheet SP-4]



Photo 46 –Foam lift slab. Topsoil and seed area. [Plan Sheet SP-3]



Photo 47 –Topsoil and seed area [Plan Sheet SP-3]



Photo 48 –Foam lift slab [Plan Sheet SP-3]



Photo 49 – Neoprene joint fill [Plan Sheet SP-3]



Photo 50 –Foam lift slab [Plan Sheet SP-4]



Photo 51 –Foam lift slab [Plan Sheet SP-4]



Photo 52 –Foam lift slab [Plan Sheet SP-4]



Photo 53 –Foam lift slab [Plan Sheet SP-4]



Photo 54 –Foam lift slab [Plan Sheet SP-4]



Photo 55 –Backfill and foam lift under steps [Plan Sheet SP-4]



Photo 56 –Topsoil and seed area [Plan Sheet SP-4]



Photo 57 –Topsoil and seed area around landing. Clean debris, grout and caulk step separation.



Photo 58 –Foam lift slab. Topsoil and seed around inlet [Plan Sheet SP-4]



Photo 59 –Foam lift slab [Plan Sheet SP-4]



Photo 60 – Clean out and reset inlet grate [Plan Sheet SP-4]



Photo 61 – Foam lift slab [Plan Sheet SP-4]



Photo 62 – Remove and replace slab [Plan Sheet SP-4]



Photo 63 – Topsoil and seed area [Plan Sheet SP-5]



Photo 64 – Topsoil and seed area [Plan Sheet SP-5]



Photo 65 – Topsoil and seed area [Plan Sheet SP-5]



Photo 66 – Topsoil and seed area [Plan Sheet SP-5]



Photo 67 – Neoprene pad crack fill between sidewalk and brick wall [Plan Sheet SP-5]



Photo 68 – Neoprene pad crack fill between sidewalk and brick wall [Plan Sheet SP-5]



Photo 68a –Clean and seal crack [Plan Sheet SP-5]



Photo 68b –Clean and joint seal cracks [Plan Sheet SP-3]

FERRIS COURT REHABILITATION



Photo 69 – Topsoil and seed area [Plan Sheet SP-7]



Photo 70 – Replace concrete corner [Plan Sheet SP-5]



Photo 71 – Grind top of step [Plan Sheet SP-5]



Photo 74 – Clean and caulk crack [Plan Sheet SP-6]



Photo 75 – Clean and caulk crack [Plan Sheet SP-6]



Photo 76 – Clean and caulk crack [Plan Sheet SP-6]



Photo 77 – Clean and caulk crack [Plan Sheet SP-6]



Photo 78 – Grind 5' slab [Plan Sheet SP-6]



Photo 80 – Sidewalk to be removed [Plan Sheet SP-6]



Photo 81 – Sidewalk to be removed [Plan Sheet SP-6]



Photo 82 – Staircase and sidewalk to be removed [Plan Sheet SP-6]



Photo 82a – Replace concrete slab. Foam level slab at top of steps Backfill and seed around slab at top of steps. [Plan Sheet SP-6]



Photo 83 – Sawcut and install new 4'x6' concrete slab [Plan Sheet SP-7]



Photo 84 – Repair spalled concrete on steps [Plan Sheet SP-7]



Photo 85 – Repair spalled concrete on steps [Plan Sheet SP-7]



Photo 86 – Repair spalled concrete on steps [Plan Sheet SP-7]



Photo 87 – Repair spalled concrete on steps. Install new section of fence between end of existing fence and handrail. [Plan Sheet SP-7]



Photo 88 – Repair spalled concrete on steps [Plan Sheet SP-7]



Photo 89 – Repair spalled concrete on steps [Plan Sheet SP-7]



Photo 89a – Repair spalled concrete on steps [Plan Sheet SP-7]



Photo 89b – Repair spalled concrete on steps [Plan Sheet SP-7]



Photo 89c – Replace missing handrail. Topsoil and seed area. [Plan Sheet SP-7]



Photo 89d – Foam level slab and backfill and seed area. [Plan Sheet SP-7]



Photo 89e – Clean existing drain. [Plan Sheet SP-7]



Photo 89f– Replace concrete slab and sewer vent. [Plan Sheet SP-7]



Photo 89g – Topsoil and seed area. [Plan Sheet SP-7]

HEART COURT REHABILITATION



Photo 90 – Foam lift concrete slab [Plan Sheet SP-8]



Photo 91 – Foam lift concrete staircase [Plan Sheet SP-8]



Photo 92 – Foam lift slab [Plan Sheet SP-8]



Photo 93 – Foam lift slab [Plan Sheet SP-8]



Photo 94 – Foam lift and caulk slab. [Plan Sheet SP-8]



Photo 95 – Topsoil and seed area [Plan Sheet SP-8]



Photo 95a – Replace concrete slab [Plan Sheet SP-8]



Photo 95b – Grind slab Sheet SP-8]



Photo 95c – Grind slab Sheet SP-8]

STRANAHAN STREET REHABILITATION



Photo 96 – Replace 2 concrete steps [Plan Sheet SP-9]



Photo 97 – Foam lift slab [Plan Sheet SP-9]



Photo 98 – Topsoil and seed area [Plan Sheet SP-9]

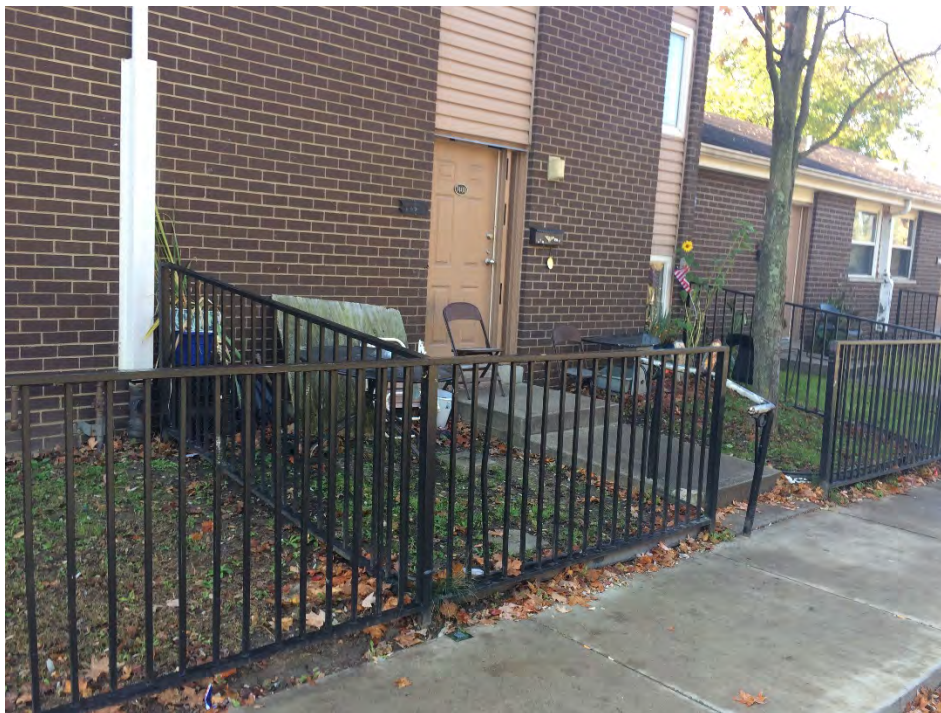


Photo 99 – Grind slab [Plan Sheet SP-9]



Photo 100 – Foam lift slab [Plan Sheet SP-9]



Photo 101 – Remove and replace staircase [Plan Sheet SP-9]



Photo 102 – Remove and replace staircase [Plan Sheet SP-9]



Photo 103 – Foam lift slab [Plan Sheet SP-9]



Photo 104 – Clean, neoprene, and caulk joint [Plan Sheet SP-9]



Photo 105 – Replace 3'x4' slab [Plan Sheet SP-9]

SUPPLEMENTAL PHOTOS
(DEDUCT ALTERNATE #1)

DEDUCT ALTERNATE #1 - NOLAN COURT PARKING AREA REHABILITATION



Photo 7 –Intersection of Nolan Court & Mohler Street.



Photo 8 –Intersection of Nolan Court & Mohler Street.



Photo 9 – Concrete area to be removed and replaced with asphalt.



Photo 10 – Dumpster area at northern side of Nolan Court.



Photo 11 – Southern area of Nolan Court.



Photo 12 –Northern area of Nolan Court.

SUPPLEMENTAL PHOTOS
(DEDUCT ALTERNATE #2)

DEDUCT ALTERNATE #2 - HEART COURT PARKING AREA REHABILITATION



Photo 1 – Southeastern corner of parking area.



Photo 2 – Southeastern corner of parking area.



Photo 3 – Southern area of parking area.



Photo 4 – Northern section of parking area.



Photo 5 – Intersection of Heart Court & Brushton Avenue.



Photo 6 –Driveway of Heart Court Parking Lot.



Photo 6a – Remove and replace truncated domes



Photo 6b– Drainage issues along the driveway

SUPPLEMENTAL PHOTOS
(DEDUCT ALTERNATE #3)

DEDUCT ALTERNATE #3 - STRANAHAN STREET PARKING AREA REHABILITATION



Photo 19 – Intersection of parking area entrance & Stranahan Street.



Photo 20 – Western side of parking area.



Photo 21 – Center of parking area.



Photo 22 – Eastern side of parking area.

SUPPLEMENTAL PHOTOS
(DEDUCT ALTERNATE #4)

DEDUCT ALTERNATE #4 - FERRIS COURT PARKING AREA REHABILITATION



Photo 13 – Intersection of Ferris Court & Mohler Street.



Photo 14 – Western dumpster area.



Photo 15 – Eastern dumpster area.



Photo 16 – Driveway into parking area.



Photo 17 – Northern side of parking area.



Photo 18 – Center of parking area.



Photo 18A – ADA Truncated Dome to be Replaced

HOMEWOOD NORTH CONCRETE AND ASPHALT REPAIR PROJECT

CITY OF PITTSBURGH, ALLEGHENY COUNTY, PA
AUGUST 2018

Prepared for:

HOUSING AUTHORITY OF THE CITY OF PITTSBURGH

100 ROSS STREET
PITTSBURGH, PA 15219

Prepared by:

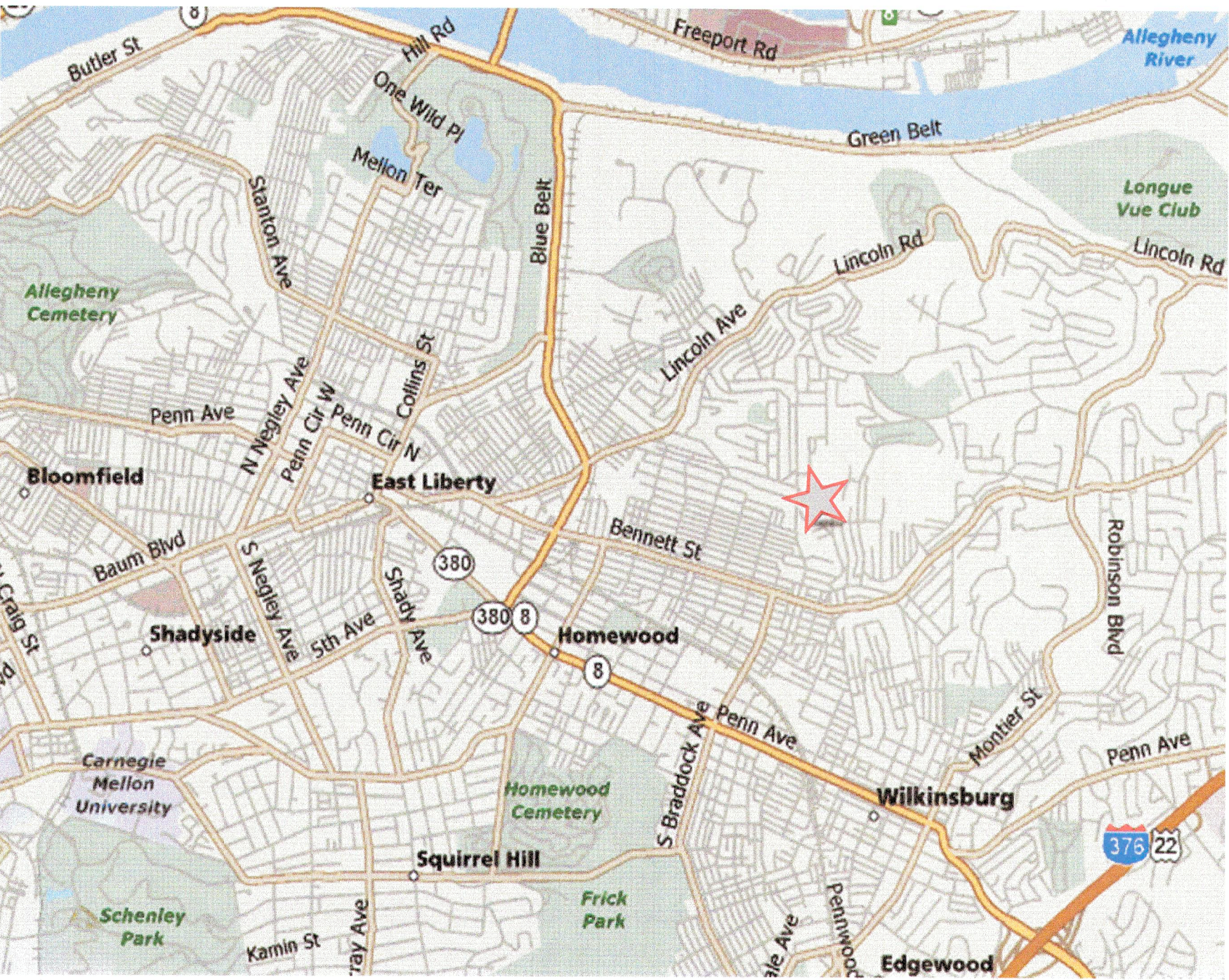


Morris Knowles

& Associates, Inc.

Consulting Engineers & Land Surveyors

443 Athena Drive
Delmont, PA 15626
Telephone: (724) 468-4622
Fax: (724) 468-8940



VICINITY MAP
N.T.S.

INDEX OF SHEETS

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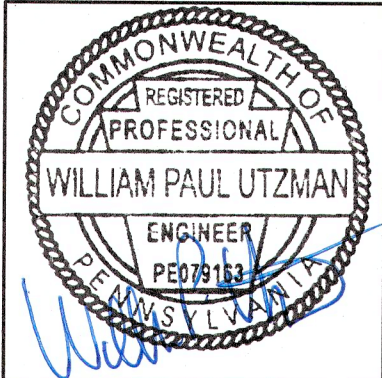
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CALL BEFORE YOU DIG IN PENNSYLVANIA: 1-800-242-1776

THE GENERAL CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES INVOLVED IN THE SITE NO MORE TEN DAYS AND NO LESS THAN THREE DAYS IN ADVANCE OF EXCAVATION (PA ACT 287 OF 1974 AMENDED BY ACT 160 OF 2016). PA STATE LAW REQUIRES 3 WORKING DAYS NOTICE.



