

**BULLSKIN TOWNSHIP
FAYETTE COUNTY, PENNSYLVANIA**

SPECIFICATIONS

FOR THE

**BULLSKIN TOWNSHIP
MATERIALS STORAGE BUILDING**

AUGUST 2026

Prepared For:

Bullskin Township Supervisors
178 Shenandoah Road
Connellsville, PA 15425

PREPARED BY:

WIDMER ENGINEERING INC.
225 West Crawford Avenue
Connellsville, PA 15425
(724) 626-1909 - Phone
(724) 626-8509 - Fax

WE #24805

CONTRACT DOCUMENTS TABLE OF CONTENTS

<u>DESCRIPTION</u>	<u>PAGE</u>
ADVERTISEMENT FOR BIDS	AD-1
INSTRUCTIONS TO BIDDERS	C-200-1
BID PROPOSAL	C-410-1
BID BOND	BB-1
QUALIFICATIONS STATEMENT	QS-1
PUBLIC WORKS EMPLOYMENT VERIFICATION FORM	PW-1
NON-COLLUSION AFFIDAVIT	NCA-1
STIPULATION AGAINST LIENS	SAL-1
CERTIFICATION OF NON-SEGREGATED FACILITIES	NSF-1
NON-DISCRIMINATION CLAUSE	NDC-1
PA PREVAILING WAGE RATE REQUIREMENTS	WRR
NOTICE OF AWARD	NA-1
AGREEMENT	AG-1
PERFORMANCE BOND	PFB-1
PAYMENT BOND	PB-1
NOTICE TO PROCEED	NP-1
GENERAL CONDITIONS	GC-1
CONTRACTOR'S APPLICATION FOR PAYMENT	CAP-1
CONTRACT CHANGE ORDER	CCO-1
CERTIFICATE OF SUBSTANTIAL COMPLETION	CSC-1
TECHNICAL SPECIFICATIONS (SEE TABLE OF CONTENTS OF TECHNICAL SPECIFICATIONS)	
DRAWINGS (SEE THE INDEX SHEET IN THE PLANS)	

ADVERTISEMENT FOR BIDS

**BULLSKIN TOWNSHIP
FAYETTE COUNTY, PENNSYLVANIA
MATERIALS STORAGE BUILDING**

Sealed Bids for the construction of the **BULLSKIN TOWNSHIP MATERIALS STORAGE BUILDING** will be received by the **Bullskin Township Supervisors**, at **178 Shenandoah Road, Connellsville, PA 15425**, until **2:00 P.M.** local time on **Tuesday, September 29th, 2026**. The Bids received will be **publicly** opened and read at 7:00 P.M. during Bullskin Township's regularly scheduled monthly meeting at said location.

Questions can be directed to Widmer Engineering by phone at 724-626-1909 ext. 215.

The Issuing Office for the Bidding Documents is: **Widmer Engineering Inc., 225 West Crawford Avenue, Connellsville, PA 15425**. Electronic PDF copies, suitable for printing, of the Contract Documents may be viewed and downloaded at the Widmer Engineering website @ <https://widmerengineering.com/> under the tab "Bids". Electronic PDF documents are available at no charge. Hard copies will not be distributed.

A 10% Bid Bond is required to execute the agreements for the Project. Prevailing Wages will be required.

Addenda, if any, will be issued to only those persons who are registered as having obtained Contract Documents.

BID FORM

BULLSKIN TOWNSHIP MATERIALS STORAGE BUILDING PROJECT

TABLE OF CONTENTS

	Page
Article 1 – Bid Recipient	1
Article 2 – Bidder’s Acknowledgements	1
Article 3 – Bidder’s Representations	1
Article 4 – Bidder’s Certification	2
Article 5 – Basis of Bid	3
Article 6 – Time of Completion	3
Article 7 – Attachments to this Bid	3
Article 8 – Defined Terms	4
Article 9 – Bid Submittal	4

Bid Recipient

1.01 This Bid is submitted to:

Bullskin Township Supervisors, 178 Shenandoah Road, Connellsville, Pa 15425

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

The Bid will remain subject to acceptance for 60 days after the Bid opening, except if the award is delayed by a required approval of another government agency, the sale of bonds, or the award of a grant, the Owner shall reject all bids or award the contract to the lowest responsible and responsive bidder within one hundred twenty (120) days of the bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

Addendum No.

Addendum, Date

B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

- D. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.
- E. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- F. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- G. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- H. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- I. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

A. BASE BID: MATERIALS STORAGE BUILDING

Item No.	Description	Unit	Quantity	Total Price
1.	Bullskin Township Materials Storage Building (40'x60'x20') Complete In Place. Includes: Excavation and Grading; Concrete Slab and Foundations; Underdrain, Concrete Block Walls with Wood Framed Sections; Metal Paneling, Roof System with Aluminum Soffit, Fascia, Gutters, Downspouts, Ridge Cap, Door Framing; and All Other Assorted/Associated Appurtenances Required for Complete Building System as per Drawings and Specifications.	LS	1	

TOTAL OF BID is \$ _____

(Total Bid Amount Written in Words)

ARTICLE 6 – TIME OF COMPLETION

- 6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

- 7.01 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid security in the form of a Bid Bond of 10% of Bid Total
 - B. List of Proposed Subcontractors;
 - C. List of Proposed Suppliers;
 - D. List of Project References;
 - E. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;
 - F. Contractor's License No.: [REDACTED] [or] Evidence of Bidder's ability to obtain a State Contractor's License and a covenant by Bidder to obtain said license within the time for acceptance of Bids;
 - G. Required Bidder Qualification Statement with supporting data; and

- H. Disclosure of Lobbying Activities, Standard Form LLL
- I. Pennsylvania E-Verification Form
- J. If bid is from a Partnership, Corporation, or Joint Venture, attach evidence of authority to sign the bid documents

ARTICLE 8 – DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – THE BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

By:

[Signature]

[Printed name]

(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:

[Signature]

[Printed name]

Title:

Submittal Date:

Address for giving notices:

Telephone Number:

Fax Number:

Contact Name and e-mail address:

Bidder's License No.:

(where applicable)

BID BOND

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

Bullskin Township
178 Shenandoah Road
Connellsville, PA 15425

BID

Bid Due Date: 9/29/2026

Description: Bullskin Township Materials Storage Building Project

BOND

Bond Number:

Date:

Penal sum

\$

(Words)

(Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER

SURETY

(Seal)

(Seal)

Bidder's Name and Corporate Seal

Surety's Name and Corporate Seal

By:

Signature

By:

Signature (Attach Power of Attorney)

Print Name

Print Name

Title

Title

Attest:

Signature

Attest:

Signature

Title

Title

Note: Addresses are to be used for giving any required notice.

Provide execution by any additional parties, such as joint venturers, if necessary.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
 - 3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
 - 3.2 All Bids are rejected by Owner, or
 - 3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from the Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after the Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information he desires.

1. Name of Bidder.
2. Permanent main office address.
3. When organized.
4. If a corporation, where incorporated.
5. How many years have you been engaged in the contracting business under your present firm or trade name?
6. Contracts on hand: (Schedule these, showing amount of each contract and the appropriate anticipated dates of completion.)
7. General character of work performed by your company.
8. Have you ever failed to complete any work awarded to you? If so, where and why?
9. Have you ever defaulted on a contract?
If so, where and why?

10. List the more important projects recently completed by your company, stating the approximate cost for each, and the month and year completed.
11. List your major equipment available for this Contract.
12. Experience in construction work similar in importance to this project.
13. Background and experience of principal members of the organization, including the officers.
14. Credit available: \$_____.
15. Provide Bank reference: _____.
16. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the Owner?_____.
17. The undersigned hereby authorizes and requests any person, firm or corporation to furnish any information requested by the Owner in verification of the recitals comprising the Statement of Bidder's Qualifications.

Dated this _____ day of _____, 20__.

Name of Bidder: _____

By: _____

Title: _____



COMMONWEALTH OF PENNSYLVANIA

PUBLIC WORKS EMPLOYMENT VERIFICATION FORM

Date _____

Business or Organization Name (Employer) _____

Address _____

City _____ State _____ Zip Code _____

☐ Contractor ☐ Subcontractor (check one)

Contracting Public Body _____

Contract/Project No _____

Project Description _____

Project Location _____

As a contractor/subcontractor for the above referenced public works contract, I hereby affirm that as of the above date, our company is in compliance with the Public Works Employment Verification Act ('the Act') through utilization of the federal E-Verify Program (EVP) operated by the United States Department of Homeland Security. To the best of my/our knowledge, all employees hired post January 1, 2013 are authorized to work in the United States.

It is also agreed to that all public works contractors/subcontractors will utilize the federal EVP to verify the employment eligibility of each new hire within five (5) business days of the employee start date throughout the duration of the public works contract. Documentation confirming the use of the federal EVP upon each new hire shall be maintained in the event of an investigation or audit.

I, _____, authorized representative of the company above, attest that the information contained in this verification form is true and correct and understand that the submission of false or misleading information in connection with the above verification shall be subject to sanctions provided by law.

Authorized Representative Signature

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

State of _____)
County of _____) ss:

_____, being first duly sworn,

deposes and says that:

(1) He is _____
(Owner, partner, officer, representative or agent)

of _____, the Bidder that has submitted the attached Bid;

(2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the subcontractor nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Proposal in connection with such Contract or to refrain from submitting a Proposal in connection with such Contract, or has in any manner, directly or indirectly sought by unlawful agreement or connivance with any other Bidder, firm or person to fix the price or prices in said subcontractor's Proposal, or to secure through collusion, conspiracy, connivance, or unlawful agreement or any advantage against the Owner or any persons interested in the proposed Contract; and

(5) The price(s) quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties of interest, including this affiant.

Signed: _____

Title: _____

Subscribed and sworn to before me
this _____ day of _____,
20____.

(Signed) _____

Title: _____

My Commission Expires: _____

STIPULATION AGAINST LIENS

BULLSKIN TOWNSHIP	)	IN THE COURT OF COMMON
OWNER	)	PLEAS OF FAYETTE COUNTY,
	)	PENNSYLVANIA
	)	
VS.	)	
	)	
	)	
Contractor	)	NO. _____ MECHANICS LIEN
	)	DOCKET

WHEREAS, the above-said Owner is about to execute contemporaneously herewith a contract with the above-said Contractor, for the construction of WE #24805 – Bullskin Township Materials Storage Building Project as required by the Contract Documents.

NOW THEREFORE, _____ 20__, at the time of and immediately before the execution of the Contract and before any authority has been given by the said Owner, to the said Contractor to commence work on the said project or purchase of materials for the same, in consideration of the making of the said Contract with the Contractor and for the further consideration of one dollar (\$1.00) paid to the said Contractor by the said Owner, it is agreed that no mechanic's claims or other liens shall be filed against the Project or the estate or title of Owner in the System or any part thereof, or the appurtenances thereto by the said Contractor nor any subcontractor, nor by any of the materialmen or workmen or any person for any materials or labor or extra materials or labor purchased or furnished in connection with the construction of the said project or any part thereof, the right to file such claims of liens being expressly waived and relinquished herewith.

(SEAL)

BULLSKIN TOWNSHIP

ATTEST:

BY _____

TITLE _____

CONTRACTOR

(SEAL)

ATTEST:

BY _____

TITLE _____

CERTIFICATION OF NON-SEGREGATED FACILITIES

The Bidder certifies that he does not maintain or provide for his employees, any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The Bidder certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The Bidder agrees that a breach of this certification will be a violation of the Equal Opportunity Clause in any contract resulting from acceptance of this bid. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or natural origin, because of habit, local custom, or otherwise. The Bidder agrees that (except where he has obtained identical certification from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000.00 which are not exempt from the provisions of the Equal Opportunity Clause, and that he will retain such certifications in his files.

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

Date: _____, 20_____

Name of Bidder

BY _____

TITLE _____

Official Address:

NONDISCRIMINATION/SEXUAL HARASSMENT CLAUSE

During the term of this Contract, the Contractor agrees as follows:

- a. In the hiring of any employee(s) for the manufacture of supplies, performance of work, or any other activity required under the Contract or any subcontract, the Engineer, subcontractor, or any person acting on behalf of the Contractor or subcontractor shall not, by reason of gender, race, creed, or color, discriminate against any citizen of this Commonwealth who is qualified and available to perform the work to which the employment relates.
- b. Neither the Contractor nor any subcontractor nor any person on their behalf shall in any manner discriminate against or intimidate any employee involved in the manufacture of supplies, the performance of work, or any other activity required under the Contract on account of gender, race, creek or color.
- c. The Contractor and subcontractors shall establish and maintain a written sexual harassment policy and shall inform their employees of the policy. The policy must contain a notice that sexual harassment will not be tolerated and employees who practice it will be disciplined.
- d. The Contractor shall not discriminate by reason of gender, race, creed or color against any subcontractor or supplier who is qualified to perform the work to which the Contract relates.
- e. The Contractor and each subcontractor shall furnish all necessary employment documents and records to and permit access to their books, records, and accounts by the Authority, the Department, and the Bureau of Minority and Women Business Opportunities (BMWBO), for purposes of ascertaining compliance with provisions of this Nondiscrimination/Sexual Harassment Clause. If the Contractor or any subcontractor does not possess documents or records reflecting the necessary information requested, the Consultant or subcontractor shall furnish such information on reporting forms supplied by the Department or the BMWBO.
- f. The Contractor shall include the provisions of this Nondiscrimination/Sexual Harassment Clause in every subcontract so that such provisions will be binding upon each subcontractor.
- g. The Commonwealth may cancel or terminate the Contract, and all money due or to become due under the Contract may be forfeited for a violation of the terms and conditions of this Nondiscrimination/Sexual Harassment Clause. In addition, the granting agency may proceed with debarment or suspension and may place the Contractor in the Contractor Responsibility File.

Contractor Name:

Signature: _____ Date: _____

Project Name:

BUREAU OF LABOR LAW COMPLIANCE PREVAILING WAGES PROJECT RATES

Project Name:	Bullskin Township Materials Storage Building
General Description:	40x60 materials storage building with 20' sidewall height. 6" thick slab floor. Walls are to be stacked concrete block for 10' and then wood framed for the upper 10'. Scissor trusses to allow for clearance. Large opening for triaxles to enter and dump. Site has already been prepared for construction by the Township.
Project Locality	178 Shenandoah Road, Connellsv
Awarding Agency:	Bullskin Township
Contract Award Date:	9/29/2026
Serial Number:	26-07625
Project Classification:	Building
Determination Date:	8/19/2026
Assigned Field Office:	Pittsburgh
Field Office Phone Number:	(412)565-5300
Toll Free Phone Number:	(877)504-8354
Project County:	Fayette County

BUREAU OF LABOR LAW COMPLIANCE PREVAILING WAGES PROJECT RATES

Project: 26-07625 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Asbestos & Insulation Workers	8/1/2025		\$45.10	\$30.31	\$75.41
Boilermakers	6/1/2016		\$40.90	\$27.61	\$68.51
Bricklayer	12/1/2025		\$41.55	\$26.36	\$67.91
Bricklayer	6/1/2026		\$42.20	\$26.71	\$68.91
Carpenters - Piledriver/Welder	1/1/2025		\$43.38	\$22.72	\$66.10
Carpenters - Piledriver/Welder	1/1/2026		\$44.63	\$23.47	\$68.10
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2025		\$43.34	\$19.93	\$63.27
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2026		\$42.11	\$23.36	\$65.47
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2027		\$43.26	\$24.35	\$67.61
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2028		\$44.45	\$25.19	\$69.64
Carpenters, Drywall Hangers, Framers, Instrument Men, Lathers, Soft Floor Layers	6/1/2029		\$45.72	\$26.01	\$71.73
Cement Masons	6/1/2025		\$35.52	\$25.64	\$61.16
Cement Masons	6/1/2026		\$36.02	\$26.14	\$62.16
Drywall Finisher	6/1/2025		\$35.16	\$25.98	\$61.14
Drywall Finisher	6/1/2026		\$36.59	\$27.30	\$63.89
Electricians & Telecommunications Installation Technician	12/27/2024		\$50.86	\$32.69	\$83.55
Electricians & Telecommunications Installation Technician	12/26/2025		\$53.11	\$33.72	\$86.83
Elevator Constructor	1/1/2025		\$61.07	\$40.05	\$101.12
Elevator Constructor	1/1/2026		\$63.71	\$40.89	\$104.60
Glazier	9/1/2024		\$37.06	\$31.89	\$68.95
Glazier	9/1/2025		\$38.70	\$33.75	\$72.45
Iron Workers	6/1/2025		\$41.50	\$37.36	\$78.86
Iron Workers	6/1/2026		\$43.50	\$37.91	\$81.41
Laborers (Class 01 - See notes)	1/1/2025		\$27.32	\$19.96	\$47.28
Laborers (Class 01 - See notes)	1/1/2026		\$27.82	\$20.46	\$48.28
Laborers (Class 02 - See notes)	1/1/2025		\$27.47	\$19.96	\$47.43
Laborers (Class 02 - See notes)	1/1/2026		\$27.97	\$20.46	\$48.43
Laborers (Class 03 - See notes)	1/1/2025		\$30.47	\$19.96	\$50.43
Laborers (Class 03 - See notes)	1/1/2026		\$30.97	\$20.46	\$51.43
Laborers (Class 04 - See notes)	1/1/2021		\$23.57	\$19.32	\$42.89
Landscape Laborer (Skilled)	1/1/2025		\$25.79	\$18.78	\$44.57
Landscape Laborer (Skilled)	1/1/2026		\$26.79	\$19.03	\$45.82
Landscape Laborer (Tractor Operator)	1/1/2025		\$26.09	\$18.78	\$44.87
Landscape Laborer (Tractor Operator)	1/1/2026		\$27.09	\$19.03	\$46.12
Landscape Laborer	1/1/2025		\$25.37	\$18.78	\$44.15
Landscape Laborer	1/1/2026		\$26.37	\$19.03	\$45.40
Millwright	6/1/2020		\$41.68	\$20.32	\$62.00
Operators (Class 01 - see notes)	6/1/2025		\$42.72	\$24.79	\$67.51
Operators (Class 01 - see notes)	6/1/2026		\$43.74	\$25.29	\$69.03
Operators (Class 02 -see notes)	6/1/2025		\$36.67	\$24.79	\$61.46

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 26-07625 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Operators (Class 02 -see notes)	6/1/2026		\$37.67	\$25.29	\$62.96
Operators (Class 03 - See notes)	6/1/2025		\$33.88	\$24.79	\$58.67
Operators (Class 03 - See notes)	6/1/2026		\$34.88	\$25.29	\$60.17
Painters Class 6 (see notes)	6/1/2025		\$34.16	\$25.81	\$59.97
Painters Class 6 (see notes)	6/1/2026		\$35.26	\$26.51	\$61.77
Pile Driver Divers (Building, Heavy, Highway)	1/1/2025		\$62.82	\$22.72	\$85.54
Pile Driver Divers (Building, Heavy, Highway)	1/1/2026		\$64.70	\$23.47	\$88.17
Piledrivers	1/1/2025		\$41.88	\$22.72	\$64.60
Piledrivers	1/1/2026		\$43.13	\$23.47	\$66.60
Plasterers	6/1/2024		\$33.14	\$21.04	\$54.18
Plasterers	6/1/2026		\$34.59	\$22.59	\$57.18
Plumbers and Steamfitters	6/1/2025		\$41.47	\$27.71	\$69.18
Plumbers and Steamfitters	6/1/2026		\$42.92	\$28.45	\$71.37
Pointers, Caulkers, Cleaners	12/1/2025		\$41.50	\$22.50	\$64.00
Pointers, Caulkers, Cleaners	6/1/2026		\$42.20	\$22.80	\$65.00
Roofers	12/1/2025		\$41.21	\$21.46	\$62.67
Roofers	6/1/2026		\$42.00	\$23.17	\$65.17
Sheet Metal Workers	7/1/2025		\$45.00	\$35.16	\$80.16
Sheet Metal Workers	7/1/2026		\$46.75	\$36.61	\$83.36
Sign Makers and Hangars	7/15/2025		\$33.48	\$26.41	\$59.89
Sign Makers and Hangars	7/15/2026		\$36.38	\$25.01	\$61.39
Sprinklerfitters	4/1/2025		\$49.75	\$29.21	\$78.96
Sprinklerfitters	4/1/2026		\$52.82	\$30.56	\$83.38
Stone Masons	12/1/2022		\$38.56	\$23.61	\$62.17
Terrazzo Finisher	12/1/2025		\$42.75	\$19.51	\$62.26
Terrazzo Finisher	6/1/2026		\$43.82	\$19.94	\$63.76
Terrazzo Mechanics	12/1/2025		\$42.15	\$21.76	\$63.91
Terrazzo Mechanics	6/1/2026		\$43.22	\$22.19	\$65.41
Tile Finisher	12/1/2025		\$33.99	\$18.71	\$52.70
Tile Finisher	6/1/2026		\$34.82	\$18.98	\$53.80
Tile Setter	12/1/2025		\$40.80	\$23.25	\$64.05
Tile Setter	6/1/2026		\$41.66	\$23.49	\$65.15
Truckdriver class 1(see notes)	1/1/2025		\$36.43	\$23.21	\$59.64
Truckdriver class 1(see notes)	1/1/2026		\$37.93	\$23.71	\$61.64
Truckdriver class 2 (see notes)	1/1/2025		\$36.89	\$23.52	\$60.41
Truckdriver class 2 (see notes)	1/1/2026		\$38.39	\$24.02	\$62.41
Window Film / Tint Installer	10/1/2019		\$25.00	\$2.63	\$27.63