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Call before you dig



TITLE SHEET
HOMWOOD NORTH CONCRETE AND ASPHALT REPAIR PROJECT
prepared for
HOUSING AUTHORITY OF THE CITY OF PITTSBURGH
situated in
PITTSBURGH, ALLEGHENY COUNTY, PENNSYLVANIA

MKA
Morris Knowles & Associates, Inc.
(A Commonwealth Company)
Consulting Engineers and Land Surveyors
Delmont, PA 15626
Telephone: (724) 468-4622
Fax: (724) 468-8940
www.morrisknowles.com
info@morrisknowles.com

DESIGNED BY: VLS
REVIEWED BY: VLS
DRAWN BY: MJK
DATE: JANUARY 2017
PROJ. NO.: 1511.06

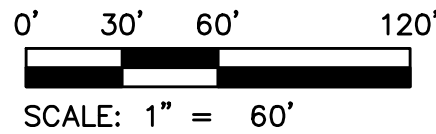
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SHEET NO.
TS-1

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SHEET LAYOUT INDEX
HONEWOOD NORTH CONCRETE AND ASPHALT REPAIR PROJECT
HOUSING AUTHORITY OF THE CITY OF PITTSBURGH
PITTSBURGH, ALLEGHENY COUNTY, PENNSYLVANIA

MKA Morris Knowles
& Associates, Inc.
(A Hammel Green Company)
Consulting Engineers and Land Surveyors
Delmont, PA 15015
Telephone: (724) 839-4822
info@morrisknowles.com www.morrisknowles.com

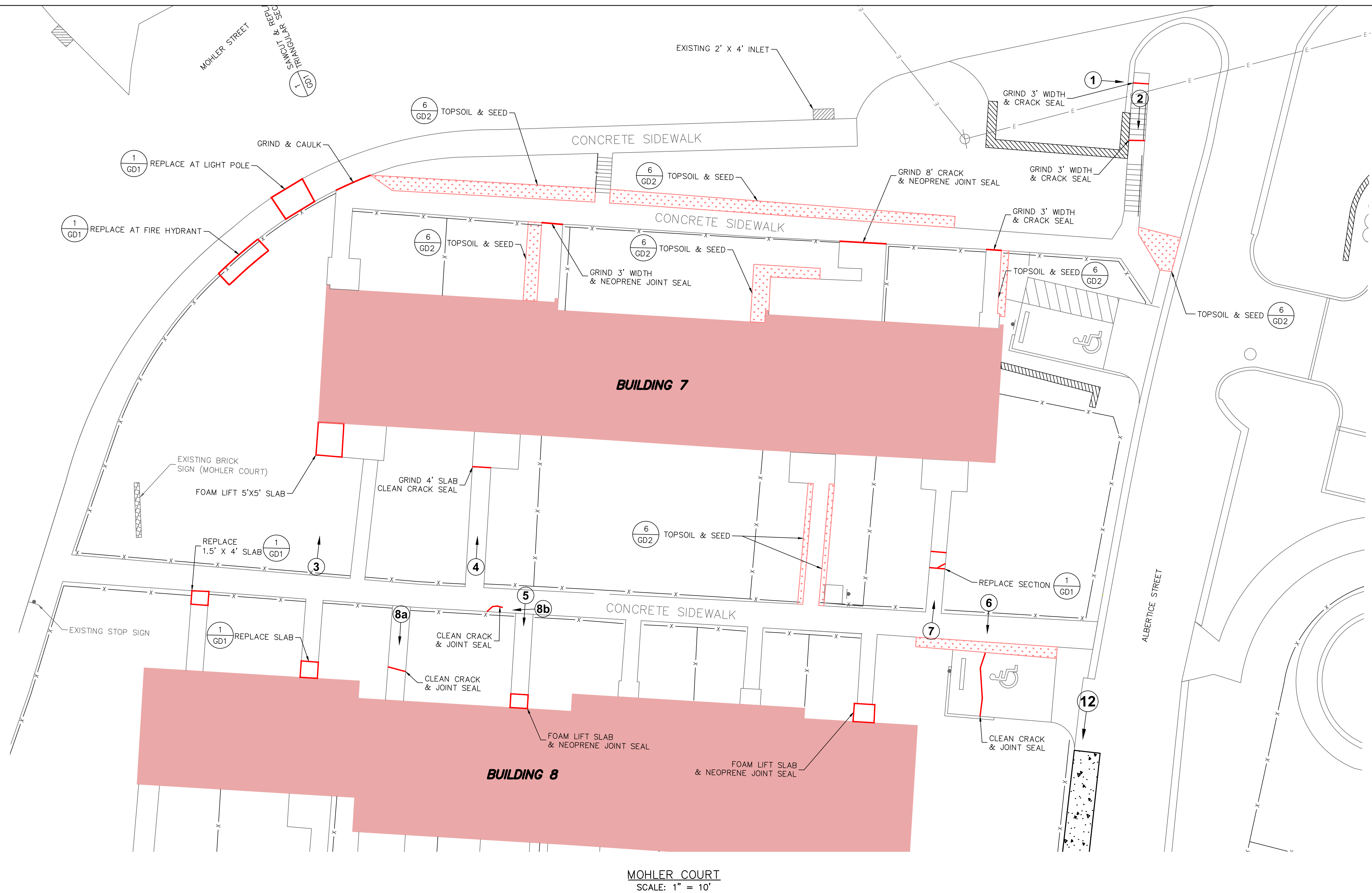
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REVIEWED BY: VLS
DRAWN BY: MJK
DATE: JANUARY 2017
PROJ. NO.: 1511.06

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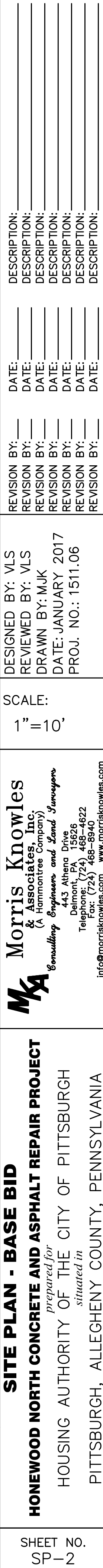
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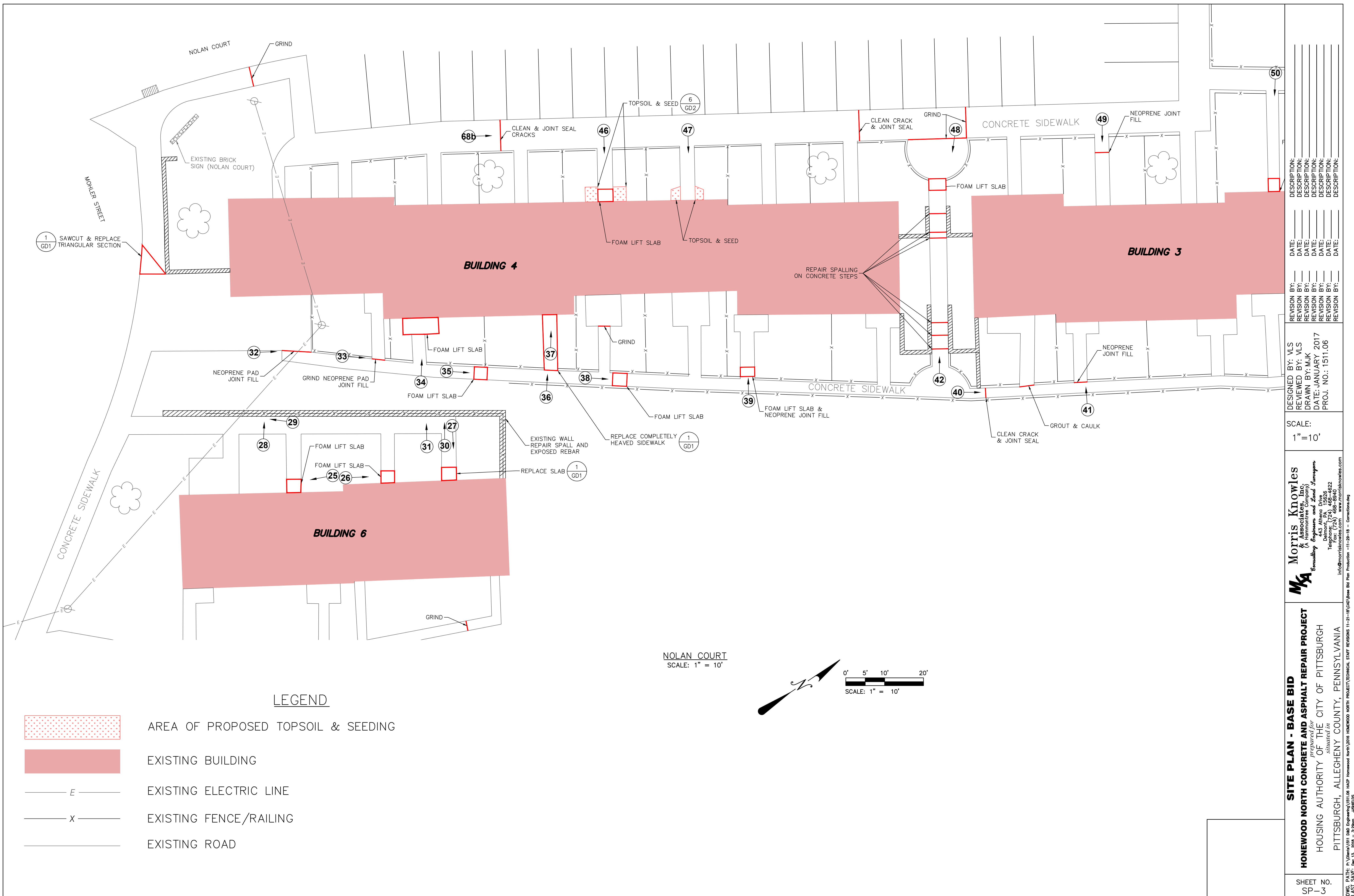
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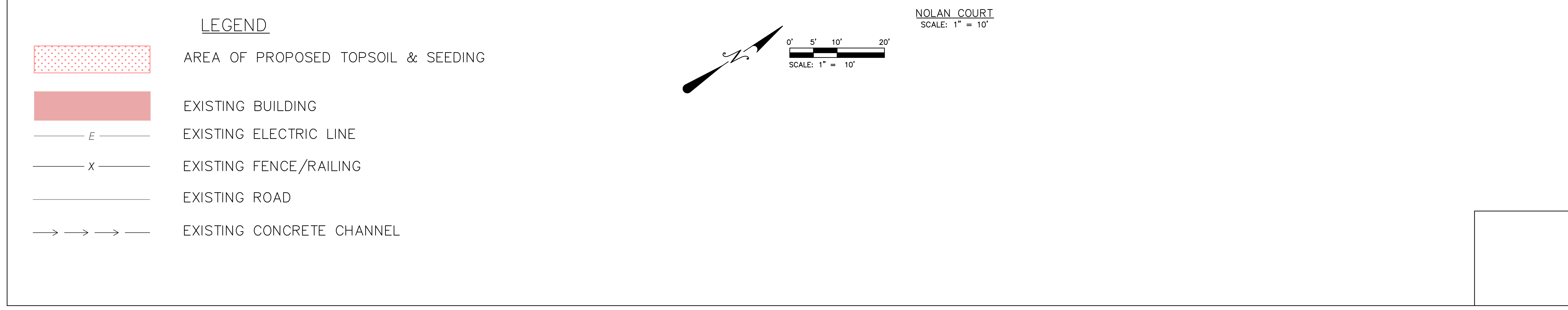
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- EXISTING FENCE/RAILING
- EXISTING ROAD




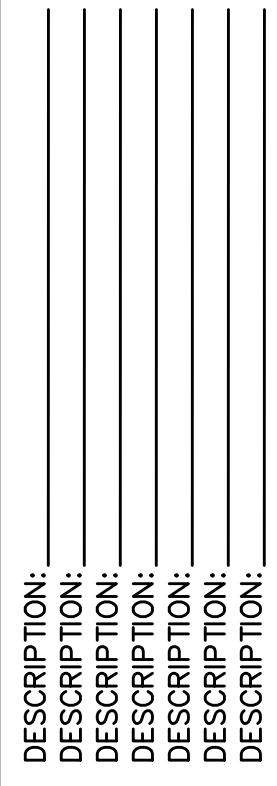




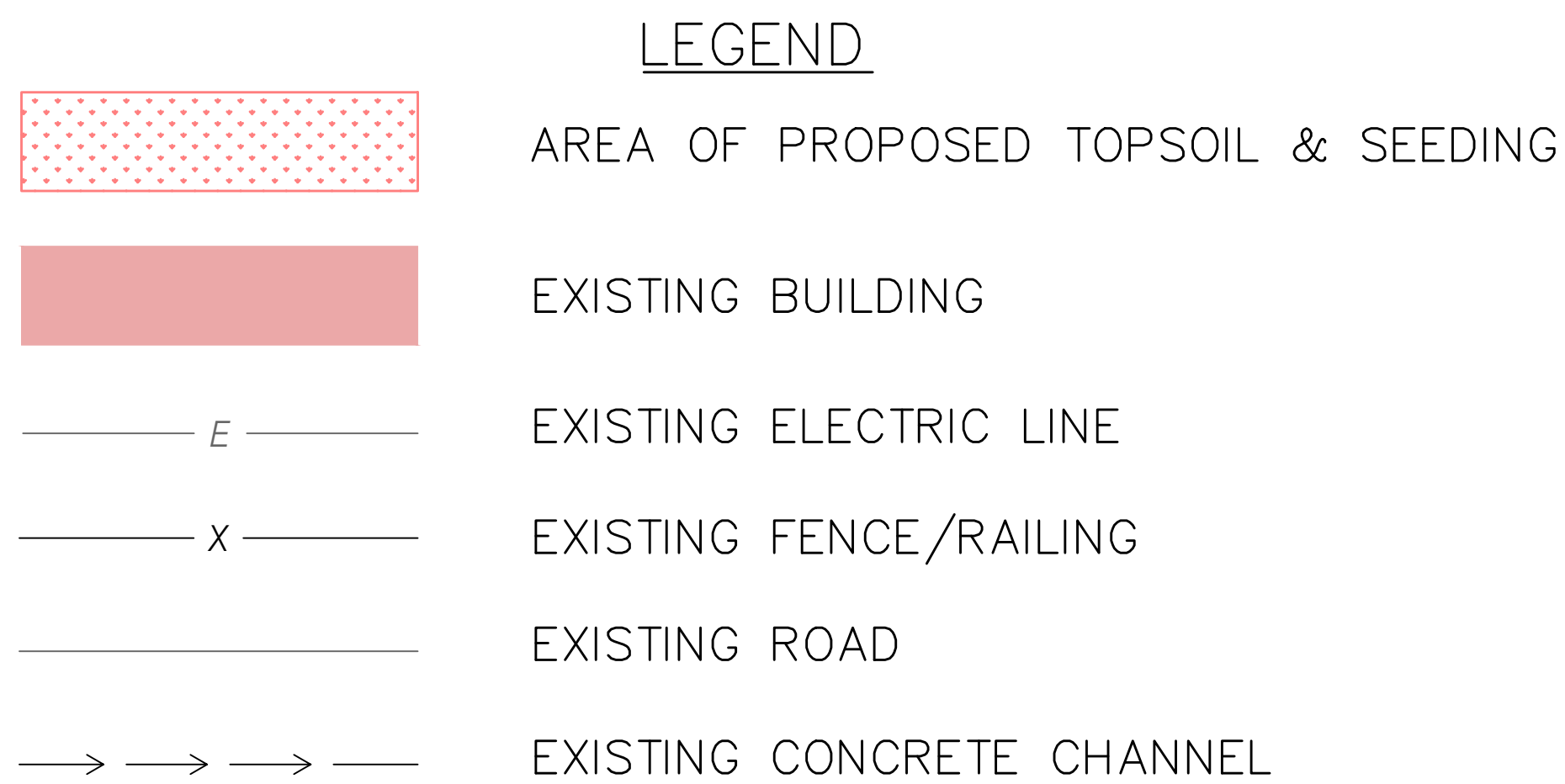
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			DATE: JANUARY 2017	REVISION BY:	REVISION BY:	DESCRIPTION:
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SHEET NO. SP 5	SITE PLAN - BASE BID HONEWOOD NORTH CONCRETE AND ASPHALT REPAIR PROJECT <i>prepared for</i> HOUSING AUTHORITY OF THE CITY OF PITTSBURGH <i>situated in</i> PITTSBURGH, ALLEGHENY COUNTY, PENNSYLVANIA	 Morris Knowles Associates, Inc. <i>Consulting Engineers and Land Surveyors</i> 443 Athena Drive Suite 206 Pittsburgh, PA 15206 Telephone: (724) 488-4622 Fax: (724) 488-8940 info@morrisknowles.com www.morrisknowles.com	SCALE: 1" = 10'	DESIGNED BY: VLS	REVISION BY:	DATE:	DESCRIPTION:
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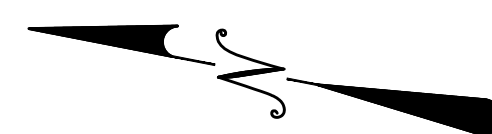
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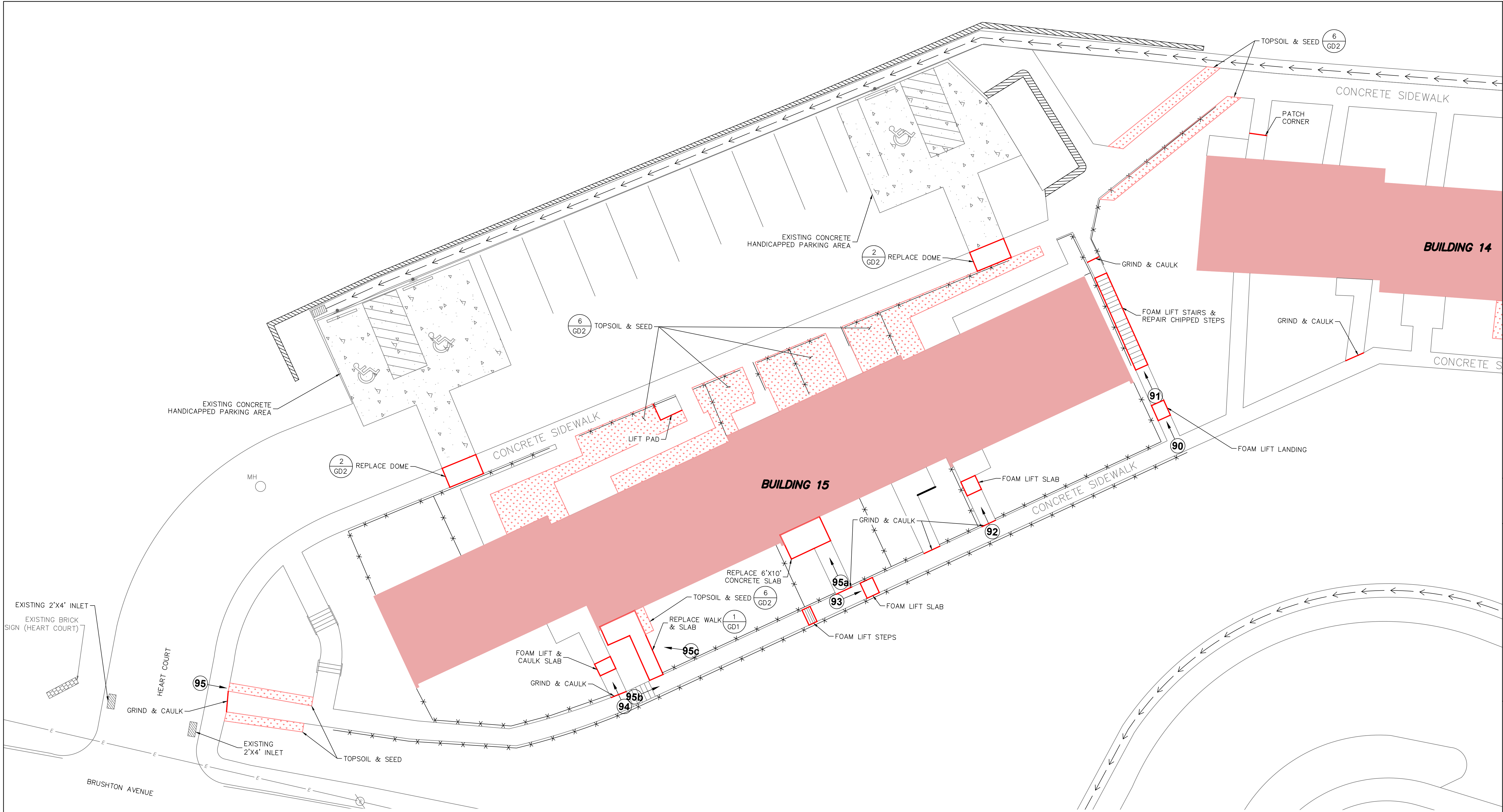
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LEGEND