BUREAU OF LABOR LAW COMPLIANCE PREVAILING WAGES PROJECT RATES

Project: 26-07625 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Carpenter	1/1/2025		\$41.35	\$22.09	\$63.44
Carpenter	1/1/2026		\$42.60	\$22.84	\$65.44
Carpenter Welder	1/1/2025		\$42.85	\$22.09	\$64.94
Carpenter Welder	1/1/2026		\$44.10	\$22.84	\$66.94
Carpenters - Piledriver/Welder	1/1/2025		\$43.38	\$22.72	\$66.10
Carpenters - Piledriver/Welder	1/1/2026		\$44.63	\$23.47	\$68.10
Cement Finishers	1/1/2025		\$35.94	\$27.50	\$63.44
Cement Masons	1/1/2020		\$32.84	\$21.10	\$53.94
Electric Lineman	6/3/2024		\$53.97	\$31.05	\$85.02
Electric Lineman	6/2/2025		\$57.10	\$31.63	\$88.73
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	6/1/2025		\$41.50	\$37.36	\$78.86
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	6/1/2026		\$43.50	\$37.91	\$81.41
Laborers (Class 01 - See notes)	1/1/2025		\$33.70	\$26.00	\$59.70
Laborers (Class 01 - See notes)	1/1/2026		\$34.70	\$27.00	\$61.70
Laborers (Class 02 - See notes)	1/1/2025		\$33.86	\$26.00	\$59.86
Laborers (Class 02 - See notes)	1/1/2026		\$34.86	\$27.00	\$61.86
Laborers (Class 03 - See notes)	1/1/2025		\$34.25	\$26.00	\$60.25
Laborers (Class 03 - See notes)	1/1/2026		\$35.25	\$27.00	\$62.25
Laborers (Class 04 - See notes)	1/1/2025		\$34.70	\$26.00	\$60.70
Laborers (Class 04 - See notes)	1/1/2026		\$35.70	\$27.00	\$62.70
Laborers (Class 05 - See notes)	1/1/2025		\$35.11	\$26.00	\$61.11
Laborers (Class 05 - See notes)	1/1/2026		\$36.11	\$27.00	\$63.11
Laborers (Class 06 - See notes)	1/1/2025		\$31.95	\$26.00	\$57.95
Laborers (Class 06 - See notes)	1/1/2026		\$32.95	\$27.00	\$59.95
Laborers (Class 07 - See notes)	1/1/2025		\$34.70	\$26.00	\$60.70
Laborers (Class 07 - See notes)	1/1/2026		\$35.70	\$27.00	\$62.70
Laborers (Class 08 - See notes)	1/1/2025		\$36.20	\$26.00	\$62.20
Laborers (Class 08 - See notes)	1/1/2026		\$37.20	\$27.00	\$64.20
Millwright	6/1/2024		\$47.59	\$23.72	\$71.31
Millwright	6/1/2025		\$49.72	\$23.72	\$73.44
Operators (Class 01 - see notes)	1/1/2025		\$40.39	\$24.23	\$64.62
Operators (Class 01 - see notes)	1/1/2026		\$41.96	\$24.66	\$66.62
Operators (Class 02 -see notes)	1/1/2025		\$40.13	\$24.23	\$64.36
Operators (Class 02 -see notes)	1/1/2026		\$41.70	\$24.66	\$66.36
Operators (Class 03 - See notes)	1/1/2025		\$36.48	\$24.23	\$60.71
Operators (Class 03 - See notes)	1/1/2026		\$38.05	\$24.66	\$62.71
Operators (Class 04 - See notes)	1/1/2025		\$36.02	\$24.23	\$60.25
Operators (Class 04 - See notes)	1/1/2026		\$37.59	\$24.66	\$62.25
Operators (Class 05 - See notes)	1/1/2025		\$35.77	\$24.23	\$60.00
Operators (Class 05 - See notes)	1/1/2026		\$37.34	\$24.66	\$62.00
Operators Class 1-A	1/1/2025		\$43.39	\$24.23	\$67.62
Operators Class 1-A	1/1/2026		\$44.96	\$24.66	\$69.62
Operators Class 1-B	1/1/2025		\$42.39	\$24.23	\$66.62

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 26-07625 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Operators Class 1-B	1/1/2026		\$43.96	\$24.66	\$68.62
Painters Class 1 (see notes)	6/1/2022		\$34.45	\$22.82	\$57.27
Painters Class 2 (see notes)	6/1/2025		\$40.36	\$25.81	\$66.17
Painters Class 2 (see notes)	6/1/2026		\$41.66	\$26.51	\$68.17
Painters Class 3 (see notes)	6/1/2025		\$43.68	\$25.81	\$69.49
Painters Class 3 (see notes)	6/1/2026		\$45.08	\$26.51	\$71.59
Painters Class 4 (see notes)	6/1/2019		\$28.20	\$20.06	\$48.26
Painters Class 5 (see notes)	6/1/2019		\$22.91	\$20.06	\$42.97
Pile Driver Divers (Building, Heavy, Highway)	1/1/2025		\$62.82	\$22.72	\$85.54
Pile Driver Divers (Building, Heavy, Highway)	1/1/2026		\$64.70	\$23.47	\$88.17
Piledrivers	1/1/2025		\$41.88	\$22.72	\$64.60
Piledrivers	1/1/2026		\$43.13	\$23.47	\$66.60
Steamfitters (Heavy and Highway - Gas Distribution)	5/1/2022		\$48.43	\$40.28	\$88.71
Truckdriver class 1(see notes)	1/1/2025		\$36.43	\$23.21	\$59.64
Truckdriver class 1(see notes)	1/1/2026		\$37.93	\$23.71	\$61.64
Truckdriver class 2 (see notes)	1/1/2025		\$36.89	\$23.52	\$60.41
Truckdriver class 2 (see notes)	1/1/2026		\$38.39	\$24.02	\$62.41

NOTICE OF AWARD

Date of
Issuance:

Owner: Bullskin Township

Owner's Contract No.:

Engineer: Widmer Engineering Inc.

Engineer's Project No.: 24805

Project: Materials Storage Building Project

Contract Name:

Bidder:

Bidder's
Address:

TO BIDDER:

You are notified that Owner has accepted your Bid dated _____ for the above Contract, and that you are the Successful Bidder and are awarded a Contract for: Bullskin Township Materials Storage Building Project

The Contract Price of the awarded Contract is: \$ _____

☐ unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

☐ a set of the Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner [__1__] counterparts of the Agreement, fully executed by Bidder.
2. Deliver with the executed Agreement(s) the Contract security [*e.g., performance and payment bonds*] and insurance documentation as specified in the Instructions to Bidders and General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any):

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner: Bullskin Township

Bidder:

Authorized Signature

Authorized Signature

By:

Title:

Title:

AGREEMENT

THIS AGREEMENT, made this _____ day of _____ 20__, by and between Bullskin Township, hereinafter called OWNER, and _____, doing business as a Corporation hereinafter called "CONTRACTOR".

WITNESSETH, that the OWNER and the CONTRACTOR mutually agree to the following:

1. The CONTRACTOR, for and in consideration of the payment herein specified and agreed to by the OWNER hereby covenants and agrees to furnish and deliver all the materials and to do and perform all the work, labor and other services necessary for the construction and completion of the PROJECT as described herein.

The OWNER will pay the CONTRACTOR for the performance of the AGREEMENT, in current funds, subject to additions and deductions as provided in the GENERAL CONDITIONS of the CONTRACT AGREEMENT, the sum of _____

(\$_____).

The Contract Documents prepared by Widmer Engineering Inc., hereinafter called ENGINEER, are made part of this AGREEMENT.

2. The PROJECT location and description being situated as follows:

WE #24805– Bullskin Township Materials Storage Building Project
Bullskin Township, Fayette County, PA

The work includes installation of storm sewer pipe and catch basins, complete with Erosion and Sediment control measures and site restoration per contract drawings.

3. The CONTRACTOR further covenants and agrees that all work shall be performed in the best and most workmanlike manner. He also agrees that all materials furnished and labor performed shall be in strict and complete conformity in every respect, with all parts of this AGREEMENT and shall be subject to the inspection and acceptance of authorized representatives of the OWNER. In the event that any portion of the work (including materials supplied pursuant thereto) performed by the CONTRACTOR is rejected by the authorized representatives as defective, unsuitable, or unacceptable, the CONTRACTOR agrees to remove and replace all such rejected portions of work in conformance with this AGREEMENT and to the satisfaction of and at no expense to the OWNER. The CONTRACTOR further covenants that prompt payment will be made in full for all labor and materials used in the performance of work on this PROJECT.
4. The CONTRACTOR covenants and agrees that all work (including, but not limited to, all labor performed and all materials supplied) on this PROJECT shall be performed and completed to the satisfaction of the OWNER on or before the expiration of **ninety (90) calendar days** after written Notice to Proceed with work has been given by the OWNER. If for any reason, except as provided in the GENERAL CONDITIONS, the CONTRACTOR fails to complete all work on this PROJECT to the satisfaction of the ENGINEER within the aforementioned time allowed, the OWNER shall deduct from any sums due or which may become due the CONTRACTOR **one hundred dollars (\$100.00)** for each calendar day used in excess of the aforementioned number of days allowed, or, in case a completion date is fixed, for each calendar day elapsing between the completion date and the actual date of completion. If no sums are due the CONTRACTOR, the CONTRACTOR agrees to

remit to the OWNER the aforementioned sum for each day used in excess of the time allowed for completion of the PROJECT. The amounts deducted or remitted under this paragraph are liquidated damages not penalties.

5. The CONTRACTOR further covenants and warrants that he has had sufficient time to examine the site of the project to determine the conditions to be encountered; that he is fully aware and knows of the conditions to be encountered; and that he has based the BID PROPOSAL prices on his own independent examination and investigation of the project site and conditions, and has not relied on any subsurface information furnished to him by the OWNER, or its agents or its consultants.
6. The CONTRACTOR shall not do any work (including, but not limited to, the supply of labor and/or materials) not covered by the CONTRACT DOCUMENTS, unless such work has been authorized in writing by the ENGINEER. In no event shall the CONTRACTOR incur any liability by reason of refusing to obey any verbal directions or instructions that he might be given to perform additional or extra work. Likewise, the OWNER will not be liable for any work performed as additional or extra work, unless such work is required of the CONTRACTOR in writing by the ENGINEER. All such work which might have been performed by the CONTRACTOR without such written order first being given shall be at the CONTRACTOR'S risk, cost and expense, and the CONTRACTOR hereby covenants and agrees compensation for such unauthorized work.
7. It is further distinctly agreed that the CONTRACTOR shall not assign this AGREEMENT, or any part thereof, nor any right to any sums to be paid him hereunder, nor shall any part of the work to be done or material furnished under this AGREEMENT be sublet, without the consent in writing of the OWNER.
8. The OWNER will pay to the CONTRACTOR in the manner at such times as set forth in the GENERAL CONDITIONS such amounts as required by the CONTRACT DOCUMENTS. When a BID PROPOSAL is made on a Lump Sum Basis, the CONTRACTOR agrees to submit, to the ENGINEER, a detailed breakdown of costs to serve as a basis of estimate for periodic payment during construction.
9. It is also agreed and understood that the acceptance of the final payment by the CONTRACTOR shall be considered as a release in full of all claims against the OWNER arising out of, or by reason of, the work done and materials furnished under this AGREEMENT.
10. In order to secure proper and complete compliance with the terms and provisions of this AGREEMENT, the CONTRACTOR shall provide a bond in a sum equal to one hundred percent (100%) of the contract price of the work to be done. The CONTRACTOR shall also secure an additional bond in the same amount for the prompt payment in full for all labor and materials supplied in performing work on this PROJECT. The CONTRACTOR shall also secure an additional bond in the same amount for maintenance of the completed project for a period of one (1) year from the date of final acceptance by the OWNER. All bonds are attached hereto.
11. The CONTRACTOR in undertaking the work to be performed under the terms of this AGREEMENT, covenants and agrees to comply with the required contract provisions set forth in the Nondiscrimination Clause which is attached.

12. The term "CONTRACT DOCUMENTS" means and includes the following:
- (a) ADVERTISEMENT FOR BIDS
 - (b) INSTRUCTIONS TO BIDDERS
 - (c) SPECIAL INSTRUCTIONS TO BIDDERS (if any)
 - (d) BID PROPOSAL
 - (e) CERTIFICATION OF NON-SEGREGATED FACILITIES
 - (f) BID BOND
 - (g) NON-COLLUSION AFFIDAVIT OF PRIME BIDDER
 - (h) STATEMENT OF BIDDER'S QUALIFICATIONS
 - (i) WAGE RATES (if any)
 - (j) ADDENDA (if any)
 - (k) NOTICE OF AWARD
 - (l) AGREEMENT
 - (m) NONDISCRIMINATION CLAUSE
 - (n) STIPULATION AGAINST LIENS
 - (o) AFFIDAVIT RE: ACCEPTING PROVISIONS OF THE WORKMAN'S COMPENSATION ACT
 - (p) PERFORMANCE BOND
 - (q) LABOR AND MATERIAL PAYMENT BOND
 - (r) DETAILED BREAKDOWN OF LUMP SUM BID (if any)
 - (s) NOTICE TO PROCEED
 - (t) APPLICATION AND CERTIFICATE FOR PAYMENT
 - (u) CONTINUATION SHEET
 - (v) CHANGE ORDER(S) (if any)
 - (w) CERTIFICATE OF SUBSTANTIAL COMPLETION
 - (x) MAINTENANCE BOND
 - (y) GENERAL CONDITIONS
 - (z) **TECHNICAL SPECIFICATIONS AND DRAWINGS, PREPARED BY THE ENGINEER**
13. The CONTRACTOR agrees to execute and record a STIPULATION AGAINST LIENS in the form provided herewith prior to commencement of any work required thereby, or the acquisition of any materials therefor.
14. This AGREEMENT, including all CONTRACT DOCUMENTS, shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors and assigns.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this AGREEMENT in **three (3) copies** each of which shall be deemed an original on the date first above written.

ATTEST:

OWNER: Bullskin Township

By _____

Name _____

Name _____

Title _____

Title _____

(SEAL)

ATTEST:

CONTRACTOR:

Name_____

Name_____

Title_____

Address_____

(SEAL)

(Use only when Contractor is a Corporation)

Certification:

I, _____, certify that I am the _____ of the Corporation named as CONTRACTOR herein; that _____ who signed this AGREEMENT on behalf of the CONTRACTOR, was the _____ of said Corporation; that said AGREEMENT was duly signed for and in behalf of said Corporation by authority of its governing body, and is within the scope of its corporate powers.

(Corporate Seal)

Title:_____

PERFORMANCE BOND

CONTRACTOR *(name and address):*

SURETY *(name and address of principal place of business):*

OWNER *(name and address):*

Bullskin Township
178 Shenandoah Road
Connellsville, PA 15425

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description: Materials Storage Building Project

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract):*

Amount:

Modifications to this Bond Form: ☐ None ☐ See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Contractor's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____
Signature

By: _____
Signature *(attach power of attorney)*

Print Name

Print Name

Title

Title

Attest: _____
Signature

Attest: _____
Signature

Title

Title

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence,

to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims

for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

PAYMENT BOND

CONTRACTOR *(name and address)*:

SURETY *(name and address of principal place of business)*:

OWNER (name and address):

Bullskin Township
178 Shenandoah Road
Connellsville, PA 15425

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description: Materials Storage Building Project

BOND

Bond Number:

Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:

Amount:

Modifications to this Bond Form: ☐ None ☐ See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

(seal)

Contractor's Name and Corporate Seal

By: _____

Signature

Print Name

Title

Attest: _____

Signature

(seal)

Surety's Name and Corporate Seal

By: _____

Signature *(attach power of attorney)*

Print Name

Title

Attest: _____

Signature

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond shall arise after the following:
 - 5.1 Claimants who do not have a direct contract with the Contractor,
 - 5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
 - 5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).
 - 5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
 - 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 - 7.2 Pay or arrange for payment of any undisputed amounts.
 - 7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be

liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. Definitions

16.1 **Claim:** A written statement by the Claimant including at a minimum:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
4. A brief description of the labor, materials, or equipment furnished;

5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4 **Owner Default:** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

18. Modifications to this Bond are as follows:

NOTICE TO PROCEED

Owner:	Bullskin Township	Owner's Contract No.:	
Contractor:		Contractor's Project No.:	
Engineer:	Widmer Engineering Inc.	Engineer's Project No.:	24805
Project:	Bullskin Township Materials Storage Building	Contract Name:	
		Effective Date of Contract:	

TO CONTRACTOR:

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on []. *[see Paragraph 4.01 of the General Conditions]*

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work shall be done at the Site prior to such date. In accordance with the Agreement, [the date of Substantial Completion is _____, and the date of readiness for final payment is _____] **or** [the number of days to achieve Substantial Completion is 90, and the number of days to achieve readiness for final payment is 90].

Before starting any Work at the Site, Contractor must comply with the following:
[Note any access limitations, security procedures, or other restrictions]

Owner: Bullskin Township

Contractor:

By: _____
Title: _____
Date Issued: _____

Authorized Signature

By: _____
Title: _____
Date Received: _____

Authorized Signature

Copy: Engineer

GENERAL CONDITIONS

1. CONTRACT DOCUMENTS

All of the Contract Documents are complementary, and the requirements of any one shall be considered as the requirements of all.

- A. In the event the Contractor discovers any discrepancy in the Contract Documents, the matter shall immediately be submitted to the Engineer, whose decision therein shall be final. The Contractor will not be held responsible for the discovery of such discrepancies, but any work done on the item involved after such discovery, and prior to authorization by the Engineer, will be done at the Contractor's risk.
- B. In case of any discrepancy between scaled dimensions and figures, figured dimensions shall govern. In case any work dimension is not given on the Drawings, the Contractor shall obtain the figure from the Engineer. In no case shall the Contractor determine such dimensions by scaling the Drawings.
- C. Deviations from the Contract Documents required by the exigencies of construction shall be determined by the Engineer only and authorized in writing.
- D. Supplemental detailed drawings and instructions shall be furnished by the Engineer when and as he determines that such drawings and instructions are required for successful completion of the Project.
- E. Unless otherwise provided, the Contractor will be furnished two (2) copies of the Contract Documents free of charge, with additional copies, if required, being furnished at cost.
- F. At all times, the Contractor shall keep on the Project Site, available to the Engineer and his representatives, one (1) copy of the Contract Documents.

2. ENGINEER'S STATUS DURING CONSTRUCTION

The Engineer shall be the Owner's representative during the construction period. All instructions of the Owner to the Contractor shall be issued through the Engineer. The duties and responsibilities and the limitations of authority of the Engineer as the Owner's representative during construction are set forth in these General Conditions and shall not be extended without written consent of the Owner and Engineer.

The Engineer will make periodic visits to the site to observe the progress and quality of the executed work and to determine, in general, if the work is proceeding in accordance with the Contract Documents. He will not be required to make exhaustive or continuous on-site inspections to check the quality of the work nor will he be responsible for the construction means, methods, techniques, sequences or procedures, or the safety precautions incident thereto. His efforts will be directed toward providing assurance for the Owner that the completed Project will conform to the requirements of the Contract Documents, but he will not be responsible for the Contractor's failure to perform the work in accordance with the Contract Documents. On the basis of his on-site observations as an experienced and qualified design professional, he will keep the Owner informed of the progress of the work and will endeavor to guard the Owner against defects and deficiencies in the work of contractors.

The Engineer will have authority to disapprove of or reject work, which is defective; i.e., it is unsatisfactory, faulty or defective, or does not conform to the requirements of the Contract Documents or does not meet the requirements of any inspection, test or approval. He will also have authority to require special inspection or testing of the work, whether or not the work is fabricated, installed or completed.

If the Owner and Engineer agree, the Engineer will provide one or more full time Resident Project Representatives to assist the Engineer in carrying out his responsibilities at the site.

Neither the Engineer's authority to act under this Article nor any decision made by him in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of the Engineer to the Contractor, any subcontractor, any of their agents or employees or any other person performing any of the work.

3. ENGINEER'S INTERPRETATIONS AND DECISIONS

The Engineer will issue with reasonable promptness such written clarifications or interpretations (in the form of drawings or otherwise) as he may determine necessary for the proper execution of the work, such clarifications and interpretations to be consistent with or reasonably inferable from the overall intent of the Contract Documents. If the Contractor believes that a written clarification and interpretation entitles him to an increase in the Contract Price, he may make a claim therefore as provided in Article 27.

The Engineer will be the initial interpreter of the terms and conditions of the Contract Documents and the judge of the performance thereunder. In his capacity as interpreter and judge he will exercise his best efforts to insure faithful performance by both the Owner and the Contractor. He will not show partiality to either and shall not be liable for the result of any interpretation or decision rendered in good faith. Claims, disputes and other matters relating to the execution and progress of the work or the interpretation of or performance under the Contract Documents shall be referred initially to the Engineer for decision, which he shall render in writing within a reasonable time.

Either the Owner or the Contractor may demand arbitration with respect to any such claim, dispute or other matter that has been referred to the Engineer, except any which have been waived by the making or acceptance of final payment, such arbitration to be in accordance with Article 5. However, no demand for arbitration of any such claim, dispute or other matter shall be made until the earlier of (a) the date on which the Engineer has rendered his decision or (b) the tenth day after the parties have presented their evidence to the Engineer if he has not rendered his written decision before that date. No demand for arbitration shall be made later than thirty days after the date on which the Engineer rendered his written decision in respect of the claim, dispute or other matter as to which arbitration is sought, and the failure to demand arbitration within said thirty days' period shall result in the Engineer's decision being final and binding upon the Owner and the Contractor. If the Engineer renders a decision after arbitration proceedings have been initiated, such decision may be entered as evidence but shall not supersede the arbitration proceedings, except where the decision is acceptable to the parties concerned.

4. ORDER OF WORK: USE OF COMPLETED PORTIONS

The Contractor shall complete any portion or portions of the work in such order of time and shall direct the application of forces to any portion of the work, as in the judgment of the Engineer is required. The Owner shall have the right to take possession of and use any completed or partially completed portions of the work even though the time for completing the entire work or such portions may not have expired, but such taking possession and use shall not be deemed as acceptance of that portion of work by the Owner.

5. ARBITRATION

All decisions of the Engineer shall be final except in cases involving time or financial considerations, which, if no agreement regarding such cases is reached, shall be subject to arbitration. The demand for and procedure of arbitration, and the selection of arbitrators shall conform to the practice recommended by the Joint Conference on Standard Construction Contracts, as set forth in the "Standard General Conditions for Engineering Construction", issued by said Joint Conference.

6. ENGINEERING STAKES

Unless otherwise indicated in other sections of the Contract Documents, the Contractor shall furnish, set and maintain without cost to the Owner, suitable stakes, grade boards, temporary structures, templates and other materials for establishing and maintaining points, marks, and lines, and shall furnish the Engineer with such assistance as he may require in checking such points, marks, or lines and in checking measurements necessary in the prosecution of the work.

The Contractor shall be held responsible for the preservation of all stakes and marks.

7. DEFECTIVE WORK

When any material not conforming to the requirements of the Contract Documents has been delivered upon the site of the Project or incorporated in the work, or when any work performed is of inferior quality, such material or work shall be considered as defective and shall be immediately removed and renewed or made satisfactory as directed by the Engineer, at the expense of the Contractor. Failure or neglect on the Engineer, to condemn or reject any bad or inferior work or materials shall not be construed to imply an acceptance of such work or materials, if such bad or inferior material or work becomes evident at any time prior to the final acceptance of the work and the release of the Contractor by the Owner; nor shall it be construed as barring the Owner at any subsequent time from the recovery of damage in such sum of money as may be needed to build anew all portions of the work in which fraud was practiced or improper materials hidden, whenever found.

The Contractor shall remove at his own expense any work or material condemned, and shall rebuild and replace the same without extra charge, or in case the Engineer should not consider the defect of sufficient importance to require the Contractor to rebuild or replace any imperfect work or material, he shall have the power and is hereby authorized to make an equitable deduction from the stipulated price.

The Contractor shall promptly move from the premises all materials condemned by the Engineer as failing to conform to the Contract Documents whether incorporated in the structure or not, and the Contractor shall promptly replace his own work in accordance with

the Contract and without expense to the Owner, and shall bear the expense of making good all work of other contractors destroyed or damaged by such removal or replacement. If the Contractor does not remove such condemned work and materials within a reasonable time, fixed by written notice, or if materials previously condemned and removed from the site of the work are subsequently found at the same or other site of work, the Owner may remove them and may store the material at the expense of the Contractor. If the Contractor does not pay the expenses of such removal within ten (10) days thereafter, the Owner may, upon ten (10) days written notice, deduct all the costs and expenses of such removal from any monies that may be due the Contractor.