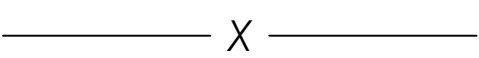
AREA OF PROPOSED TOPSOIL & SEEDING



EXISTING BUILDING



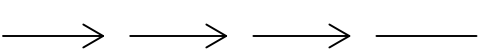
EXISTING ELECTRIC LINE



EXISTING FENCE/RAILING

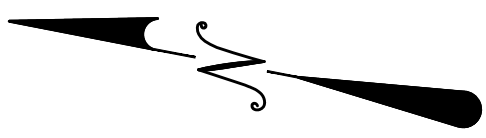
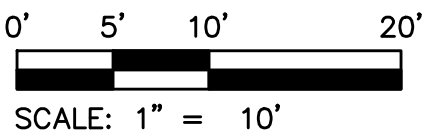


EXISTING ROAD



EXISTING CONCRETE CHANNEL

HEART COURT
SCALE: 1" = 10'



SITE PLAN - BASE BID
HONEWOOD NORTH CONCRETE AND ASPHALT REPAIR PROJECT
HOUSING AUTHORITY OF THE CITY OF PITTSBURGH
PITTSBURGH, ALLEGHENY COUNTY, PENNSYLVANIA

MKA Morris Knowles
& Associates, Inc.
(a Harman International Company)
Consulting Engineers and Land Surveyors
15526
Delmont, PA 15115
Telephone: (724) 859-4822
Fax: (724) 859-4822
info@morrisknowles.com www.morrisknowles.com

DESIGNED BY: VLS
REVIEWED BY: VLS
DRAWN BY: MJK
DATE: JANUARY 2017
PROJ. NO.: 1511.06

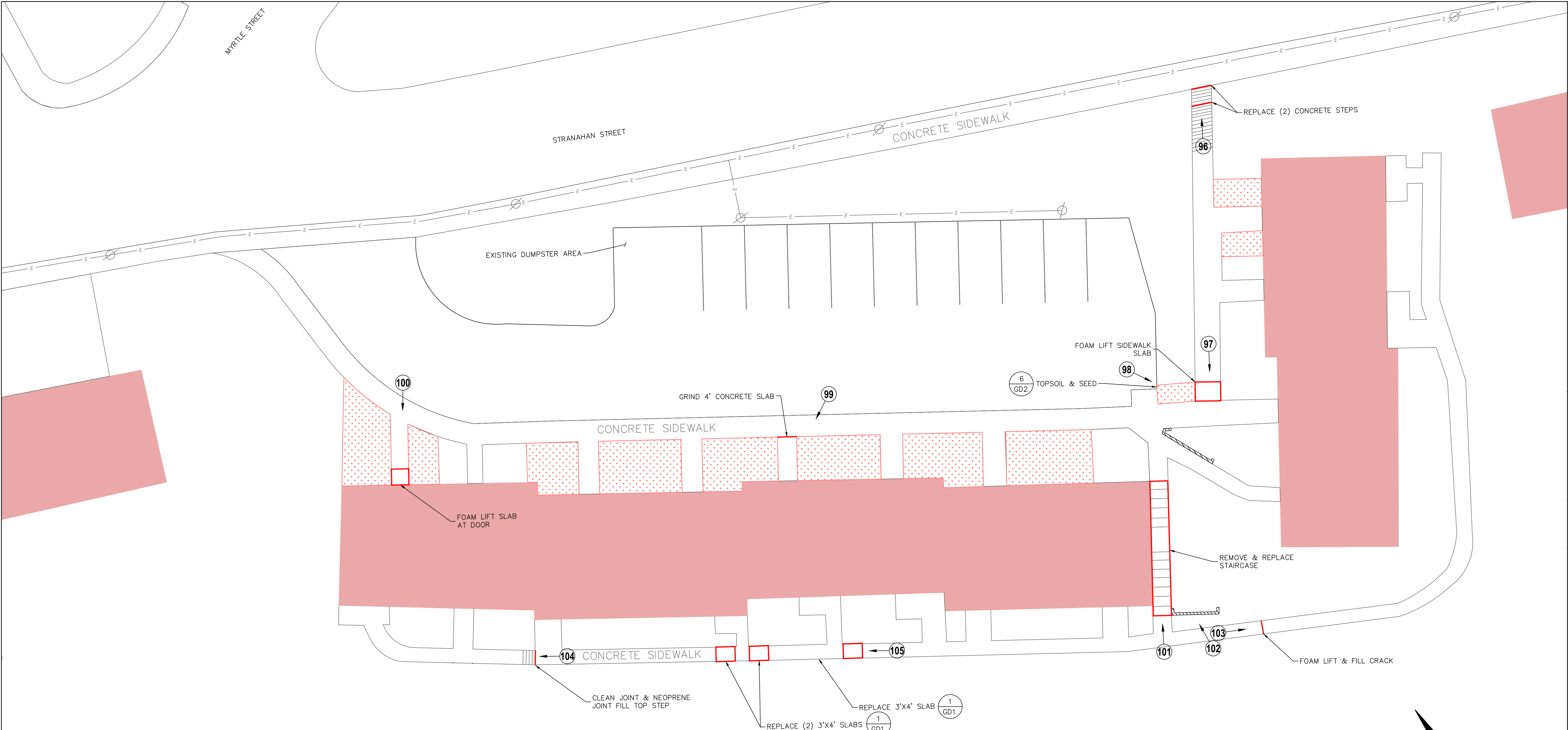
SCALE:
1"=10'

REVISION BY:	DATE:	DESCRIPTION:

REVISION BY:	DATE:	DESCRIPTION:

SHEET NO.
SP-8

DWG. PATH: F:\Client\1511.DWG Engineering\1511.06 HACP Honewood North\2016 HONEWOOD NORTH PROJECT\TECHNICAL STAFF REVISIONS 11-21-16\CAD\New Bid Plan Production 11-28-16 - Corrections.dwg
LAST SAVE: Dec 13, 2016 - 3:29pm JSH/ELDS



LEGEND



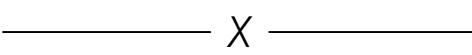
AREA OF PROPOSED TOPSOIL & SEEDING



EXISTING BUILDING



EXISTING ELECTRIC LINE

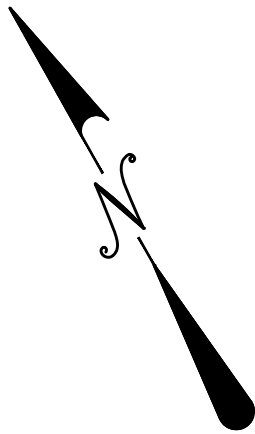
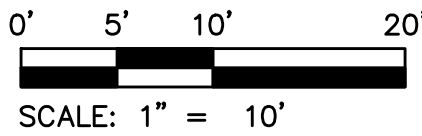


EXISTING FENCE/RAILING



EXISTING ROAD

STRANAHAN STREET
SCALE: 1" = 10'



SITE PLAN - BASE BID
HONEWOOD NORTH CONCRETE AND ASPHALT REPAIR PROJECT
HOUSING AUTHORITY OF THE CITY OF PITTSBURGH
PITTSBURGH, ALLEGHENY COUNTY, PENNSYLVANIA

SHEET NO.
SP-9

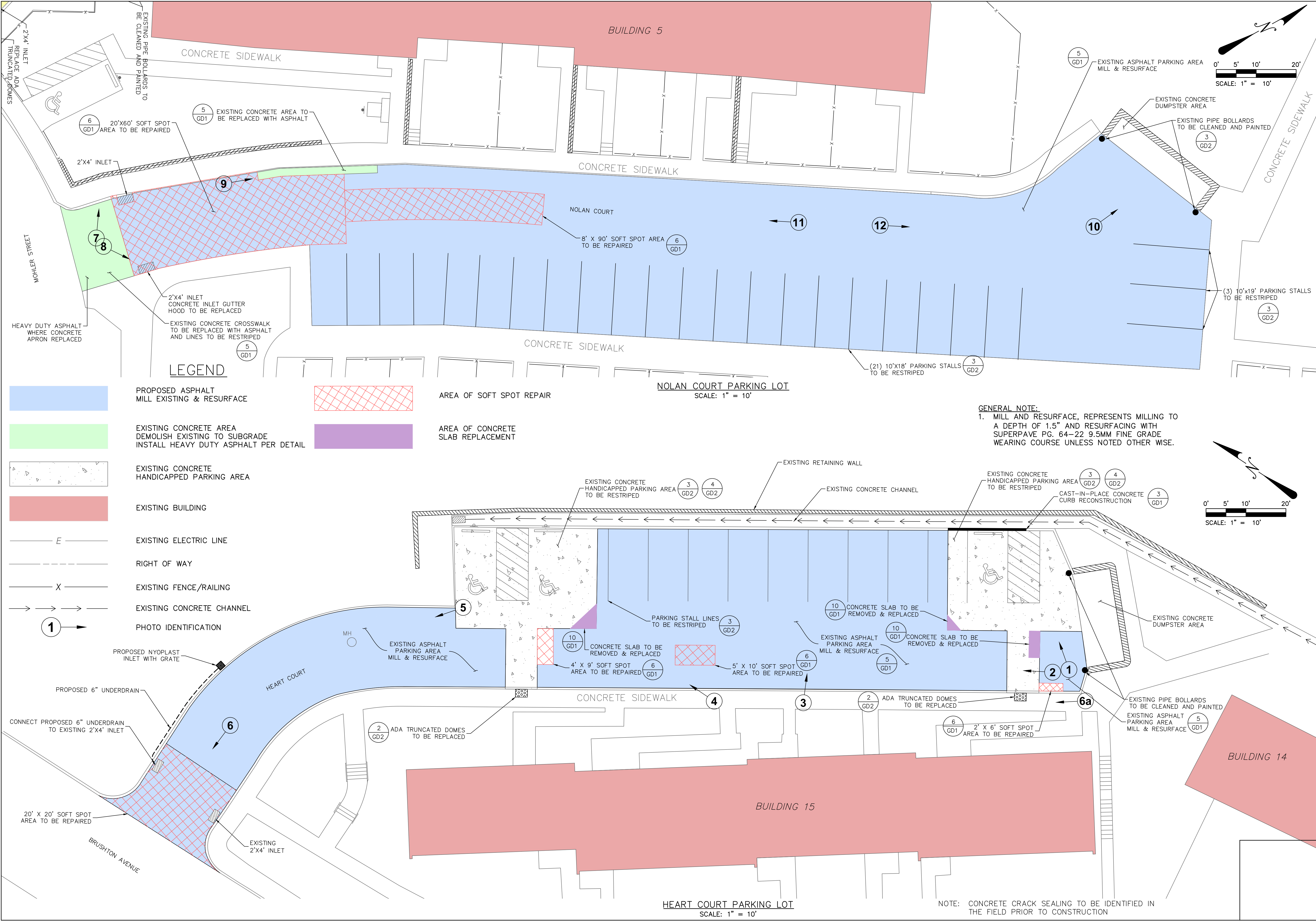
DESIGNED BY: VLS
REVIEWED BY: MJK
DRAWN BY: MJK
DATE: JANUARY 2017
PROJ. NO.: 1511.06

SCALE:
1"=10'

MKA Morris Knowles
& Associates, Inc.
(a subsidiary of) *Engineering Group and Land Surveyors*
Pittsburgh, PA 15226
Telephone: (412) 281-8800
Fax: (412) 281-8822
info@morrisknowles.com www.morrisknowles.com

REVISION BY:	DATE:	DESCRIPTION:

DWG. PATH: F:\Clients\1511.DWG Engineering\1511.06 HACP Homewood North\2016 HOMEWOOD NORTH PROJECT\TECHNICAL STAFF REVISIONS 11-21-16\CAD\Sheet Bid Plan Production -11-28-16 - Corrections.dwg
LAST SAVE: Dec 13, 2016 - 3:29pm JSH/ELDS



DESCRIPTION:
DATE:
REVISION BY:
DESIGNED BY: VLS
REVIEWED BY: VLS
SCALE: 1"=10'
MORRIS KNOWLES & ASSOCIATES, INC.
(A) HARRISBURG COMPANY
CONSULTING ENGINEERS AND LAND SURVEYORS
PITTSBURGH, PA 15206
TELEPHONE: (724) 463-5800
FAX: (724) 463-5801
WWW.MORRISKNOWLES.COM
CORRECTIONS - 11-29-18

DESCRIPTION:
DATE:
REVISION BY:
DRAWN BY: MJK
DATE: JANUARY 2017
PROJ. NO: 1511.06

DESCRIPTION:
DATE:
REVISION BY:
DESCRIPTION:
DATE:
REVISION BY:

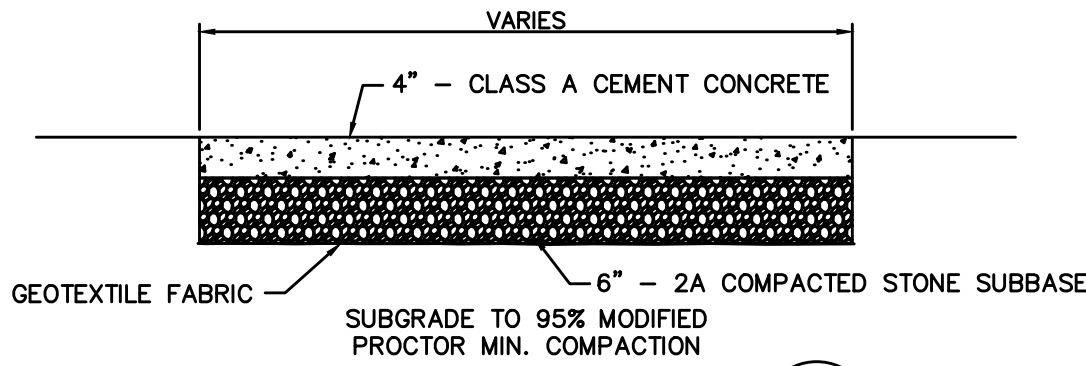
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DATE:
REVISION BY:
DESCRIPTION:
DATE:
REVISION BY:

NOLAN COURT & HEART COURT PARKING LOTS
HONWOOD NORTH CONCRETE AND ASPHALT REPAIR PROJECT
HOUSING AUTHORITY OF THE CITY OF PITTSBURGH
PITTSBURGH, ALLEGHENY COUNTY, PENNSYLVANIA

SHEET NO.
SP-10

NOTES:

- IF SUBGRADE MATERIALS ARE UNSUITABLE, CONTRACTOR SHALL EXCAVATE TO SUITABLE MATERIAL, FILL AND COMPACT TO ENGINEER'S SPECIFICATIONS.
- CONTRACTOR SHALL INSTALL AND COMPACT SUBBASE ACCORDING TO PENNSYLVANIA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.

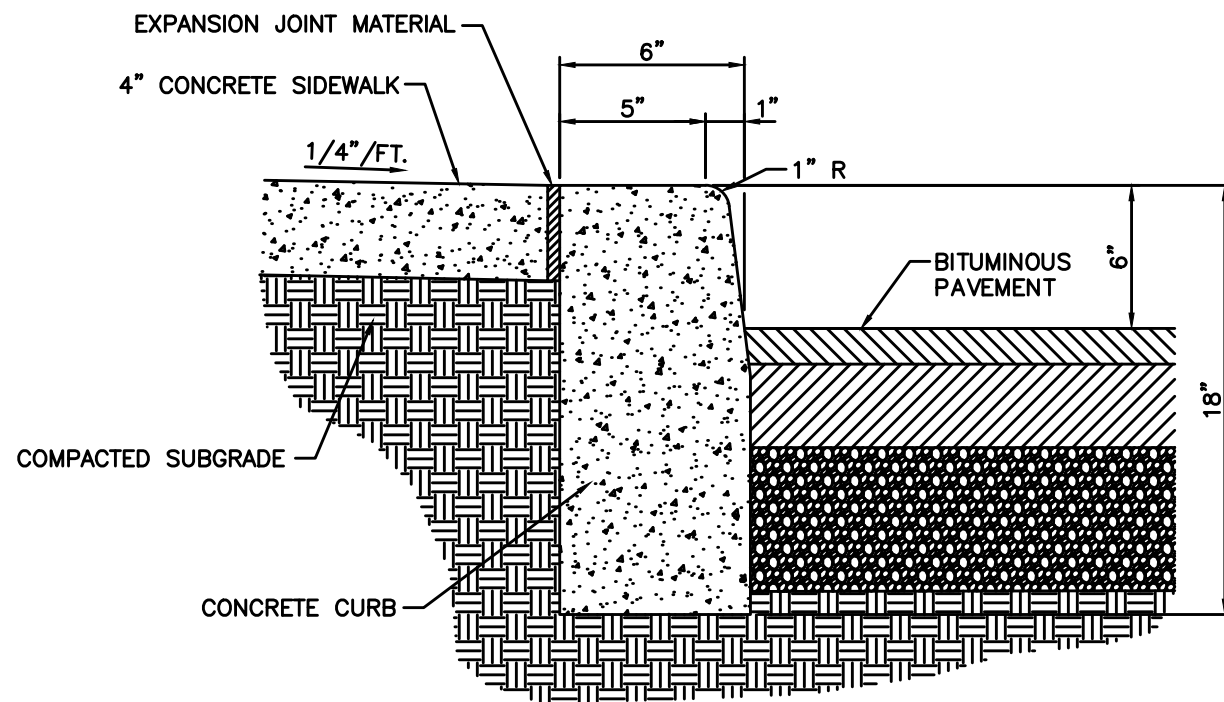


SIDEWALK DETAIL
N.T.S.

1
GD1

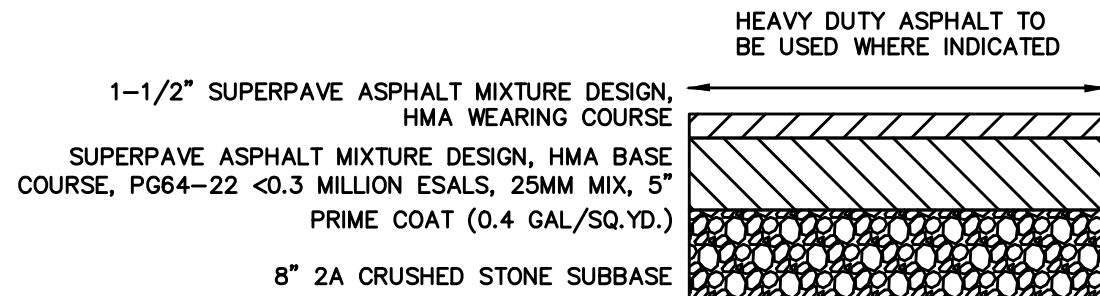
NOTES:

- WHERE GRADE ELEVATIONS ARE SHOWN, A UNIFORM SLOPE SHALL EXIST BETWEEN GIVEN ELEVATIONS.
- THE TOP AND BOTTOM OF ALL SLOPES SHALL BE ROUNDED OFF TO SMOOTH CURVES.
- THE HIGH AND LOW POINTS ON CURBS, WALKS, AND ROADS SHALL BE ROUNDED OFF TO SHOW NO DEFINITE CHANGE OF GRADE.
- WALKS SHALL HAVE A MINIMUM CROSS-SLOPE OF AN 1/8" PER FOOT AND A MAXIMUM OF 1/4" PER FOOT UNLESS NOTED OTHERWISE, REINFORCE ALL CONCRETE WALKS, PLATFORMS, STOOPS, ETC. WITH 6x6x#8 MESH.
- ALL CONCRETE SIDEWALKS SHALL BE SCORED IN INDIVIDUAL SECTIONS WITH THE LENGTH OF EACH SECTION EQUAL TO THE WIDTH UNLESS NOTED OTHERWISE.
- INSTALL 1/4"x5" ASPHALT IMPREGNATED PREMOULDED EXPANSION JOINTS IN ALL CONCRETE WALKS AT 18'-0" INTERVALS AND AT THE INTERSECTION(S) OF CURBS, STEPS, OTHER WALKS, DIFFERING MATERIALS, ETC., AND/OR AS DIRECTED BY THE ENGINEER.
- INSTALL 1/4" THICK PREMOULDED EXPANSION JOINT IN NEW CURBS AT 18'-0" INTERVALS.



CURB AND SIDEWALK DETAIL
N.T.S.

4
GD1



NOTES:

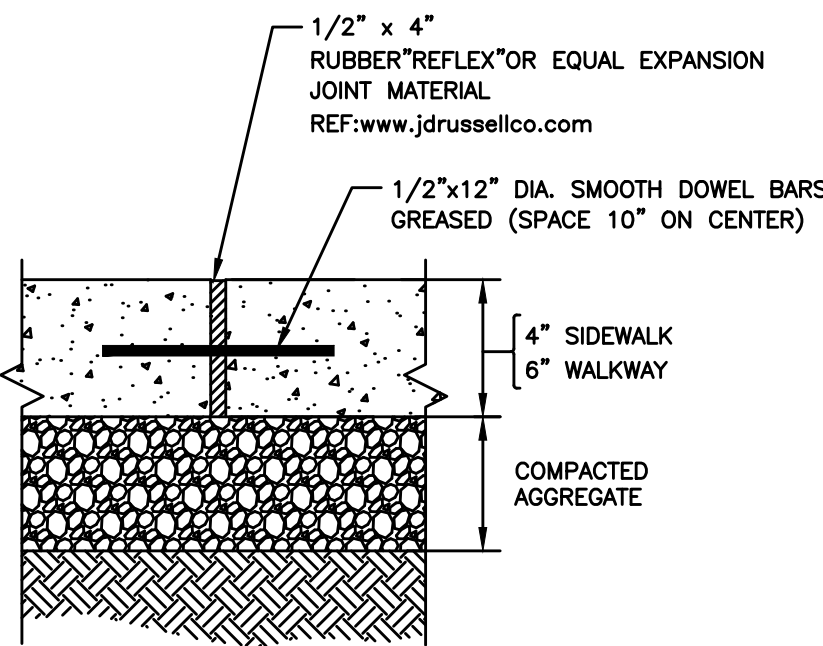
- MILLING & RESURFACING INVOLVES REMOVING AND REPLACING 1-1/2" SUPERPAVE ASPHALT MIXTURE HMA WEARING COURSE.

HEAVY DUTY ASPHALT CONCRETE PAVEMENT DETAIL
N.T.S.

5
GD1

NOTES:

- JOINTS SHALL BE TOOLED, NOT SAWCUT.
- JOINT FILLER MATERIAL (ALL ISOLATION JOINTS) SHALL BE RUBBER 'REFLEX' OR APPROVED EQUAL, IN ACCORDANCE W/ PENNDOT PUBLICATION 408. FOAM BACKER ROD (ALL CONTRACTION JOINTS) SHALL BE MANUFACTURED FOR USE IN PAVEMENT AND WALKWAY JOINTS BY THE JOINT SEALANT MANUFACTURER.
- H.A.C.P. RESERVES THE RIGHT TO DISASSEMBLE ONE (1) ISOLATION AND ONE (1) CONTRACTION JOINT AT THE CONTRACTOR'S EXPENSE TO DETERMINE COMPLIANCE WITH CONTRACT REQUIREMENTS.

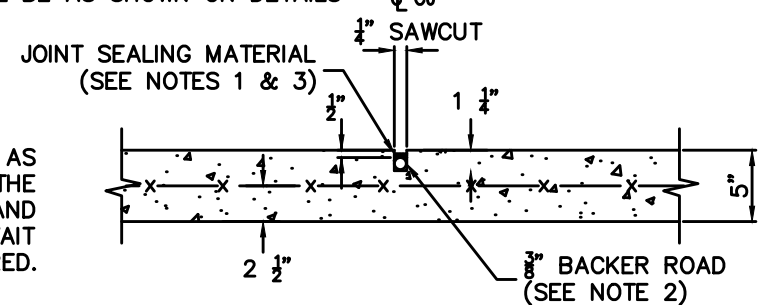


CONCRETE SIDEWALK EXPANSION JOINT
N.T.S.

2
GD1

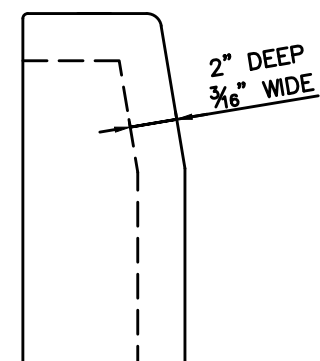
JOINT NOTES:

- PROVIDE A SILICONE JOINT SEALING MATERIAL MEETING THE REQUIREMENTS OF SECTION 705.4(A) IN PENNDOT PUBLICATION 408.
- PROVIDE AN EXPANDED, LOW DENSITY, POLYETHYLENE FOAM BACKER ROD MEETING THE REQUIREMENTS OF ASTM D5249 WITH A MINIMUM THICKNESS OF 3/8 INCH.
- MAKE THE TOP OF THE JOINT SEALING MATERIAL A MINIMUM 1/8 INCH BELOW THE SURFACE OF THE FLOOR SLAB.
- CONTRACTION JOINTS SHALL BE AS SHOWN ON DETAILS THIS SHEET.



CONCRETE SLAB CONTRACTION JOINT
N.T.S.

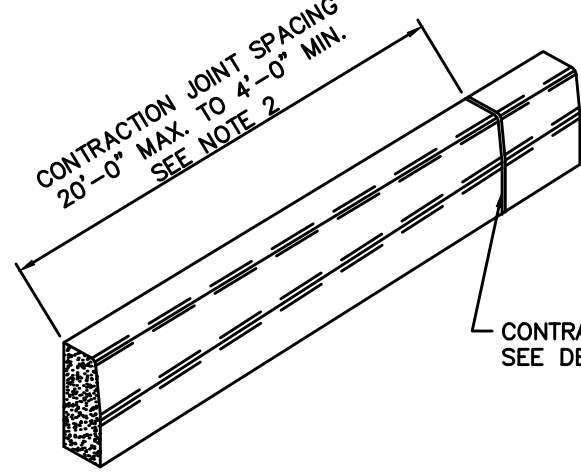
SAWCUT JOINTS SHALL BE MADE AS SOON AS THE CONCRETE HAS CURED SUCH THAT THE BLADE DOES NOT DISLODGE AGGREGATE AND THE CUT EDGES DO NOT CRUMBLE. DO NOT WAIT MORE THAN 8 HOURS AFTER CONCRETE HAS POURED.