8. MATERIALS

- A. The Contractor shall furnish the Engineer, promptly after the award or execution of the Contract, with a complete statement of the origin, composition and manufacture of all materials to be used in the construction of the Project. Only materials conforming to the requirements of the Contract Documents and approved by the Engineer shall be used in the work.
- B. Representative preliminary samples of the materials, of the character and quality prescribed in the Contract Documents, shall be submitted when indicated or directed, for advance examination or test, and written approval of the quality of such samples shall be received by the Contractor prior to obtaining materials from the respective sources of supply.
- C. Samples of all materials requiring laboratory tests shall be taken under the direction or supervision of, or in the manner prescribed by the Engineer, and such materials shall not be used until accepted as the result of such tests, and then only so long as the quality of the material remains equal to that of the accepted sample. The acceptance at any time of any material shall not be a bar to its future rejection if it is subsequently found to be defective or inferior in quality of uniformity to the material specified.
- D. Required laboratory tests of materials shall be made by a testing laboratory or agency selected or approved by the Engineer and in accordance with the methods indicated herein. When standard specifications and serial numbers of technical societies and associations are stipulated, the reference shall be construed to be the latest of such specifications and serial numbers.
- E. The Contractor shall be responsible for payment for all laboratory tests, mill inspection and tests conducted by the testing laboratory or agency at the shops or mills of the producers.
- F. For tests or inspections conducted by, and at the option of, the Engineer, at sites other than the testing laboratory and not under the jurisdiction thereof, the Contractor, without cost to the Owner, shall furnish all material, labor, tools, and equipment, and every facility for the verification of the accuracy of all scales, measures and testing equipment, necessary for such tests or inspections.
- G. The Contractor shall permit or arrange with the producer to permit the Engineer or any agent of the testing laboratory to inspect or test any and all material being used or to be used, at any time before, during or after its preparation, or while being used during the progress of the work or after the work has been completed.

- H. Materials shall be stored so as to insure preservation of their specified quality and fitness for the work. When considered necessary, they shall be placed on wooden platforms or other hard and clean surfaces, and not on the ground, and shall be placed under cover when directed. Stored materials shall be located so as to facilitate prompt inspection. Private property shall not be used for storage purposes without permission of the Owner or lease of the property.
- I. If any material intended for use in the construction of this Project has been inspected and rejected after such materials have been delivered to the Site, all such rejected material shall be immediately removed from the property by the Contractor.

9. EQUIPMENT AND MACHINERY

All apparatus, mechanisms, equipment, machinery and manufactured articles for incorporation in the work shall be the new and unused standard products of recognized reputable manufacturers.

Unless otherwise specifically provided in the Contract Documents, all workmanship, equipment, materials, and articles incorporated in the work covered by this Contract are to be of the highest quality and grade of their type. Whenever in the Contract Documents, any material, article, device, product, fixture, form, type of construction, or process is indicated or specified by patent or proprietary name, by name of the manufacturer, or by catalog number, such shall be deemed to be used for the purpose of establishing a standard and shall be deemed to be followed by the words "or approved equal."

Where the Contractor desires to use a non-specified item or method, which is considered to be an "approved equal" to the item or method specified, the approval of the Engineer must be obtained. The Engineer shall be the sole judge as to the quality of the item or method proposed by the Contractor.

All equipment and machinery, and parts and assemblies thereof, entering into the work shall be tested as specified. Unless waived in writing by the Engineer all field and operating tests shall be made in the presence of the Engineer or his authorized representative. When such a waiver is issued, sworn statements in duplicate of the tests made and the results thereof shall be furnished to the Engineer by the Contractor or manufacturer. Costs of all tests and trials, with the exception of the Engineer's expenses, shall be borne by the Contractor and shall be included in the Contract Price. Inspections or tests of apparatus, machinery, or equipment shall be made at the option of the Engineer at the point of production, manufacturer, installation or shipment.

Unless otherwise provided in the Agreement all machinery and equipment, parts and assemblies thereof to be furnished and installed by the Contractor, shall be guaranteed against defective materials and workmanship by the Contractor for a period of one (1) year from the date indicated on the Certificate of Substantial Completion. In the event of failure of any part or parts during the period specified, due to the above causes, the affected part or parts shall be replaced by the Contractor promptly upon notice of the Owner. In the event of failure of prompt replacement by the Contractor, such replacement may be made by the Owner at the Contractor's expense.

10. OBSERVANCE OF LAWS

The Contractor shall at all times observe and comply with all Federal and State laws and local by-laws, ordinances and regulations in any manner affecting the conduct of the work or applying to employees on the Project, as well as all orders or decrees which have been promulgated or enacted, or which may be promulgated or enacted, by any legal bodies or tribunals having authority or jurisdiction over the work, materials, equipment, employees or the Contract.

11. REGULATIONS OF THE DEPARTMENT OF LABOR AND INDUSTRY

Special attention is drawn to the regulations of the State Department of Labor and Industry relating to trenches and excavations, tunnel construction, equipment, materials, labor, safety, sanitation, and other regulations on which the Contractor shall be fully informed and with which he shall fully comply.

The Contractor shall receive no additional compensation for sheeting, bracing and shoring, or other work or materials required on his part solely for the purpose of conforming to the regulations of the State Department of Labor and Industry. Observance of and compliance with said regulations shall be solely and without qualification the responsibility of the Contractor, without reliance or superintendence of or direction by the Owner or Engineer.

12. SANITARY CONVENIENCES

Sanitary conveniences complying with the regulations of the State Health Department or other bodies having jurisdiction therewith, shall be provided for the use of the workmen, and their exclusive use strictly enforced.

13. PERMITS AND LICENSES

With the exception of Pennsylvania Department of Transportation, Pennsylvania Department of Environmental Resources, and Railroad crossing permits, which will be obtained by the Owner, the Contractor shall procure all necessary permits and licenses, pay all charges and fees, therefore, and shall give all notices necessary and incident to the proper and lawful prosecution of the work. The cost thereof shall be included in the prices bid for the various items scheduled in the Proposal.

Where work is to be done by the Contractor in placing any pipe or other construction under or within the right-of-way of the Pennsylvania Department of Transportation, Pennsylvania Department of Environmental Resources or railroad company, the Contractor shall be guided by the requirements of the agency or company involved, and shall consult with the officials thereof, relative to the installation. If the agency or railroad company requires any of their personnel to be on hand for supervisory duties in connection with the work, all charges relative to payment for such services shall be borne by the Contractor.

14. PATENTS AND ROYALTIES

The Contractor agrees to indemnify and save harmless the Owner from all suits or actions of every nature and description brought against him, for or on account of the use of patented appliances, products, or processes, or the infringement of any patent, trademark, or copy-right, and the Contractor shall pay all royalties and license fees in connection therewith.

15. NO WAIVER OF LEGAL RIGHTS

Neither the Owner nor the Engineer shall be precluded or stopped by any measurements, estimate or certificate made or given by them or by their agents or employees, under any provisions or provision of the Contract at any time, either before or after the completion and acceptance of the work and payment thereof pursuant to any measurements, estimate or certificate, from showing the true and correct amount and character of the work performed and materials furnished by the Contractor or from showing at any time, that any such measurement, estimate or certificate is untrue or incorrectly made in any particular, or that the work or materials or any part thereof, do not conform in fact to the Contract Documents. The Owner shall have the right to reject the whole or any part of the aforesaid work or materials, should the said measurements, estimate, certificate of payments be found, or be known to be inconsistent with the terms of the Contract, or otherwise improperly given, and the Owner shall not be precluded and stopped, notwithstanding any such measurements, estimate, certificate and payment in accordance therewith and from demanding and recovering from the Contractor or his Surety such damages as the Owner may sustain by reason of the Contractor's failure to comply with the terms of the Contract Documents or on account of any overpayment made on any estimate or certificate. Neither the acceptance by the Owner, the Engineer, or any of their agents or employees, nor any certificate by the Owner for payments of money, nor any payments for, or acceptance of the whole or any part of the work by the Owner or Engineer, nor any extension or remission of time, nor any possession taken by the Owner or his employees shall operate as a waiver of any portion of the Contract or any power herein reserved by the Owner, or any right to damages herein provided, nor shall any waiver of any breach of the Contract be held to be a waiver of any other or subsequent breach. All remedies provided in this Contract shall be taken and construed as cumulative; that is, in addition to each and every other remedy provided.

16. CARE OF PUBLIC AND PRIVATE PROPERTY

The Contractor shall take all necessary precaution to prevent damage to all overhead and underground structures and to protect and preserve property within or adjacent to the Project and shall be responsible for damage thereto. Special care must be used by the Contractor in the prosecution of the work in order to avoid interference or damage to any operating utilities or plants. However, where there is a possibility of such interference or damage, the Contractor shall make satisfactory arrangements with responsible officers or with the Owners of the utilities or plants, covering the necessary precautions to be used as safeguards during the performance of the work by the Contractor.

Such arrangement shall be made before work is started and shall be subject to the approval of the Engineer which approval will not be considered as releasing the Contractor from any responsibility for the acts of himself or his employees or representatives. The Contractor shall protect all land monuments and property markers, which will be affected by the construction until they have been correctly referenced. Monuments and markers, which are disturbed by the Contractor during the construction of the Project or otherwise, shall be satisfactorily reset by him at his expense when and as directed. The Contractor shall make good any damage or injury to public or private property and shall promptly make restitution for, or proceed to repair or otherwise restore such damage or injury to property as may be deemed necessary by the Engineer. The Contractor will be held responsible for the protection of or damage done to trees to be left standing and if any are damaged, the Contractor shall have them promptly repaired at his own expense by a qualified tree surgeon, or replaced as required.

17. PRELIMINARY INSPECTION

Unless the requirement is waived by the Engineer, prior to the start of actual construction operations, the Contractor or his authorized representative shall go over the project accompanied by the Engineer or his designated representative and shall observe for himself, with the approved Drawings before him, all pertinent conditions relative to the Contract, including the status of rights-of-way and structures, obstructions, or other objects to be removed, altered or changed.

18. SAFETY AND PROTECTION: EMERGENCIES

The Contractor will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work. He will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to:

- A. All employees on the work and other persons who may be affected thereby.
- B. All the work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and
- C. Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

The Contractor will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. He will erect and maintain, as required by the conditions and progress of the work, all necessary safeguards for safety and protection, including posting danger signs and other warnings against hazards and promulgating safety regulations. He will notify owners of adjacent utilities when prosecution of the work may affect them. When the use or storage of explosives or other hazardous materials is necessary for the prosecution of the work, the Contractor will exercise the utmost care and will carry on such activities under the supervision of properly qualified personnel. All damage, or loss to any property referred to above caused, directly or indirectly, in whole or in part, by the Contractor, any subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, will be remedied by the Contractor, except damage or loss attributable to the fault or drawings or specifications or to the acts or omissions of the Owner or the Engineer or anyone employed by either of them or for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor.

The Contractor will designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This person shall be in the Contractor's superintendent unless otherwise designated in writing by the Contractor to the Owner and the Engineer.

In emergencies affecting the safety of persons or the work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the Engineer or Owner, is obligated to act, at his discretion, to prevent threatened damage, injury or loss. He will give the Engineer prompt written notice of any significant changes in the work or deviations from the Contract Documents caused thereby, and a Change Order shall thereupon be issued covering the changes and deviations involved. If the Contractor believes

that additional work done by him in an emergency, which arose from causes beyond his control, entitles him to an increase in the Contract Price or an extension of the Contract Time, he may make a claim therefore, as provided in Article 27.

19. VIOLATION OF CONTRACT

The Owner, upon written notice from the Engineer, or other satisfactory proof, and after having given written notice to the Contractor and his Surety of delay, neglect, or default on the part of the Contractor, shall have full power and authority, without violating the Contract, to declare the Contractor in default on any of the following counts:

- A. Failure to begin work within the time specified in the Notice to Proceed;
- B. Failure to perform the work with sufficient properly skilled workmen and/or proper equipment, or with sufficient materials to insure the completion of said work in accordance with the terms of the Contract;
- C. Neglect or refusal to remove materials or perform anew such work as may be rejected as defective or unsuitable;
- D. Halting prosecution of the work without approval of the Engineer;
- E. Insolvency or bankruptcy, or committing any act of bankruptcy or insolvency;
- F. Allowing a final judgment to stand unsatisfied for a period of forty-eight (48) hours;
- G. Making an assignment for the benefit of creditors;
- H. Failure or refusal, within ten (10) days after written notice, by the Owner, to make payment or show cause why payment should not be made, of any amounts due for labor or materials;
- I. Failure to protect, repair, or make good any damage or injury to property as provided in Article 16;
- J. If a receiver or liquidator shall be appointed for the Contractor or for any of his property and shall not be dismissed within twenty (20) days after such appointment or the proceedings in connection therewith shall not be stayed on appeal within the said twenty (20) days after such appointment;
- K. If the Contractor shall refuse or fail to prosecute the work or any part thereof with such diligence as will insure its completion within the period herein specified (or any duly authorized extension thereof) or shall fail to complete the work within said period; or
- L. If the Contractor should fail or refuse to regard laws, ordinances or the instruction of the Engineers, or otherwise be guilty of a substantial violation of any provisions of this Contract;
- M. If the Contractor should fail to maintain the Insurance required under Article 17 of the Instructions to Bidders for the life of the Contract.

After the Owner has declared the Contractor in default, and given him three (3) days written notice, the Owner shall have authority to take the prosecution of the work out of the hands of the Contractor, and appropriate or use any materials and equipment of the Contractor assembled for the Project, and may enter into a contract for the completion of the work.

Should the Owner elect to take the prosecution of the work out of the hands of the Contractor, the Owner may at its option, notify and require the Surety to complete the Contract according to Contract terms, or the Owner may, at its option, complete the Contract with its own forces, in which case the Owner may take all right, title and interest in and to the equipment and materials owned by the Contractor and assembled for use in the execution of the Contract.

If the completion of the Contract by any of the methods described above results in financial loss to the Owner, the Owner may dispose of any of the remaining equipment and materials taken over without further legal processes. Any equipment or materials not required for completion or recoupment of loss or for legal charges against the Contract, or any balance remaining from the disposition of materials and equipment, after deducting losses by the Owner, shall be turned over the party legally or equitable entitled thereto.

20. CONTRACTOR'S RIGHT OF TERMINATION

If, after Notice to Proceed is given, the work is stopped by order of the Owner for a continuous period of ninety (90) days for any cause other than weather conditions or any act of the Contractor, the Contractor shall have the right to terminate this Contract after seven (7) days' written notice to the Owner of such action, provided that order to resume work is not issued by the Owner within such period of seven (7) days. Failure by the Owner to make payment to the Contractor within fifteen (15) days after expiration of the time allowed for such payment by the Contract Documents shall give the Contractor the right to suspend work until payment is made, or at his option, after seven (7) days' notice in writing, should the Owner, continue in default, to terminate this Contract. The Owner shall be barred from making any claim against the Contractor for delay in completion of the work due to the suspension or failure to pay.

In the event of such Contract termination, the Contractor shall be paid as provided in the Contract for all work done and completed in accordance therewith and he shall also be paid, as determined by the Engineer for all extra costs incurred by him due to termination of the Contract, but shall not be paid any amount for loss of anticipated profit on any work not done or not completed.

21. RESPONSIBILITY OF CONTRACTOR

The Contractor shall be responsible for the entire Project determined by the Contract Documents, from the date of the starting of the work until it is accepted as evidence by approval of the Completion Certificate by the Owner. He shall be responsible for removals, and replacements due to action of the elements and all other causes except as otherwise provided in the Contract Documents. The Contractor shall keep the Contract under his own control and it shall be his responsibility to see that the work is properly supervised and carried on faithfully and efficiently. The Contractor shall supervise the work personally or shall have a competent superintendent or representative, who shall be on the site of the Project at all working hours to receive orders and directions from the Engineer and who shall be clothed with full authority by the Contractor to execute such orders without delay and make

arrangements for all necessary materials, equipment and labor.

Renewals or repairs necessitated because of defective materials or workmanship, or due to action of the elements or other natural causes, including fire and flood, prior to the acceptance as determined by the Completion Certificate, shall be done anew in accordance with the Contract Documents at the expense of the Contractor.

22. CONTRACT TIME

The Contract time for completion of the work based either upon consecutive calendar days or a definite calendar date, shall be as specified in the Agreement.

If a number of calendar days is specified, Sundays and legal holidays shall not be included in the computation of the number of consecutive calendar days used in completion of the Contract.

On the basis either of calendar days or of date of completion, in computing the time spent in the execution of the work, no allowance will be made for days or parts of days on which work was suspended or delayed in consequence of an act or omission, such as the non-delivery of materials, or breakdowns of equipment, or failure of the Contractor to obtain or employ sufficient labor or equipment to prosecute the work, or other such reasons or causes which are the responsibility of the Contractor.

Adjustments or extensions of the calendar days or the date of completion will be granted only as hereinafter specified.

If the Engineer in writing suspends the work wholly or in part, as set forth in Article 24 of this Section, but not for reasons, which are the responsibility of the Contractor, the time for completion of the work may be extended by the Engineer. After such suspension of work has expired the Contractor shall have a sufficient time to complete the work remaining to be done, at the rate of progress originally determined by the Owner for the performance of the work and extension of contract item may be made accordingly. In the event working time is extended as aforesaid, such action shall not be construed as relieving the Contractor from his responsibility for lack of satisfactory progress prior to such suspension period. In the event the working time is extended as aforesaid and the Contractor was ahead of the schedule, as estimated by the Engineer, at the time work was suspended, due credit will be given for such advanced progress in computing the extension.

If the Contractor shall be delayed in the completion of the work by reason of unforeseeable or inevitable causes beyond his responsibility, without his fault or negligence, the period specified for completion of the work may be extended by such time as shall be determined by the Engineer, provided that application for extension be made, in writing by the Contractor, not later than two (2) weeks following the dates for which said extension is claimed.

The question of whether or not there is a justifiable cause for granting an extension of time as herein provided shall be determined by the Engineer on the basis of the conditions encountered or leading to such causes. No additional payment will be allowed for damage to or reconstruction of work, previously performed by the Contractor, by or on account of such causes. No extensions of time shall be deemed a waiver by the Owner of any obligations of the Contractor under the terms of the Contract nor as relieving the Contractor from full responsibility thereunder.

Suspension of work due to unsuitable weather or unfavorable conditions will be considered as valid causes for extension of the contract working time, with written approval of the Engineer.

23. LIQUIDATED DAMAGES

For each calendar day, with the exception of Sundays and legal holidays, that any work shall remain uncompleted after the time specified for the completion of the work provided for by the Agreement, the sum per calendar day specified in the Agreement, shall be deducted by the Owner from monies due the Contractor, not as a penalty but as liquidated damages. Extensions may be made by the Engineer, at his discretion, over the period specified for the completion of the work, for causes for which the Contractor is not responsible and which must delay the completion of the work, and in such case the Contractor shall become liable for liquidated damages for delays commencing from the date on which the extended period shall expire.

Liquidated damages when charged as provided herein, shall be deducted from the Final Estimate amount payable to the Contractor or his Surety. If the total amount chargeable as liquidated damages exceeds the amount payable to the Contractor or the Surety, then such excess shall be paid to the Owner by the Contractor or his Surety.

24. TEMPORARY SUSPENSION OF WORK

The Engineer shall have authority to suspend the work wholly or in part, due to unsuitable weather, or such other conditions as are considered unfavorable for the suitable prosecution of the work, or due to the failure on the part of the Contractor to carry out orders given or to perform any provisions of the Contract, or due to unforeseen conditions which had not been provided for in estimating the Contract time required for completion of the work. No claim for damages or loss of profit may be advanced by the Contractor by reason for such temporary suspension.

If the Engineer suspends the work in part, he shall have authority to direct the Contractor to perform such other parts or items of work which, in his opinion, may be performed with favorable results and advantageously for the time of completion of the Project, and shall notify the Contractor accordingly in writing.

If it should become necessary to suspend work for a sustained or an indefinite period, the Contractor shall store all materials satisfactorily, and he shall take every precaution to prevent damage or deterioration of the work performed. The Contractor shall resume work after such suspension upon written notice from the Engineer. All of the work outlined in this article shall be performed at the Contractor's expense.

25. CONTRACTOR'S SUPERVISION AND SUPERINTENDENCE

The Contractor will supervise and direct the work efficiently and with his best skill and attention. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. Before undertaking the work he will carefully study and compare the Contract Documents and check and verify all figures shown thereon and all field measurements. He will at once report in writing to the Engineer any conflict, error or discrepancy which he may discover.

The Contractor will be responsible to see that the finished work complies accurately with the

Contract Documents.

The Contractor will keep on the work at all times during its progress a resident superintendent satisfactory to the Engineer. The superintendent shall not be replaced without the consent of the Engineer except under extraordinary circumstances. The superintendent will be the Contractor's representative at the site and shall have authority to act on behalf of the Contractor. All communications given to the superintendent shall be as binding as if given to the Contractor.

The Contractor will provide competent, suitably qualified personnel to survey and layout the work and perform construction as required by the Contract Documents. He will at all times maintain good discipline and order among his employees at the site.

The Engineer will not be responsible for the acts or omissions of the Contractor, or any subcontractors, or any of his or their agents or employees or any other persons performing any of the work.

26. NONCOMPLIANCE OF CONTRACTOR

In addition to the elective measures the Owner may take for violation of the Contract as provided in Article 19, he shall also have the discretionary right to take any or all of the following actions if the Contractor fails, neglects, or refuses to comply with the requirements of Articles 7, 16, 18, 24, 32 or 33.

- A. He may shut down the work until the requirements of the violated articles are met by the Contractor. In such event no remission will be made in working time for the period for which the work is shut down.
- B. He may withhold payment of estimates for work completed until the requirements of the violated article are met by the Contractor.
- C. He may enter upon the Project and perform such work as may be necessary to meet the requirements of the article violated and deduct the cost thereof from monies due or which may become due the Contractor or the Surety, or in the absence of any monies due the Contractor or the Surety, he shall be fully reimbursed for such costs by the Contractor or the Surety.

However, if the Contractor fails to comply with the requirements of Article 24, the Owner shall not proceed as provided herein until three days after written notice to the Contractor and his Surety that such action will be taken.

27. CHANGES IN WORK AND CONTRACT PRICE

A. Change in Work

Without invalidating the Agreement, the Owner may, at any time or from time to time, order additions, deletions or revisions in the work. These will be authorized by Change Orders. If any Change Order causes an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, an equitable adjustment will be made as provided in (B) following.

Additional work performed by the Contractor without authorization of a Change Order will not entitle him to an increase in the Contract Price, except in the case of an emergency affecting the safety of persons or the work or property at the site or

adjacent thereto. In such cases the Contractor, without special instruction or authorization from the Engineer or Owner, is obligated to act, at his discretion, to prevent threatened damage, injury or loss. He will give the Engineer prompt written notice of any significant changes in the work or deviations from the Contract Documents caused thereby, and a Change Order shall thereupon be issued covering the changes and deviations involved. If the Contractor believes that additional work done by him in an emergency which arose from causes beyond his control entitles him to an increase in the Contract Price or an extension of the Contract Time, he may make a claim therefore as provided in (B) below.

It is the Contractor's responsibility to notify his Surety of any changes affecting the general scope of the work or change in the Contract Price and the amount of the applicable bonds shall be adjusted accordingly. The Contractor will furnish proof of such adjustment to the Owner upon request.

B. Change in Contract Price

The Contract Price constitutes the total compensation payable to the Contractor for performing the work. All duties, responsibilities and obligations assigned to or undertaken by the Contractor shall be at his expense without change in the Contract Price. The Contract Price may only be changed by a Change Order.

If the Contractor is entitled by the Contract Documents to make a claim for an increase in the Contract Price, his claim shall be in writing delivered to the Owner and the Engineer within 7 days of the occurrence of the event giving rise to the claim. All claims for adjustments in the Contract Price shall be determined by the Engineer if the Owner and Contractor cannot otherwise agree on the amount involved. Any change in the Contract Price resulting from any such claim shall be incorporated in a Change Order.

The value of any work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:

- (1) Where the work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved.
- (2) Where the Contract has been awarded for a lump sum price or where a significant portion of the Contract Price is based on a lump sum price by application of unit prices resulting from the breakdown of the lump sum Contract Price as required by Article 30.
- (3) Where the change in work is not covered by unit prices available from (1) or (2) above, the following methods in the order given shall then apply:
 - a. By mutual acceptance of a lump sum amount.
 - b. By cost and a percentage of these costs to cover overhead and profit. Costs shall only include labor (payroll, payroll taxes, fringe benefits, workman's compensation, etc.) materials, equipment, and other incidentals directly related to the work involved. The addition for overhead and profit shall not exceed twenty (20) percent of these costs.