TYPICAL CROSS SECTION

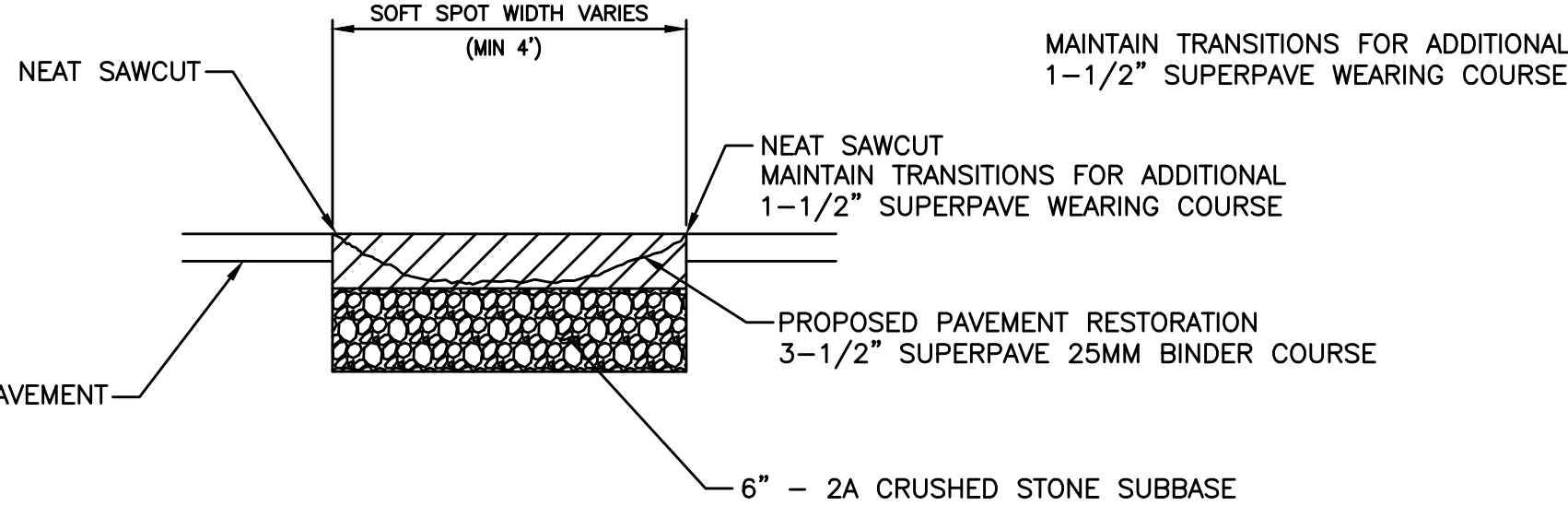
CURB NOTES:

- PROVIDE MATERIALS AND CONSTRUCTION MEETING THE REQUIREMENTS OF PUBLICATION 408, SECTION 630 FOR PLAIN CEMENT CONCRETE CURBS AND DEPRESSED CURB, SECTION 640 FOR PLAIN CEMENT CONCRETE GUTTER AND SECTION 641 FOR PLAIN CEMENT CONCRETE CURB GUTTER.
- SPACE CONTRACTION JOINTS IN UNIFORM LENGTHS OR SECTIONS.
- PLACE 3/4" THICK PREMOULDED EXPANSION JOINT FILLER MATERIAL, AT STRUCTURES AND AT THE END OF THE WORK DAY, CUT MATERIAL TO CONFORM TO AREA ADJACENT TO CURB OR TO CONFORM TO CROSS SECTIONAL AREA OF CURB.
- SEE RC-50M FOR PLAIN CEMENT CONCRETE CURB SLOPED TOP TREATMENT AT END OF STRUCTURES.
- WHERE CURBS ARE INSTALLED ADJACENT TO PARKING LANES A 6" HIGH CURB CAN BE UTILIZED WITH APPROVAL FROM LOCAL MUNICIPALITY.



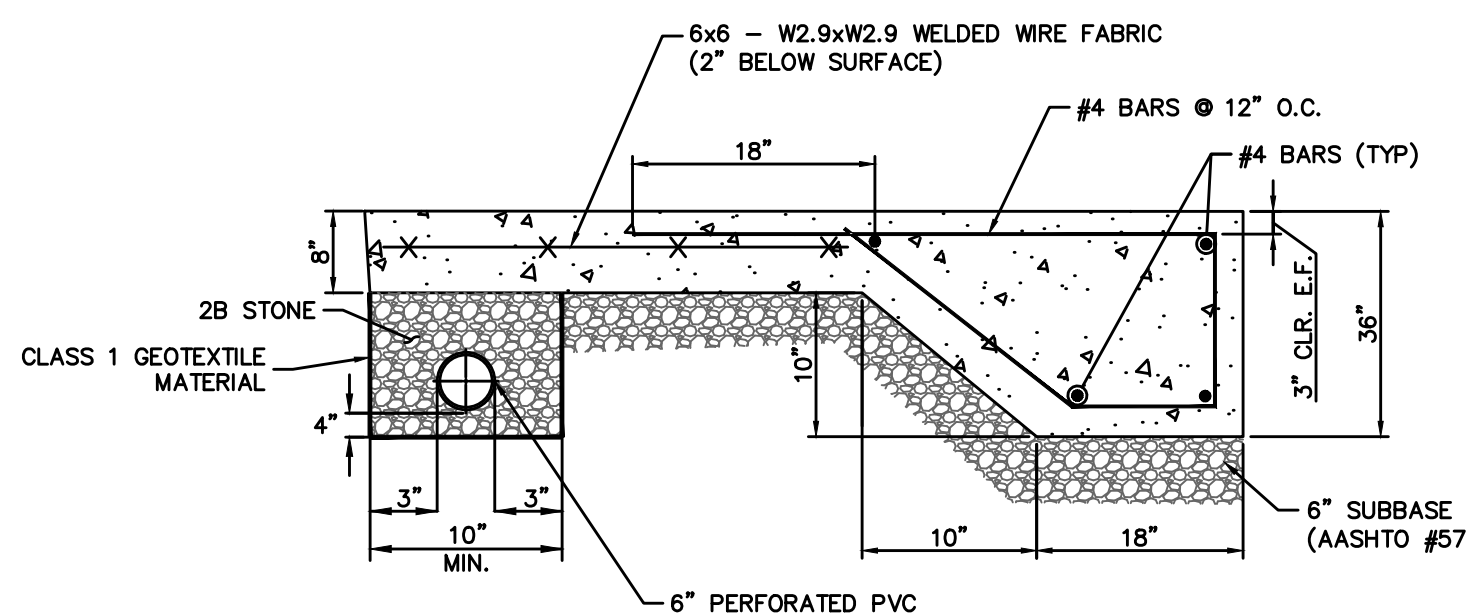
PENNDOT PLAIN CEMENT
CONCRETE CURB
N.T.S.

3
GD1



SOFT SPOT REPAIR
N.T.S.

6
GD1

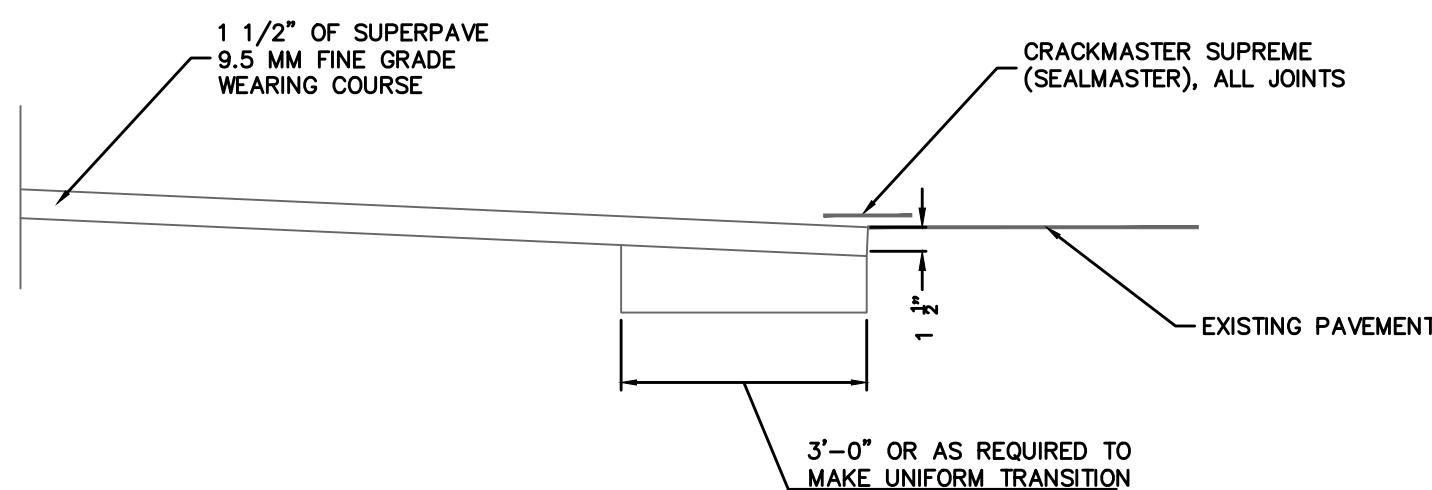


NOTE:

- CLASS AA CONCRETE (750 PSI) SHALL BE IN ACCORDANCE WITH PENNDOT PUBLICATION 408, LATEST EDITION.

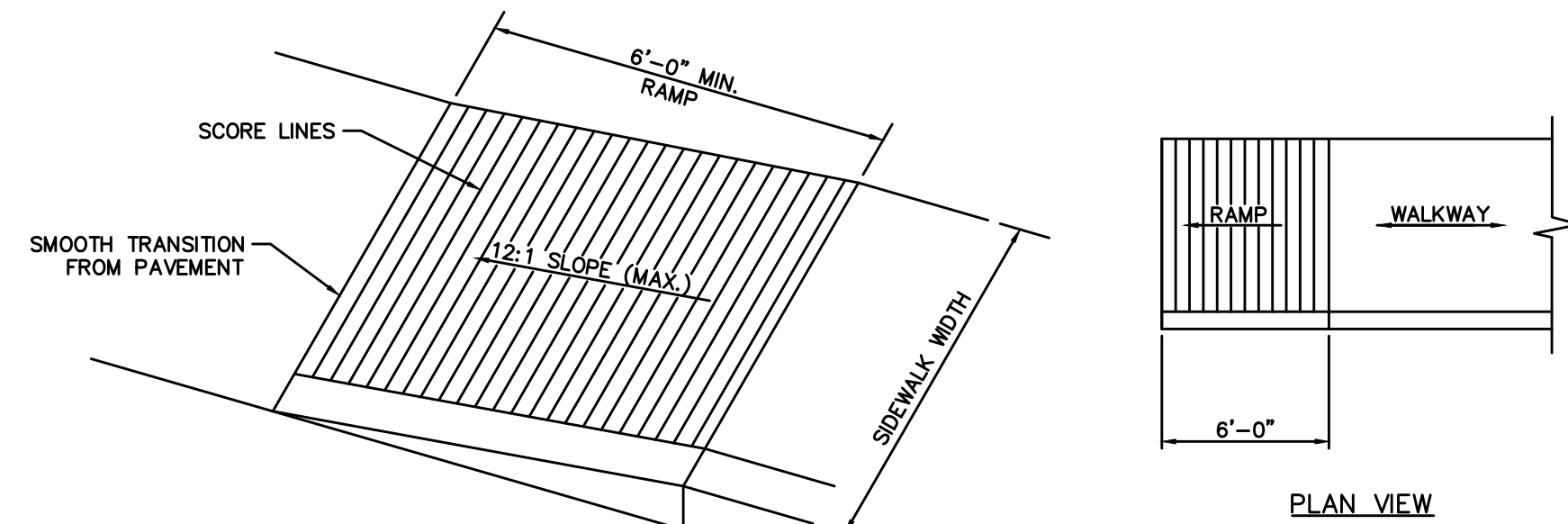
SIDEWALK WITH UNDERDRAIN
N.T.S.

7
GD1



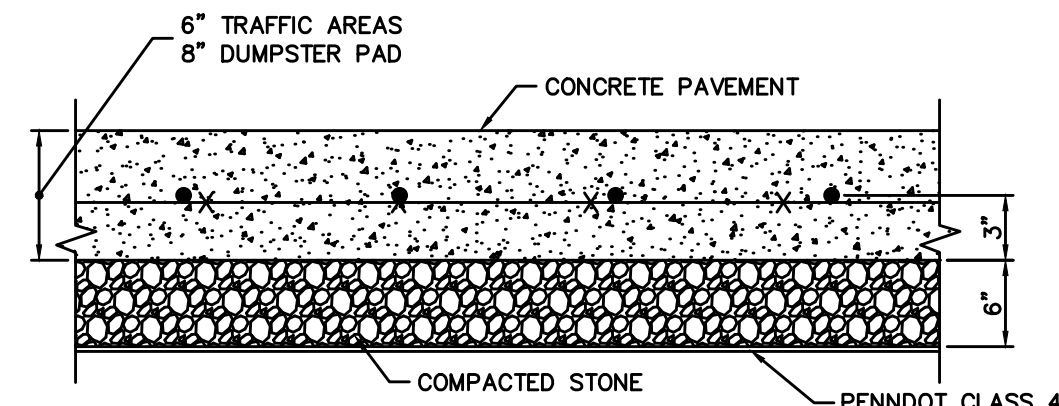
KEYWAY
N.T.S.

8
GD1



HANDICAP RAMP
N.T.S.

9
GD1

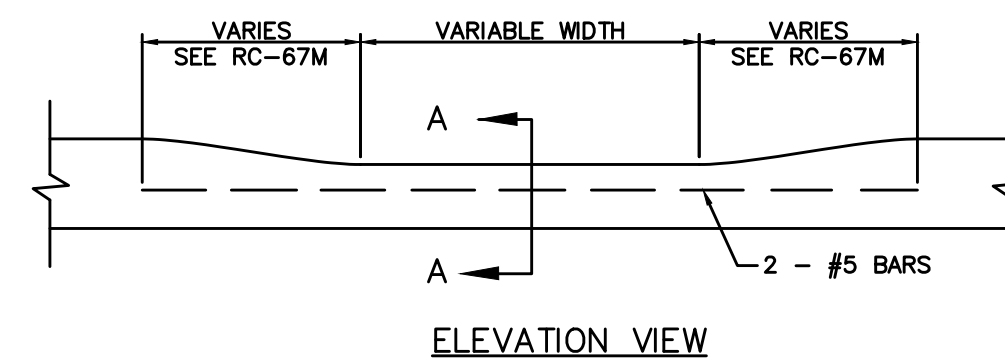


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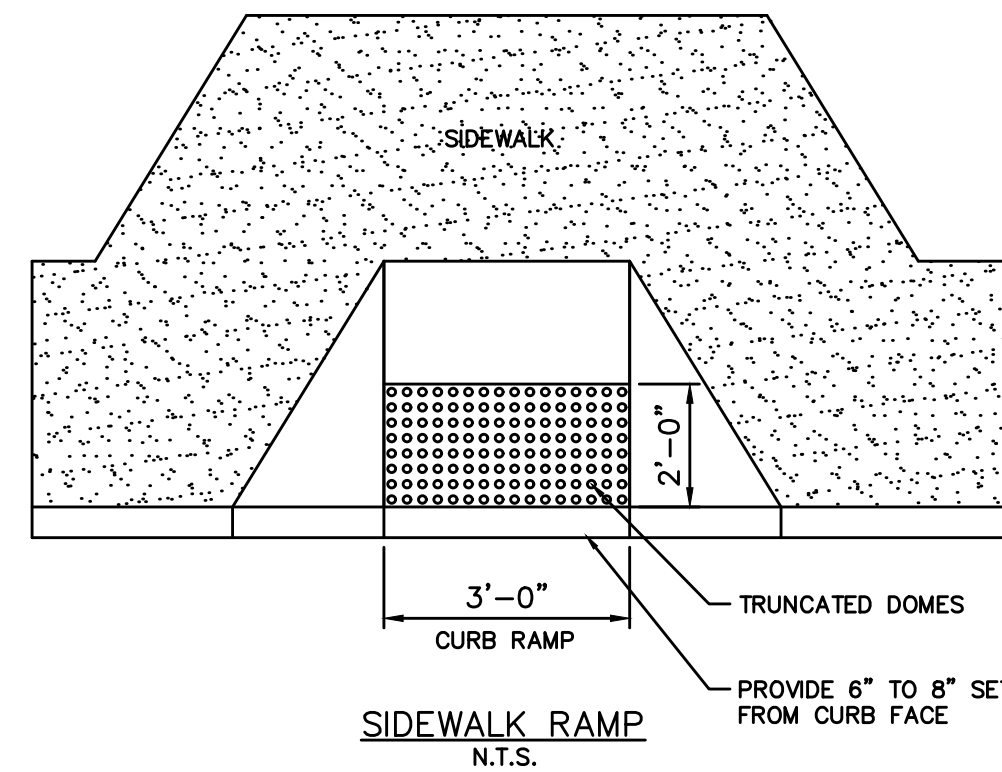
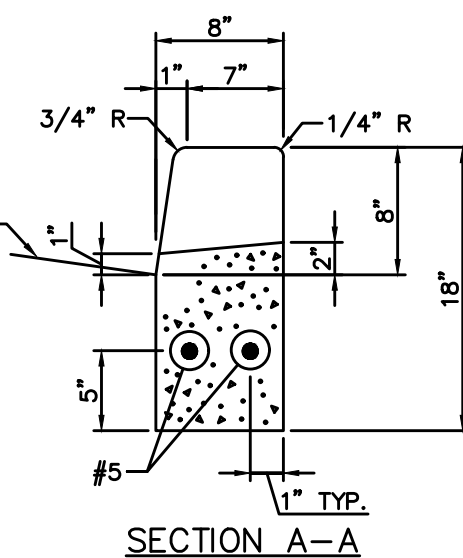
- CONCRETE SHALL BE PENNDOT CLASS A CONCRETE.
- REINFORCEMENT SHALL BE WWF6X6-W6.0XW6.0
- COMPACTED STONE SHALL BE 2A STONE.
- IF SUBGRADE MATERIALS ARE UNSUITABLE, CONTRACTOR SHALL EXCAVATE TO SUITABLE MATERIAL, FILL AND COMPACT TO PENNSYLVANIA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.
- CONTRACTOR SHALL INSTALL PENNDOT CLASS 4 GEOTEXTILE ON THE PREPARED SUBGRADE. INSTALL THE GEOTEXTILE IN ACCORDANCE WITH PENNDOT PUBLICATION 408, SECTION 212.
- CONTRACTOR SHALL INSTALL AND COMPACT SUBBASE ACCORDING TO PENNSYLVANIA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.
- CONTRACTOR SHALL COMPACT THE SUBGRADE TO AT LEAST 95% OF THE MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-1557. THE SUBGRADE SHALL BE IN A STABLE, NON-YIELDING CONDITION AT THE TIME OF PAVING.