28. MEASUREMENT

All work completed under this Contract shall be measured by the Engineer according to the United States Standard measures. No extra or customary measurements of any kind shall be allowed in measuring any work, only the actual lengths, areas, solid contents, weights, or numbers, shall be considered and the lengths shall be measured on center lines of the work, whether the same be straight or curved, unless specified differently.

29. PRESENTATION OF CONTRACTOR'S CLAIMS

Neither the Contractor nor the Surety shall be entitled to present any claims to the Owner or the Board of Arbitration, either during the prosecution of the work or upon completion of the Contract, for additional compensation for work performed or any other cause, unless the Contractor or Surety shall have given the Owner notice of intention to present such claims within (10) ten days from the happening of the event, thing, or occurrence giving rise to the alleged claim. However, the Contractor or Surety shall not be denied the right to present any claim, which is based on differences in measurements or errors of computations which were not disclosed until preparation of the Final Estimate.

30. PAYMENTS TO CONTRACTOR

Partial payments on the Contract will be made during the progress of the work based on the value of the work done except as provided in Article 29, and in accordance with the provisions of the Agreement. These partial payments are merely estimates and subject to correction in any succeeding estimate or in the final payment, and shall not bind the Owner to the acceptance of any materials furnished or work done. Completed additional or extra work which has been approved by the Engineer will be included in partial payments. On lump sum contracts, the Contractor shall prepare an itemized breakdown of the value of the several classes of work, which after approval will be used by the Engineer on computing the value of work done and amounts due on current estimates.

Certain material stored but not yet incorporated into the work may be included in partial payments only when the Contractor provides invoices to show that such material has been received by the Contractor and delivered to an approved location, and when said material will not be stored for more than ninety (90) days. The Contractor may be paid 100% of the cost of the material, less the pro-rata share of the retainage provided that the cost does not exceed ninety percent (90%) of the Contract Price for the contract item and the cumulative costs do not exceed twenty-five percent (25%) of the current Contract amount.

The cost of surplus stored material, which payment previously has been made to the Contractor but has not been incorporated in the final measured work, will not be included in the final payment. Surplus stored material is the property of the Contractor.

Once each month, the Contractor shall prepare and submit to the Engineer an estimate of the value of work completed to the end of the period covered by the estimate. Ninety percent (90%) of such value less the aggregate of previous payments will be normally paid to the Contractor within thirty (30) days following the date of the Owner's regular meeting. However, in situations where the Project is being funded through state and/or federal funds such as the Community Facilities Program or the Community Development Block Grant Program, the Contractor will be paid at the time when such funding is disbursed to the Owner from the federal or state agency.

When construction is fifty percent (50%) complete, periodic payments will be increased to ninety-five percent (95%) of the value of the work completed less the aggregate of previous payments.

Upon substantial completion of the work and operational and beneficial occupancy has been attained, as determined by the Engineer, the retained amounts shall be reduced to an amount necessary to assure completion of the work as determined by the Engineer.

Upon completion of all work under the Contract, the Engineer will determine whether final payment is in order. Upon such determination by the Engineer, a Final Estimate will be prepared by the Contractor with payment being made in accordance with the procedure and requirements of Article 31.

31. ACCEPTANCE AND FINAL PAYMENT

Unless otherwise provided in the Agreement, upon notification by the Contractor that he has completed the work under the Contract, the Engineer shall make an inspection to determine whether the work is fully completed. The Contractor shall at his own expense, provide the Engineer with all labor, tools or equipment that may be required by the Engineer in making such inspection.

As soon as practicable after such inspection and after the Engineer is satisfied that the work is fully completed, the Contractor will compute the entire amount of each item of work performed and the Contract value thereof, the amount and value of all additions, and the amount and value of all deductions, if applicable; and will from this, prepare a Final Estimate and present it to the Engineer.

The Engineer shall either approve the Final Estimate or request that the Contractor revise the Final Estimate.

If necessary, it shall be the duty of the Contractor to revise and return the Final Estimate to the Engineer within fifteen (15) days from the date the Final Estimate is returned by the Engineer. If the Contractor fails to return the executed Final Estimate or notify the Engineer in writing of his rejection within said fifteen (15) days, the Engineer will consider any objections raised and will direct the Contractor to either resubmit the Final Estimate or submit a revised Final Estimate.

Upon receipt of the Final Estimate from the Contractor, or upon failure of the Contractor to accept or reject the Final Estimate within the time designated, the Engineer shall submit to the Owner said Final Estimate certifying the final price of all work performed under the Contract.

Unless the Owner rejects the Final Estimate, payment will be made to the Contractor based on this Final Estimate normally within thirty (30) days of the Owner's regular meeting at which the Final Estimate is presented to the Owner. However, in situations where the Project is being funded through state and/or federal funds such as the Community Facilities Program or the Community Development Block Grant Program, the Contractor will be paid at the time when such funding is disbursed to the Owner from the federal or state agency.

If liquidated damages have been determined by the Owner to be applicable to this Contract and are to be deducted from the amount due the Contractor under the Final Estimate, the Owner shall inform the Contractor in writing of the deductions to the amount due and of the

net amount to be paid, and payment of the net amount will be made to the Contractor.

In the event that the Owner rejects the Final Estimate, the Owner will direct the Contractor to revise the Final Estimate and resubmit it to the Engineer.

In the event mutual agreement on the Final Estimate between the Owner and Contractor cannot be obtained, arbitration procedures in accordance with Article 5 will be used.

The Owner may withhold final payment pending receipt of:

- A. A written statement in a form satisfactory to the Owner and under seal from the Surety that payment of the amount shown in the Final Certificate to the Contractor shall not relieve the Surety of any obligations to the Owner as set forth in the Surety's bonds.
- B. An affidavit and such other satisfactory evidence as may be required that all labor, material, and indebtedness arising out of performance of the Contract have been paid; and that all other claims against the Contractor or subcontractors arising out of performance of the Contract either have been paid or that the Contractor has in force such Public Liability and Property Damage Insurance as will fully protect him and his subcontractors from any such claims as may be pending or that may there after arise; and
- C. A satisfactory Maintenance Bond.

The action of the Owner by which the Contractor is to be bound and work concluded, according to the terms of the Contract, shall be evidenced by payment of the Final Certificate. All prior certificates or estimates upon which payments have been made being partial payments and subject to correction in the final payment.

The acceptance by the Contractor of final payment shall be and shall operate as a release to the Owner of all claims and all liability to the Contractor for all things done or furnished in connection with this work and for every act and neglect of the Owner and others relating to or arising out of this work. No payment, however, final or otherwise, shall operate to release the Contractor or his sureties from any obligations under this Contract or the Performance, Labor and Material Payment or Maintenance Bonds.

32. PAYMENT TO CONTRACTOR AND INDEMNIFICATION

All work covered by partial payment made shall thereupon become the sole property of the Owner, but his provision shall not be construed as relieving the Contractor of the sole responsibility for the care and protection of the work upon which payments have been made or the restoration of any damaged work, or as a waiver of the right of the owner to require the fulfillment of all terms of the Contract Documents.

The Contractor will indemnify and save the Owner or the Owner's agents harmless from all claims growing out of the lawful demands of subcontractors, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the work. The Contractor shall, at the Owner's request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived.

If the Contractor fails to do so the Owner may, after having notified the Contractor, either pay unpaid bills or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the Contractor shall be resumed, in accordance with the terms of the Contract Documents, but

in no event shall the provisions of this sentence be construed to impose any obligations upon the Owner to either the Contractor, his Surety, or any third party. In paying any unpaid bills of the Contractor, any payment so made by the Owner shall be considered as a payment made under the Contract documents by the Owner to the Contractor, and the Owner shall not be liable to the Contractor for any such payments made in good faith.

If the Owner fails to make payment within thirty (30) days after approval by the Engineer and the Owner, or within seven (7) days after the Owner receives payment from the state and/or federal funding services, whichever is later, in addition to other remedies available to the Contractor there shall be added to each such payment interest at the maximum legal rate commencing on the first day after said payment is due and continuing until the payment is received by the Contractor.

33. CONTRACTOR'S GUARANTEE

The Contractor shall guarantee his work, and shall remedy without cost to the Owner any defects which may develop therein during the guarantee period. The guarantee period shall be for one (1) year from the date as certified by the Engineer when the Project's construction is substantially complete for the Project to be utilized for the purpose for which it is intended. In the event that the date of substantial completion precedes the date upon which the Owner initiates utilization of the Project, the guarantee period will then commence upon the date which the Owner utilizes the project or the date of final payment, whichever comes first.

Upon written request by the Contractor, the Engineer will consider establishing separate dates of substantial completion and guarantee period for separate parts of the Project which will be utilized prior to other parts of the Project.

If after written notice to the Contractor and his surety, the Contractor fails to remedy such defects, the Owner may declare the Contractor in default and may notify and require the surety to remedy such defects under the terms of the Maintenance Bond.

34. SUBCONTRACTS

The Contractor shall, as soon as practicable after the signing of the Contract, notify the Owner through the Engineer in writing of the names of any subcontractors proposed for the principal parts of the work and for such others as the Engineer may direct, and shall not employ any that the Engineer may, within a reasonable time, object to as incompetent or unfit.

The Engineer shall, on request of any subcontractor, furnish to that subcontractor, wherever practicable, evidence of the amounts certified in his account.

The Contractor agrees that he is as fully responsible to the Owner for the acts and omissions of his subcontractors and of persons either directly or indirectly employed by them as he is for the acts and omissions of persons directly employed by him. Nothing contained in the Contract Documents shall create any contractual relation between any subcontractor and the Owner.

35. RELATIONS OF CONTRACTOR AND SUBCONTRACTORS

The Contractor agrees to bind every subcontractor and every subcontractor agrees to be

bound by the following provisions of this article, unless specifically noted to the contrary in a subcontract approved in writing as adequate by the Owner.

A. The subcontractor agrees:

- 1) To be bound to the Contractor by the terms of the Contract Documents and to assume toward him all the obligations and responsibilities that he, by these Contract Documents, assumes towards the Owner.
- 2) To submit to the Contractor applications for payment in such reasonable time as to enable the Contractor to apply for payment.
- 3) To make all claims for extras, for extensions of time and for damages for delays or otherwise, to the Contractor in the manner provided in these Contract Documents for like claims by the Contractor upon the Owner, except that the time for making claims for extra cost is one (1) week.

B. The Contractor agrees:

- 1) To be bound to the subcontractor by all the obligations that the Owner assumes to the Contractor under the Contract Documents and by all the provisions thereof affording remedies and redress to the Contractor from the Owner.
- 2) To pay the subcontractor, upon the issuance of certificates, the amount allowed to the Contractor on account of the subcontractor's work to the extent of the subcontractor's interest therein.
- 3) To pay the subcontractor, upon the issuance of certificates, so that at all times the total payments shall be as large in proportion to the value of the work done by the subcontractor as the total amount certified to the Contractor is to the value of the work done by the latter.
- 4) To pay the subcontractor to such extent as may be provided by the Contract Documents or the subcontract, if either of these provides for the earlier or larger payments than the above.
- 5) To pay the subcontractor on demand for his work or materials as far as executed and fixed in place, less the retained percentage, at the time the certificate should issue even though the Engineer fails to issue it for any cause not the fault of the subcontractor.
- 6) To make no demand for liquidated damages or penalty for delay in any sum in excess of such amount as may be specifically named in the subcontract.
- 7) That no claim for services rendered or materials furnished by the Contractor to the subcontractor shall be valid unless written notice thereof is given by the Contractor to the subcontractor during the first ten (10) days of the calendar month following that in which the claim originated.