CEMENT CONCRETE PAD
N.T.S.

10
GD1



PENNDOT DEPRESSED CURB
FOR DRIVEWAYS
N.T.S.



SIDEWALK RAMP
N.T.S.

DETAILS

HONEWOOD NORTH CONCRETE AND ASPHALT REPAIR PROJECT
prepared for
HOUSING AUTHORITY OF THE CITY OF PITTSBURGH
situated in
PITTSBURGH, ALLEGHENY COUNTY, PENNSYLVANIA

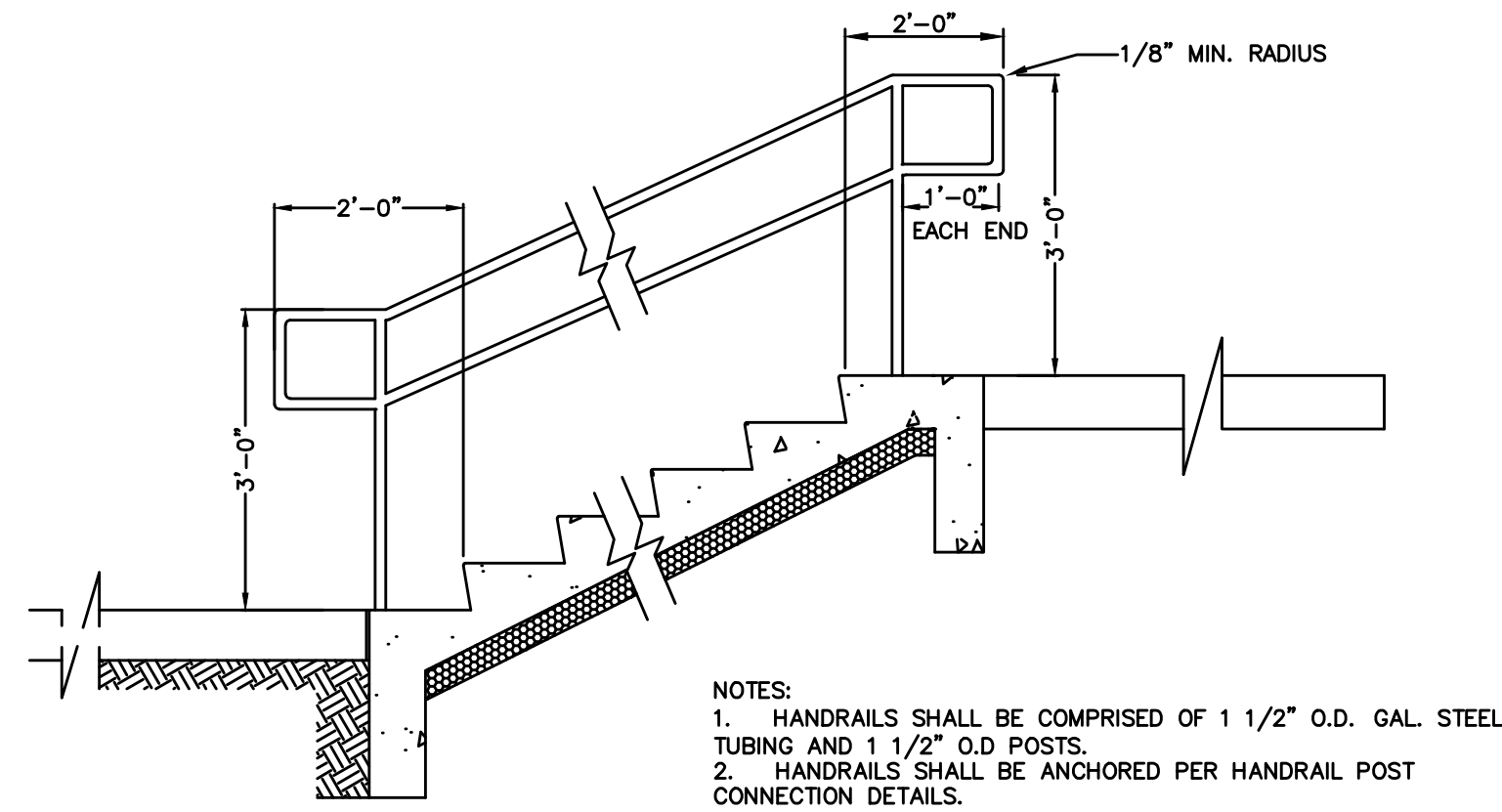
SHEET NO.
GD-1

Morris Knowles
& Associates, Inc.
(a) Associates Company
Consulting Engineers and Land Surveyors
Pittsburgh, PA 15226
Telephone (724) 462-4822
Fax (724) 462-4822
www.morrisknowles.com

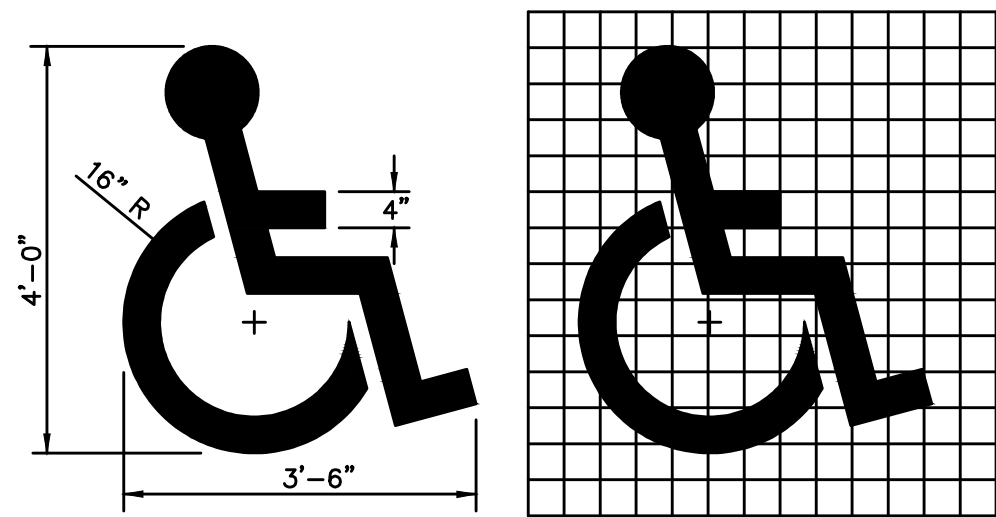
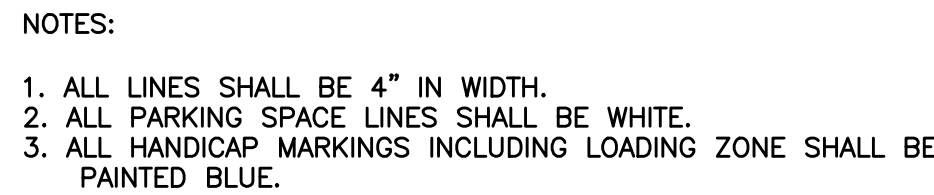
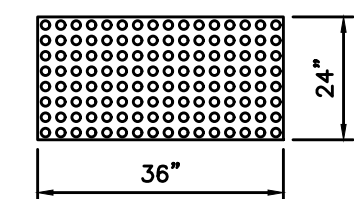
Info@morrisknowles.com

11-28-18 - Connections

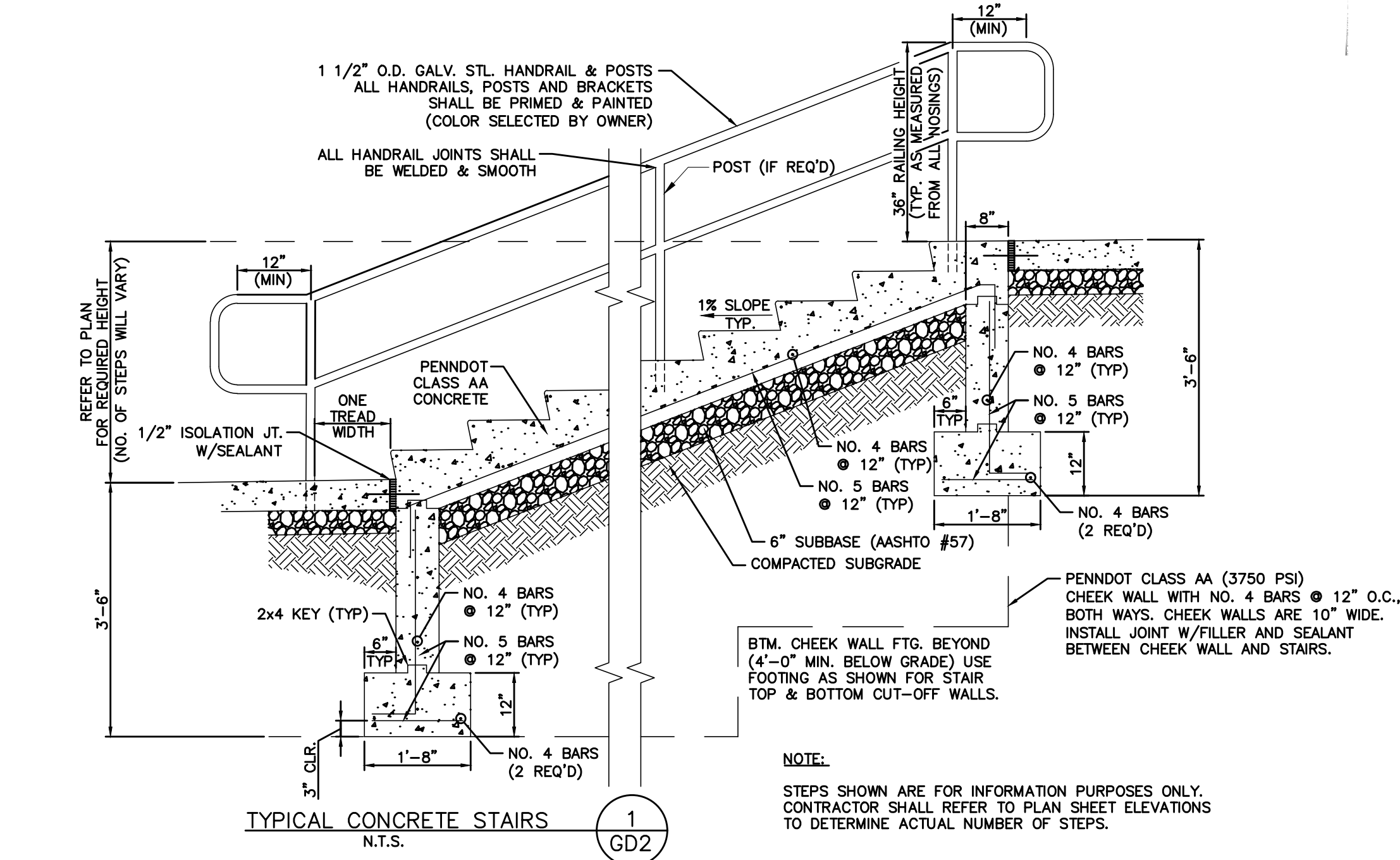
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LAST SAVE: Dec 13, 2018 - 3:29pm
JSH/ELDS



1. POSTS MUST NOT ROTATE WITHIN THEIR FITTINGS OR SLEEVES.
2. POST SLEEVES SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A392, CLASS 2, WITH NOT LESS THAN 2.0 OZ. ZINC PER SQ. FT. THE POST SLEEVE SHALL BE COMPLETELY HIDDEN FROM VIEW WHEN COMPLETE. MAXIMUM POST SPACING = 36".
3. CORE DRILL WITH EXISTING CONCRETE.

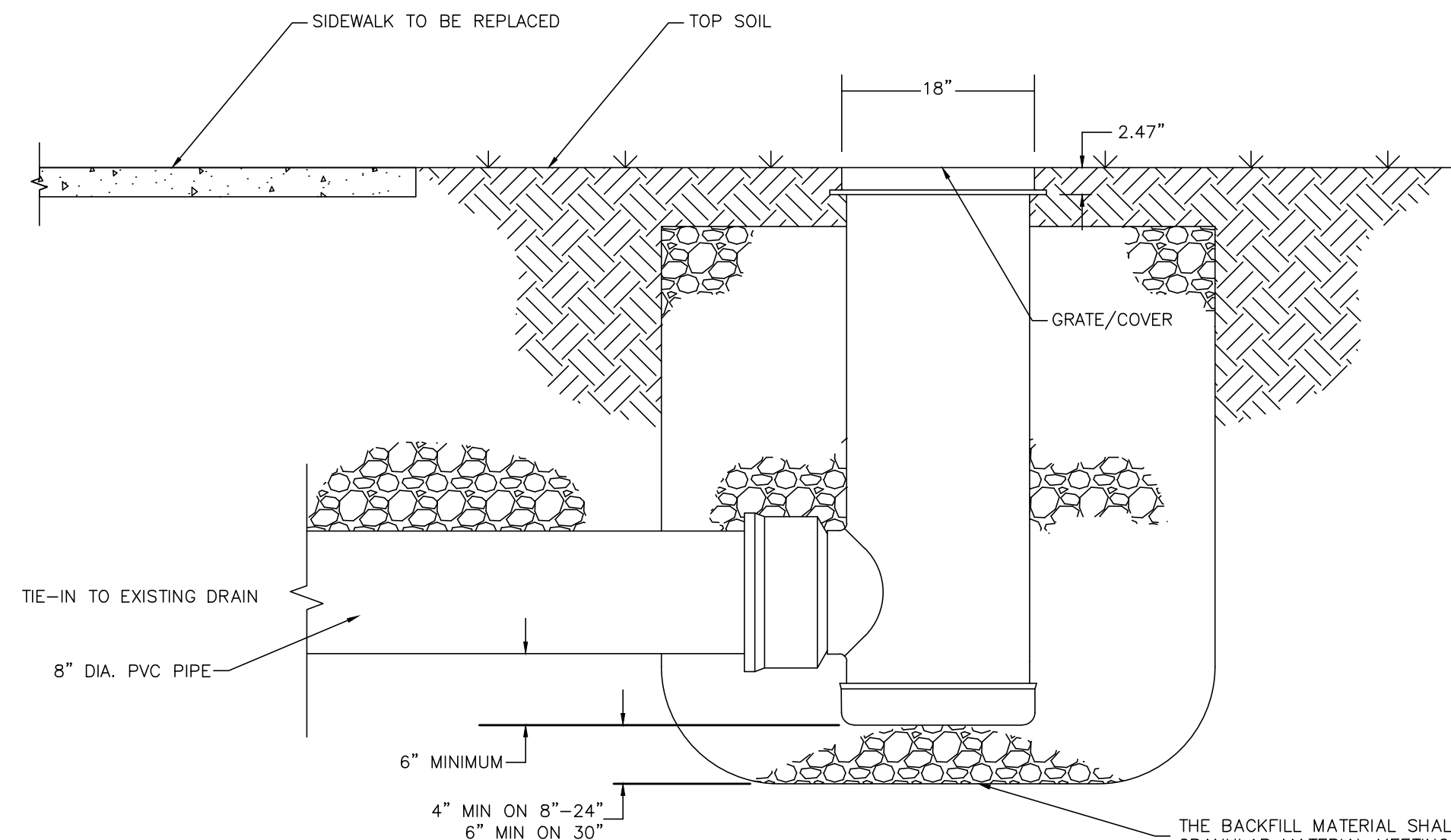


1. PROVIDE 2 COATS OF BLUE ALKYD TRAFFIC PAINT, ALLOWING 1 WEEK MINIMUM BETWEEN COATS.
2. LINE STRIPPING MARKING THE UFAS ACCESSIBLE ROUTE SHALL BE 4" WIDE BLUE PAINT.
3. REF. PARKING REHAB. SPECIFICATIONS AND PENNDOT 408 SPECIFICATIONS FOR ADDITIONAL INSTALLATION & MATERIAL REQUIREMENTS.



NOTE:

STEPS SHOWN ARE FOR INFORMATION PURPOSES ONLY.
CONTRACTOR SHALL REFER TO PLAN SHEET ELEVATIONS
TO DETERMINE ACTUAL NUMBER OF STEPS.



THE BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS I, CLASS II, OR CLASS III MATERIAL AS DEFINED IN ASTM D2321. BEDDING & BACKFILL FOR SURFACE DRAINAGE INLETS SHALL BE PLACED & COMPACTED UNIFORMLY IN ACCORDANCE WITH ASTM D2321.

GENERAL NOTES:

1. POSTS ARE 2" X 70"
2. PICKETS ARE 48"
3. 15 HOLE HEADER AND STRINGER
4. TO INCLUDE POST CAP
5. FENCE HAS TWO RAILS WITH SMOOTH TOP RAIL
6. 6" WIDE SECTIONS
7. 2-RAIL STYLE IN 4 FOOT HEIGHT, NO PICKETS ABOVE OR BELOW THE RAILS FOR SAFETY.
8. POST CENTERS 72-1/2"

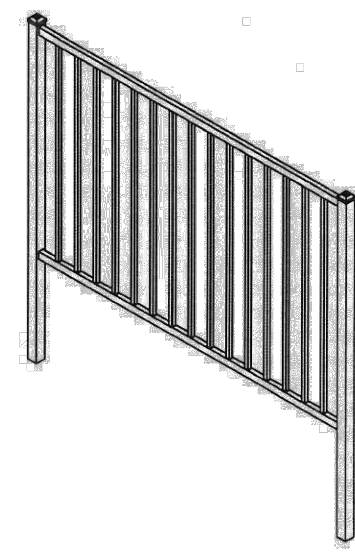
PERMANENT LAWN RESTORATION E.H. GRIFFTH "E" PLUS LAWN SEED MIX		
GRASS SPECIES	MIX COMPOSITION	GERMINATION
AWARD KENTUCKY BLUEGRASS	16.41%	80%
RUGBY 2 KENTUCKY BLUEGRASS	16.41%	80%
BRIGHTSTAR 2 PERENNIAL RYEGRASS	16.33%	80%
PIZZAZZ PERENNIAL RYEGRASS	16.25%	80%
MIDNIGHT KENTUCKY BLUEGRASS	16.25%	80%
SEVILLE 2 PERENNIAL RYEGRASS	16.25%	80%
CROP, WEEDS, INERT	2.10%	80%

NOTE: SUPPLIER IS E.H. GRIFFTH - SWISSVALE, PA. OR EQUAL

LAWN RESTORATION REQUIREMENTS:

1. PREPARE AND GRADE LAWN AREA STRIPPED AND DISTURBED BY CONSTRUCTION. CONTRACTOR SHALL ENSURE SITE SLOPES IN A POSITIVE DIRECTION AWAY FROM BUILDING AND TO STORMWATER INLETS OR ROADWAY GUTTER LINE.
2. CONTRACTOR SHALL INSTALL A MINIMUM OF 6" SCREENED TOPSOIL TO MATCH OR BLEND EXISTING GRASSES.
3. CONTRACTOR SHALL INSTALL PELLETED LIMESTONE SUPPLEMENT, A COMMERCE GRADE STARTER FERTILIZER, SEED AND MULCH WITH MUSHROOM MANURE.
4. CONTRACTOR SHALL MAINTAIN GRASS FOR A PERIOD OF TIME AS SPECIFIED WITHIN THE CONTRACT BID SPECIFICATIONS.

GRASS RESTORATION REQUIREMENTS	6
N.T.S.	GD2



CONCRETE PAVEMENT NOTES:

- CONCRETE PAVEMENT SHALL BE CLASS AA, IN ACCORDANCE WITH PENNDOT PUBLICATION 408 SECTION 704. LATEST EDITION. UNLESS OTHERWISE NOTED, CONSTRUCTION OF CONCRETE WALKS SHALL BE IN ACCORDANCE WITH SECTION 676.
2. COMPACT SUBGRADE TO 95% MAX. MODIFIED PROCTOR DRY DENSITY IN ACCORDANCE WITH ASTM D1557. REFER TO TECHNICAL SPECIFICATION SECTION 02200 FOR ADDITIONAL INFORMATION. NOTIFY ARCHITECT UPON COMPLETING SUBGRADE COMPACTION. DO NOT APPLY SUBGRADE UNTIL CONTRACTOR HAS BEEN APPROVED BY THE TESTING AGENCY.
3. DO NOT USE 2x4s FOR FORMING CONCRETE WALKS. 2x4s YIELD A CONCRETE DEPTH OF 3 1/2", WHICH IS UNACCEPTABLE.
4. FURNISH WELDED WIRE FABRIC IN FLAT SHEETS, NOT ROLLS. ACCURATELY PLACE AS DETAILED. CHAIRS SHALL BE SPACED AT 2'-0" O.C. FOR MESH SUPPORT.
5. ISOLATION JOINTS TO BE LOCATED WHERE CONCRETE MEETS BUILDING WALLS, FOUNDATIONS, STOOPS, AND CURBS. ISOLATION JOINTS SHALL ALSO BE CONSTRUCTED AT ANY CHANGE OF DIRECTION.
6. ISOLATION JOINTS TO BE TYPICALLY SPACED AT 20'-0" INTERVALS ON WALKS.
7. CONTRACTION JOINTS TO BE TYPICALLY SPACED AT 5'-0" INTERVALS ON WALKS.
8. SPACE JOINTS IN CONCRETE PAVEMENT TO FORM SQUARE OR NEARLY SQUARE PANELS. THE PANEL LENGTH SHALL NOT EXCEED WIDTH BY MORE THAN 33% (MAX. ASPECT RATIO = 1.33:1.00).
9. JOINT SPACING IN IRREGULAR SHAPED AREAS OF PAVEMENT OR PAVEMENT OTHER THAN WALKS SHALL BE IN COMPLIANCE WITH ACCEPTED CONSTRUCTION PRACTICES.
10. THE JOINT SEALANT MATERIAL SHALL BE TWO-COMPONENT URETHANE SPECIFICALLY MANUFACTURED FOR USE AS A PAVEMENT JOINT SEALANT. SEALANT SHALL BE TYPE M, GRADE P OR SL, CLASS 25 AND USE T IN ACCORDANCE WITH ASTM C 920. THE CONTRACTOR SHALL CONSULT THE JOINT SEALANT MANUFACTURER FOR USE OF SPECIFIED SEALANT IN JOINTS OF PAVEMENT OR RAMPS WITH SLOPES GREATER THAN 5%. A GUN GRADE JOINT SEALANT WITH A TOOLED FINISHED WILL BE NECESSARY FOR USE AT THESE AREAS. COMPLY WITH MANUFACTURER'S RECOMMENDATIONS. THE SEALANT COLOR SHALL MATCH THE ADJACENT CONCRETE. INSTALL SEALANT, BOND BREAKER TAPE, BACKER ROD/ PREMOULDED JOINT FILLER AS DETAILED AND IN STRICT COMPLIANCE WITH MANUFACTURER'S INSTRUCTIONS.
11. THE TOP OF THE JOINT SEALANT MATERIAL SHALL NOT BE LESS THAN 1/16" NOR MORE THAN 3/16" BELOW THE SURFACE OF THE PAVEMENT.
- 12/ CUT ISOLATION JOINT FILLER MATERIAL TO CONFORM TO THE CROSS SECTION OF THE PAVEMENT AND FURNISH IN STRIPS EQUAL TO THE WIDTH OF THE PAVEMENT SLAB.
13. POLYETHYLENE BOND BREAKER TAPE SHALL BE SPECIFICALLY MANUFACTURED FOR THIS APPLICATION AND RECOMMENDED BY THE SEALANT MANUFACTURER.
14. NEW CONCRETE SURFACES WITH SLOPES LESS THAN 5% SHALL HAVE A FINE-HAIR BROOM FINISH PERPENDICULAR TO THE DIRECTION OF PEDESTRIAN TRAFFIC.
15. NEW CONCRETE SURFACES WITH SLOPES EQUAL TO OR GREATER THAN 5% (I.E. HANDICAP RAMPS) SHALL HAVE A STIFF BRISTLE BROOM FINISH PERPENDICULAR TO THE DIRECTION OF PEDESTRIAN TRAFFIC.

CONCRETE CONSTRUCTION SPECIFICATIONS:

1. ALL REINFORCED CONCRETE SHALL BE IN CONFORMANCE WITH THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (A.C.I. 318, LATEST EDITION, AS REVISED) OF THE AMERICAN CONCRETE INSTITUTE.
2. ALL CONCRETE SHALL HAVE AN ULTIMATE COMPRESSIVE STRENGTH PER PENNDOT 408 SECTION 704, LATEST EDITION.
CLASS AA - 3,750 PSI AT 28 DAYS.
3. REFER TO PENNDOT 408 SECTION 704 FOR CONCRETE MIX DESIGN-REQUIREMENTS
 - A) MINIMUM POOR TEMPERATURE - 40 DEGREES F.
 - B) ADMIXTURES: TO BE APPROVED BY OWNER IN ADVANCE OF ORDERING.
3. ALL REINFORCING BARS SHALL BE DEFORMED BILLET STEEL BARS MEETING ASTM A-615 SPECIFICATIONS, LATEST EDITION, WITH A MINIMUM YIELD STRENGTH OF 60,000 PSI. DO NOT WELD GRADE 60 REINFORCING STEEL BARS.
4. ALL DETAILING OF REINFORCING BARS, UNLESS OTHERWISE NOTED, SHALL FOLLOW THE ACADEMICAL STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES.

DETAILS

STONEWOOD NORTH CONCRETE AND ASPHALT REPAIR PROJECT
prepared for
 HOUSING AUTHORITY OF THE CITY OF PITTSBURGH
situated in
 PITTSBURGH, ALLEGHENY COUNTY, PENNSYLVANIA

SHEET NO.
GD-2

[illegible]

DESIGNED BY: VLS
REVIEWED BY: VLS
DRAWN BY: MJUK
DATE: DECEMBER 2016

SCALE:
NTS

MA **Morris Knowles & Associates, Inc.**
(A Hammontree Company)
Consulting Engineers and Land Surveyors
443 Athena Drive
Delmont, PA 15626
Telephone: (724) 468-4622
Fax: (724) 468-8940
info@morrisknowles.com www.morrisknowles.com

DWG. PATH: P:\Clients\1511 D&D Engineering\1511.06 HACP Homewood North\2016 HOMEWOOD NORTH PROJECT\TECHNICAL STAFF REVISIONS 11-21-18\CAD\Bose Bid Plan Production -11-29-18 - Corrections.dwg

ATTACHMENT A
(BID FORMS)

BASE BID

Project: Homewood North Housing Site Rehabilitation

Morris Knowles & Associates, Inc.
Consulting Engineers
Delmont, Pennsylvania

Task Order: #48

COMPUTED BY: VLS
CHECKED BY: MJK

Rev. DATE: 12/12/2018
DATE: 5/24/2017

Building 1					
Building Rear - Sheet Number: SP-4					
Item Number	ITEM	QUANTITY	UNIT	UNIT PRICE	ITEM PRICE
1	Foam Lift Slab	1	EA		
2	Cast-In-Place Concrete For Sidewalk Landing - 3' x 4'	12	SF		
3	Clean Debris & reset or replace inlet grate	1	LS		
Building Front - Sheet Number: SP-4					
4	Clean Crack & Joint Seal	3	LF		
5	Clean debris , Grout and Caulk Steps	6	LF		
6	Topsoil & Seed	52	SF		
7	Foam Lift Slab	4	EA		
				SUBTOTAL	
Building 2					
Building Front - Sheet Number: SP-4					
Item Number	ITEM	QUANTITY	UNIT	UNIT PRICE	ITEM PRICE
1	Topsoil & Seed	6	SF		
2	Foam Lift Slab along Concrete Sidewalk	1	EA		
3	Foam Lift Slab	2	EA		
Building Rear - Sheet Number: SP-4					
4	Topsoil & Seed	14	SF		
5	Clean Joint, replace Neoprene Expansion Material and Joint Fill	1	LS		
				SUBTOTAL	
Building 3					
Building Front - Sheet Number: SP-4					
Item Number	ITEM	QUANTITY	UNIT	UNIT PRICE	ITEM PRICE
1	Clean Crack, install Neoprene Material and Caulk Joint	1	LS		
2	Foam Lift Slab	2	EA		
Building Rear - Sheet Number: SP-4					
3	Topsoil & Seed	180	SF		
4	Clean Crack, install Neoprene Material and Caulk Joint	1	LS		
5	Clean Crack & Joint Seal along Concrete Sidewalk	5	LF		
				SUBTOTAL	
Building 4					
Building Front - Sheet Number: SP-3					
Item Number	ITEM	QUANTITY	UNIT	UNIT PRICE	ITEM PRICE
1	Topsoil & Seed	40	SF		
2	Clean Crack & Joint Seal	10	LF		
3	Foam Lift Slab	1	EA		
Building Rear - Sheet Number: SP-3					
4	Clean Crack, install Neoprene Material and Caulk Joint	1	LS		
5	Cast-In-Place Concrete for Sidewalk Replacement	55	SF		
6	Foam Lift Slab	1	EA		
Building Eastern Side - Sheet Number: SP-3					
7	Foam Lift Slab	1	EA		
8	Concrete Step Spall and Patch Repair	1	LS		
				SUBTOTAL	

Building 5					
Building Front - Sheet Number: SP-5					
Item Number	ITEM	QUANTITY	UNIT	UNIT PRICE	ITEM PRICE
1	Topsoil & Seed	500	SF		
2	Clean Crack, install Neoprene Material and Caulk Joint along Brick Retaining Walls	1	LS		
3	Clean and Crack Seal along Concrete Sidewalk	5	LF		
Building Rear - Sheet Number: SP-5					
4	Concrete Corner Patch Repair at Top Step	1	LS		
5	Grind Concrete Step at Top Landing	5	LF		
				SUBTOTAL	
Building 6					
Building Front - Sheet Number: SP-3					
Item Number	ITEM	QUANTITY	UNIT	UNIT PRICE	ITEM PRICE
1	Foam Lift Slab	1	EA		
2	Concrete Wall Spall Repair, seal coating of exposed rebar	1	LS		
				SUBTOTAL	
Building 7					
Building Front - Sheet Number: SP-1					
Item Number	ITEM	QUANTITY	UNIT	UNIT PRICE	ITEM PRICE
1	Grind Concrete Slab	20	LF		
2	Topsoil & Seed	425	SF		
3	Clean Crack & Joint Seal	20	LF		
4	Neoprene Expansion Joint	8	LF		
Building Rear - Sheet Number: SP-1					
5	Grind Concrete Slab	4	LF		
6	Topsoil & Seed	47	SF		
7	Clean Crack & Joint Seal	10	LF		
8	Foam Lift Slab	1	EA		
				SUBTOTAL	
Building 8					
Building Front - Sheet Number: SP-1					
Item Number	ITEM	QUANTITY	UNIT	UNIT PRICE	ITEM PRICE
1	Cast-In-Place Concrete for Concrete Sidewalk	6	SF		
2	Topsoil & Seed	55	SF		
3	Clean Crack and Joint Seal Concrete Sidewalk	5	LF		
4	Foam Lift Slab	1	EA		
5	Clean Crack and Joint Seal Concrete ADA Parking Stall	12	LF		
6	Clean Crack & Joint Seal	3	LF		
Building Rear - Sheet Number: SP-2					
7	Grind Concrete Slab	4	LF		
8	Topsoil & Seed	58	SF		
9	Clean Crack & Joint Seal	4	LF		
10	Cast-In-Place Concrete for Concrete Slab along Sidewalk	25	SF		
12	Grind Concrete Slab at Base of Steps - along Albertice Street	5	LF		
13	Foam Lift Slab - Concrete Sidewalk	1	EA		
				SUBTOTAL	

Building 9					
Building Front - Sheet Number: SP-2					
Item Number	ITEM	QUANTITY	UNIT	UNIT PRICE	ITEM PRICE
1	Cast-In-Place Concrete for Concrete Sidewalk	25	SF		
2	Topsoil & Seed	56	SF		
3	Foam Lift Slab	1	EA		
4	Grind Concrete Slab	4	LF		
5	Topsoil & Seed - Albertice St. Side of Building 9	400	SF		
6	Clean Crack & Joint Seal	4	LF		
Building Rear - Sheet Number: SP-2					
7	Grind Concrete Slab	9	LF		
8	Clean Crack & Joint Seal	9	LF		
9	Installation of 8" dia. PVC Underdrain - Across Sidewalk of Building 9 & 10	10	LF		
11	Cast-In-Place Concrete for Sidewalk where Underdrain is Proposed	25	SF		
12	Unclog Existing Inlet	1	LS		
13	Connect 8" PVC Yard Drain to Existing Inlet	1	LS		
14	Clean Crack & Joint Seal - Sidewalk between Building 9 & 10	5	LF		
15	Grind Concrete Slab - Sidewalk between Building 9 & 10	5	LF		
1					
				SUBTOTAL	
Building 10					
Building Front - Sheet Number: SP-2					
Item Number	ITEM	QUANTITY	UNIT	UNIT PRICE	ITEM PRICE
1	Topsoil & Seed	37	SF		
2	Grind Concrete Slab - Sidewalk Steps near Mohler Street	6	LF		
3	Clean Crack & Joint Seal	6	LF		
Building Rear - Sheet Number: SP-2					
4	Grind Concrete Slab - Concrete Sidewalk	6	LF		
5	Topsoil & Seed	44	SF		
6	Clean Crack & Joint Seal	6	LF		
7	Installation of 8" dia. PVC Underdrain Pipe, include 2B Stone	30	LF		
9	Cast-In-Place Concrete for Concrete Slab Repair for Underdrain Installation	25	SF		
10	Class 1 Geotextile Material	42	SF		
11	Replace Missing Handrail	6.5	LF		
1					
				SUBTOTAL	
Building 11					
Building Front - Sheet Number: SP-6					
Item Number	ITEM	QUANTITY	UNIT	UNIT PRICE	ITEM PRICE
1	Clean Crack & Joint Seal - Concrete Sidewalk along Ferris Court	14	LF		
Building Rear - Sheet Number: SP-6					
2	Grind Concrete Slab	5	LF		
3	Topsoil & Seed	106	SF		
5	Clean Crack & Joint Seal	5	LF		
				SUBTOTAL	

Building 13					
Building Front - Sheet Number: SP-6 and SP-7					
Item Number	ITEM	QUANTITY	UNIT	UNIT PRICE	ITEM PRICE
1	Topsoil & Seed	50	SF		
2	Patch Repair Broken Concrete Steps with Quick Setting Cement	1	LS		
3	Replace Missing Handrail	13	LF		
4	Clean Crack & Joint Seal - Concrete Sidewalk along Ferris Court	50	LF		
Building Rear - Sheet Number: SP-6 and SP-7					
4	Clean Crack & Joint Seal - Concrete Sidewalk along Mohler Street	9	LF		
5	Topsoil & Seed / Restoration	875	SF		
7	Foam Lift Slab at back corner of Building 13	1	EA		
8	Foam Lift Steps	1	EA		
9	6" Underdrain on Buidling side of sidewalk to outlet to drainage channel,	170	LF		
	includes 2B Stone				
10	Class 1 Geotextile Material	230	SF		
11	Sidewalk Restoration disturbed from Underdrain Installation - 3-5' X 5' Slabs	75	SF		
12	Replace Missing Handrail	3	LF		
13	Cast-In-Place 4' x 6' Concrete landing at Staircase	24	SF		
14	Repair spalled concrete sidewalk	1	LS		
15	Foam Level & Backfill Concrete Slab	2	EA		
16	New Fence Railing Installation	6	LF		
17	Replace Sewer Vent	1	EA		
18	Clean Existing Inlet	1	LS		
				SUBTOTAL	
Building 14					
Building Front - Sheet Number: SP-7					
Item Number	ITEM	QUANTITY	UNIT	UNIT PRICE	ITEM PRICE
1	Topsoil & Seed	425	SF		
Building Rear - Sheet Number: SP-7					
2	Patch Repair Broken Concrete Steps with Quick Setting Cement	1	LS		
3	Topsoil & Seed	1240	SF		
				SUBTOTAL	
Building 15					
Building Front - Sheet Number: SP-8					
Item Number	ITEM	QUANTITY	UNIT	UNIT PRICE	ITEM PRICE
1	Topsoil & Seed Front of Building and along Concrete Sidewalk	1200	SF		
Building Rear - Sheet Number: SP-8					
2	Grind Concrete Slab	3	LF		
3	Topsoil & Seed	150	SF		
5	Cast-In-Place Concrete Slab, including demolition of existing slab	60	SF		
6	Foam Lift Slab	4	EA		
7	Foam Lift Steps	1	EA		
8	Foam Lift Steps along side of Building 15	1	EA		
9	Clean Crack & Joint Seal	3	LF		
				SUBTOTAL	

Stranahan Street Buildings					
Building Front - Sheet Number: SP-9					
Item Number	ITEM	QUANTITY	UNIT	UNIT PRICE	ITEM PRICE
1	Foam Lift Slab	1	EA		
3	Grind Concrete Slab	4	LF		
4	Replace Concrete Steps, including demolition of existing	2	EA		
5	Topsoil & Seed	1450	SF		
Building Rear - Sheet Number: SP-9					
6	Cast-In-Place Concrete Staircase, including demolition of existing	1	LS		
7	Re-install Railing along concrete staircase	1	LS		
8	Topsoil & Seed/Restoration	80	SF		
10	Cast-In-Place Concrete Slab, including demolition of existing slab	36	SF		
12	Clean Crack, install Neoprene Expansion Material and Seal Joint at	1	LS		
	Steps in rear of larger Resident Building				
				SUBTOTAL	
				TOTAL BASE BID =	

General Note: All Labor, Overhead and Profit are built into each individual Unit Cost. Unit Cost all comply with State Prevailing Wage Act.

DEDUCT ALTERNATE BID #1

Project: Homewood North Housing Site Rehabilitation

**Morris Knowles & Associates, Inc.
Consulting Engineers
Delmont, Pennsylvania**

Task Order: #48

COMPUTED BY: VLS

Rev. DATE: 12/12/2018

CHECKED BY: MJK

DATE: 5/24/2017

Nolan Court Parking Lot					
Item Number	ITEM	QUANTITY	UNIT	UNIT PRICE	ITEM PRICE
1	Mobilization	1	LS		
2	Removal and Disposal of Concrete at Driveway Entrance to a Depth of 14.5"	30	SY		
3	Heavy Duty - Placement and Compaction of 2A Stone at Driveway Entrance and Crosswalk - 8" Compacted Thickness	10	TONS		
4	Heavy Duty - Driveway Entrance - Asphalt Resurfacing - Superpave 25mm Binder Course 5" - Depth Compacted	9	TONS		
6	Removal and Disposal of Concrete along edge of curb	12	SY		
7	Along edge of curb - Asphalt Resurfacing - Superpave 25mm Binder Course 5" - Depth Compacted	3	TONS		
8	Pipe Bollard Cleaning and Painting	2	EA		
9	Soft Spot Repair to include excavation, 2A Stone, and compaction	215	SY		
10	Soft Spot Repair Asphalt Resurfacing - Superpave 25mm Binder Course 3.5" Compacted Depth	45	TONS		
11	Asphalt Resurfacing - Superpave 9.5mm F.G. Wearing Course - 1.5" Depth	110	TONS		
12	Asphalt Milling - 1.5" Depth	950	SY		
13	Removal and Replacement of Inlet Gutter Hood	1	EA		
14	Parking Stall Line Striping and Cross Walk - White Paint	1	LS		
				SUBTOTAL	
				TOTAL DEDUCT ALTERNATE 1 BID =	

General Note: All Labor, Overhead and Profit are built into each individual Unit Cost. Unit Cost all comply with State Prevailing Wage Act.

DEDUCT ALTERNATE BID #2

Project: Homewood North UFAS Renovations

Morris Knowles & Associates, Inc.
Consulting Engineers
Delmont, Pennsylvania

Task: Building Units Exterior Rehabilitation

COMPUTED BY: VLS
CHECKED BY: MJK

Rev. DATE: 12/12/2018
DATE: 5/24/2017

Heart Court Parking Lot					
Item Number	ITEM	QUANTITY	UNIT	UNIT PRICE	ITEM PRICE
1	Mobilization	1	LS		
2	Asphalt Milling - 1.5" depth	560	SY		
3	Soft Spot Repair to include excavation, 2A Stone, and compaction	60	SY		
4	Soft Spot Repair Asphalt Resurfacing - Superpave 25mm Binder Course 3.5" Compacted Depth	15	TONS		
5	Asphalt Resurfacing - Superpave 9.5mm F.G. Wearing Course - 1.5" depth	55	TONS		
6	Cast-In-Place Concrete Curb Reconstruction	25	LF		
7	Concrete Slab Replacement to include Removal and Disposal	5	SY		
8	Concrete Crack Sealing	30	LF		
9	ADA Parking and HP Symbol Line Striping - Blue Paint	1	LS		
10	Parking Stall Line Striping - White Paint	1	LS		
11	8" Underdrain with 2B Stone Backfill Construction to include inlet tap in	50	LF		
12	Nyoplast Inlet Piping - 10" Diameter with 15" X 15" Standard Grate	1	EA		
13	ADA Surface Applied Truncated Dome Replacement - 24" x 36"	2	EA		
14	Pipe Bollard Cleaning and Painting	2	EA		
15	Vegetation Removal	1	LS		
16	Oil Spot Cleaning - Concrete Surface	1	LS		
				SUBTOTAL	
TOTAL DEDUCT ALTERNATE 2 BID =					

General Note: All Labor, Overhead and Profit are built into each individual Unit Cost. Unit Cost all comply with State Prevailing Wage Act.

DEDUCT ALTERNATE BID #3

Project: Homewood North Housing Site Rehabilitation

Morris Knowles & Associates, Inc.
Consulting Engineers
Delmont, Pennsylvania

Task Order: #48

COMPUTED BY: VLS

Rev. DATE: 12/12/2018

CHECKED BY: MJK

DATE: 5/24/2017

Stranahan Street Buildings Parking Lot					
Item Number	ITEM	QUANTITY	UNIT	UNIT PRICE	ITEM PRICE
1	Mobilization	1	LS		
2	Removal and Disposal of Concrete Ramp and Slab Landing	5	SY		
3	New Concrete Ramp and Slab Landing	5	SY		
4	Soft Spot Repair to include excavation, 2A Stone, and compaction	260	SY		
5	Soft Spot Repair Asphalt Resurfacing - Superpave 25mm Binder Course	60	TONS		
	3.5" Depth Compacted				
6	Asphalt Resurfacing - Superpave 9.5mm F.G. Wearing Course - 1.5" depth	60	TONS		
7	Asphalt Milling - 1.5" depth	375	SY		
8	Parking Stall Line Striping - White Paint	1	LS		
				SUBTOTAL	
TOTAL DEDUCT ALTERNATE 3 BID =					

General Note: All Labor, Overhead and Profit are built into each individual Unit Cost. Unit Cost all comply with State Prevailing Wage Act.

DEDUCT ALTERNATE BID #4

Project: **Homewood North Housing Site Rehabilitation**

Morris Knowles & Associates, Inc.
Consulting Engineers
Delmont, Pennsylvania

Task Order: #48

COMPUTED BY: VLS

DATE: 3/21/2018

CHECKED BY: MJK

DATE: 5/24/2017

Ferris Court Parking Lot					
Item Number	ITEM	QUANTITY	UNIT	UNIT PRICE	ITEM PRICE
1	Mobilization	1	LS		
2	Removal and Disposal of Concrete at Driveway Entrance to a Depth of 14.5"	25	SY		
3	Heavy Duty - Placement and Compaction of 2A Stone at Driveway Entrance, Dumpster and Driveway Entrance - 8" Compacted Thck.	75	TONS		
4	Heavy Duty - - Asphalt Resurfacing - Superpave 25mm Binder Course Depth - 5" at Entrance, Dumpster and Driveway Entrance	60	TONS		
5	Pipe Bollard Cleaning and Painting	4	EA		
6	Soft Spot Repair to include excavation, 2A Stone, and compaction	110	SY		
7	Soft Spot Repair - Asphalt Resurfacing - Superpave 25mm Binder Course 3.5" Compacted Depth	25	TONS		
8	Asphalt Resurfacing - Superpave 9.5mm F.G. Wearing Course - 1.5" Depth	95	TONS		
9	Asphalt Milling - 1.5" depth	660	SY		
10	ADA Parking and HP Symbol Line Striping - Blue Paint	1	LS		
11	Parking Stall Line Striping and Cross Walk - White Paint	1	LS		
12	ADA Surface Applied Truncated Dome Replacement - 24" x 36"	1	EA		
				SUBTOTAL	
TOTAL DEDUCT ALTERNATE 4 BID =					

General Note: All Labor, Overhead and Profit are built into each individual Unit Cost. Unit Cost all comply with State Prevailing Wage Act.

BID SUMMARY

**Project: Homewood North Housing Site
Rehabilitation**

**Morris Knowles & Associates, Inc.
Consulting Engineers
Delmont, Pennsylvania**

Task Order: #48

COMPUTED BY: VLS

Rev DATE: 12/12/2018

CHECKED BY: MJK

DATE: 5/24/2017

Total Base Bid	
Total Deduct Alternate 1 Bid	
Total Deduct Alternate 2 Bid	
Total Deduct Alternate 3 Bid	
Total Deduct Alternate 4 Bid	
TOTAL BID	