C. The Contractor and subcontractor agree:

- 1) That nothing in this Article shall create any obligation on the part of the Owner

to pay, or to see to the payment of, any sums to any subcontractor.

36. USE OF LANDS

The Owner shall provide the lands upon which the work under this Contract is to be done except that the Contractor shall provide all necessary additional land required for the erection of temporary construction facilities and storage of materials, together with right of access thereto. The Contractor shall conduct no operations outside the lines of the property leased or owned or authorized for such use by the Owner without permission of the Owner.

37. WORKING CONDITIONS

- A. No night, Sunday, or holiday work requiring the presence of the Engineer or his representative will be permitted except in cases of emergency, and then only with the written consent of the Engineer and to such an extent as he may judge necessary.
- B. No work shall be done under this Contract when in the opinion of the Engineer, the weather is unsuitable for good and careful work to be performed. Should the severity of the weather continue such that the work cannot be prosecuted successfully, the Contractor, upon order of the Engineer, shall cease all such work until directed to resume the same. In the latter case, suitable extension of time shall be allowed to compensate for time actually lost as provided for in Article 22.
- C. The Contractor shall arrange for and be responsible for a sufficient amount of illumination at all times, subject to the direction of the Engineer, to carry on all phases of the work.

38. PROGRESS CHARTS

Unless the requirement is waived by the Engineer, the Contractor shall, within seven (7) days after issuance of Notice to Proceed, prepare and submit to the Engineer for approval, a practicable and feasible schedule showing the order in which the Contractor proposes to carry on the work, the dates on which he will start the several salient features (including procurement of equipment) and the contemplated dates for completing the same. The schedule shall be in the form of a progress chart of suitable scale so as to appropriately indicate the percentage of work completed at any time. The Contractor shall enter the actual progress at the end of each month and shall immediately deliver to the Engineer three (3) copies of the same.

39. NOTICE

The service of any notice by the Owner or Engineer to the Contractor or by either party of the Contract to the Engineer or other party of the Contract, shall be considered accomplished upon completion of any one of the following procedures.

- A. When delivered, in writing, to the person in charge of the office used by the addressee to conduct business as given in the Proposal or Agreement;
- B. When delivered, in writing, to the addressee or any of his authorized agents in person;
- C. When delivered, in writing, to the addressee or any of his agents at the office used by the addressee to conduct the business of this Contract or near the Site of the work;

- D. When deposited in the United States Mail, postpaid, and addressed to the party intended for such service at his office used for conducting the business of this contract at the site of the work, or his last known place of business; or
- E. When filed at any company operated office of the Western Union Telegraph Co. and addressed to the party intended for such service at his last known place of business or for conducting the business of this Contract at the site of the work.

40. CLEANING SITE

The Contractor shall at all times keep the Project Site free from accumulations of waste material or rubbish caused by the work. Before the work will be considered as having been completed, the Contractor shall clean and remove from the Project and adjacent property all surplus and discarded materials, equipment and temporary structures, and restore, where applicable, to the extent as required by other sections of these Contract Documents.

41. PUBLIC CONVENIENCE AND SAFETY

The Contractor shall conduct the work so as to insure the least obstruction to pedestrian and vehicular traffic. The convenience of the general public and of residents adjacent to the Project shall be provided for in an adequate and satisfactory manner. Unless otherwise directed, sidewalks and crossings shall be kept open for pedestrians. Streets shall not be unnecessarily obstructed and unless the Engineer authorizes the complete closing of a street, road, or alley, the Contractor shall provide for the maintenance of traffic thereon at his own expense.

The Contractor shall construct and maintain without compensation such adequate and approved temporary bridges over excavations as may be necessary or directed for the accommodation of pedestrians and vehicles.

Where fire hydrants are adjacent to the work they shall be at all times readily accessible to fire apparatus, and no material or other obstruction shall be placed within fifteen (15) feet of any such hydrant.

42. PROVISIONS REQUIRED BY LAW DEEMED INSERTED

Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon application of either party, the Contract shall forthwith be physically amended to make such insertion.

43. LIENS

No liens shall be allowed for labor or materials furnished.

44. RIGHT OF PROPERTY IN MATERIALS

Nothing in this Contract shall be considered as vesting in the Contractor any right of property in materials used, after they shall have been attached to or incorporated in the work, nor in

materials which have been estimated for partial payment, but all such materials, upon being so attached, incorporated or estimated, shall become the property of the Owner.

45. ADVERTISING

No advertising will be permitted on any part of building, scaffolding, fences, materials, obstructions, barricades, or work.

46. OMITTED

47. COMPLIANCE WITH REGULATORY BODIES

Compliance with the regulations of any State, County, or Municipal Authority or of any Public Utilities such as the railroad, power and telephone companies shall not constitute the basis for additional compensation because of such compliance.

48. DEFENSE COSTS

The Owner and the Contractor agree that in the event either of them institutes a lawsuit against the other under this Contract, the plaintiff in such lawsuit shall pay to the defendant a portion of the defense costs, including investigations, engineering fees, attorney's fees, expert witnesses' fees and any other expenses of defense which may be incurred. Such portion of the defense costs shall bear the same relation to the total defense costs as the dollar amount of the plaintiff's claims which were not sustained by the court bears to the total dollar amount of the plaintiff's claims. The plaintiff shall pay such portion of the defense costs to the defendant within thirty (30) days after the defendant furnished the plaintiff with an itemized listing of the defense costs incurred.

Contractor's Application for Payment No. _____

		Application Period:	Application Date:
To (Owner):	Bullskin Township	From (Contractor):	Via (Engineer):
Project:	Bullskin Township Materials Storage Building	Contract: 1	Widmer Engineering Inc.
Owner's Contract No.:		Contractor's Project No.:	Engineer's Project No.: 24805

Application For Payment

Change Order Summary

Approved Change Orders			
Number	Additions	Deductions	
			1. ORIGINAL CONTRACT PRICE..... \$ _____
			2. Net change by Change Orders..... \$ _____
			3. Current Contract Price (Line 1 ± 2)..... \$ _____
			4. TOTAL COMPLETED AND STORED TO DATE
			(Column F total on Progress Estimates)..... \$ _____
			5. RETAINAGE:
			a. X _____ Work Completed..... \$ _____
			b. X _____ Stored Material..... \$ _____
			c. Total Retainage (Line 5.a + Line 5.b)..... \$ _____
			6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5.c)..... \$ _____
			7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application)..... \$ _____
			8. AMOUNT DUE THIS APPLICATION..... \$ _____
			9. BALANCE TO FINISH, PLUS RETAINAGE
			(Column G total on Progress Estimates + Line 5.c above)..... \$ _____
TOTALS			
NET CHANGE BY			
CHANGE ORDERS			

Contractor's Certification

The undersigned Contractor certifies, to the best of its knowledge, the following:

(1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with the Work covered by prior Applications for Payment;

(2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all Liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such Liens, security interest, or encumbrances); and

(3) All the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

Contractor Signature

By: _____ Date: _____

Payment of: \$ _____
(Line 8 or other - attach explanation of the other amount)

is recommended by: _____ (Engineer) _____ (Date)

Payment of: \$ _____
(Line 8 or other - attach explanation of the other amount)

is approved by: _____ (Owner) _____ (Date)

Approved by: _____
Funding or Financing Entity (if applicable) (Date)

Date of Issuance:	Effective Date:
Owner: Bullskin Township	Owner's Contract No.:
Contractor:	Contractor's Project No.:
Engineer: Widmer Engineering Inc.	Engineer's Project No.: 24805
Project: Bullskin Township Materials Storage Building	Contract Name:

The Contract is modified as follows upon execution of this Change Order:

Description:

Attachments: *[List documents supporting change]*

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES <i>[note changes in Milestones if applicable]</i>
Original Contract Price: \$ _____	Original Contract Times: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] from previously approved Change Orders No. ____ to No. ____: \$ _____	[Increase] [Decrease] from previously approved Change Orders No. ____ to No. ____: Substantial Completion: _____ Ready for Final Payment: _____ days
Contract Price prior to this Change Order: \$ _____	Contract Times prior to this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
[Increase] [Decrease] of this Change Order: \$ _____	[Increase] [Decrease] of this Change Order: Substantial Completion: _____ Ready for Final Payment: _____ days or dates
Contract Price incorporating this Change Order: \$ _____	Contract Times with all approved Change Orders: Substantial Completion: _____ Ready for Final Payment: _____ days or dates

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By: _____ Engineer (if required)	By: _____ Owner (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Title: _____	Title: _____	Title: _____
Date: _____	Date: _____	Date: _____

Approved by Funding Agency (if applicable)

By: _____ Date: _____
Title: _____

CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner: Bullskin Township	Owner's Contract No.:
Contractor:	Contractor's Project No.:
Engineer: Widmer Engineering Inc.	Engineer's Project No.: 24805
Project: Bullskin Township Materials Storage Building	Contract Name:

This [preliminary] [final] Certificate of Substantial Completion applies to:

☐ All Work ☐ The following specified portions of the Work:

Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work shall be as provided in the Contract, except as amended as follows: *[Note: Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.]*

Amendments to Owner's responsibilities: ☐ None
☐ As follows

Amendments to Contractor's responsibilities: ☐ None
☐ As follows:

The following documents are attached to and made a part of this Certificate: *[punch list; others]*

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract.

EXECUTED BY ENGINEER:		RECEIVED:	RECEIVED:
By: _____ (Authorized signature)	By: _____ Owner (Authorized Signature)	By: _____ Contractor (Authorized Signature)	
Title: _____	Title: _____	Title: _____	
Date: _____	Date: _____	Date: _____	

**BULLSKIN TOWNSHIP
FAYETTE COUNTY, PENNSYLVANIA**

TECHNICAL SPECIFICATIONS

FOR THE

**BULLSKIN TOWNSHIP
MATERIALS STORAGE BUILDING**

AUGUST 2026

Prepared For:

Bullskin Township Supervisors
178 Shenandoah Road
Connellsville, PA 15425

PREPARED BY:

WIDMER ENGINEERING INC.
225 West Crawford Avenue
Connellsville, PA 15425
(724) 626-1909 - Phone
(724) 626-8509 - Fax

WE #24805

SECTION 01000TABLE OF CONTENTS - TECHNICAL SPECIFICATIONS

<u>SECTION</u>	<u>TITLE</u>
01090	Reference Standards
01150	Measurement and Payment-Lump Sum Contracts
01300	Submittals and Substitutions
01700	Contract Close-Out
02200	Excavation, Backfill & Grading
03100	Concrete Formwork
03200	Concrete Reinforcement
03300	Cast In Place Concrete
04200	Unit Masonry
04530	Sealing of Masonry Building Surfaces
05500	Miscellaneous Metals
06000	Carpentry & Millwork
07600	Flashing & Sheet Metal
07610	Architectural Metal Roofing
7900	Caulking & Weatherstripping

- Project Location and Existing Site Photos
- Drawings

SECTION 01090

REFERENCE STANDARDS

PART I

GENERAL

1.01 Section Includes

- A. Quality assurance.
- B. Schedules of references.

1.02 Quality Assurance

- A. For products or workmanship specified by association, trade, or Federal Standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on date of Contract Documents.
- C. Obtain copies of standards when required by Contract Documents.
- D. Should specified reference standards conflict with Contract Documents, request clarification from the Engineer before proceeding.
- E. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.03 References

- AA Aluminum Association
818 Connecticut Avenue, N.W.
Washington, DC 20006

1000 Vermont Avenue, N.W.
Washington, DC 20005
- AASHTO American Association of State

REFERENCE STANDARDS

Highway and Transportation Officials
444 North Capitol Street, N.W.
Washington, DC 20001

ACI	American Concrete Institute Box 19150 Reford Station Detroit, MI 48219
ADC	Air Diffusion Council 230 North Michigan Avenue Chicago, IL 60601
AIA	American Institute of Architects 1735 New York Avenue, N.W. Washington, DC 20006
AISC	American Institute of Steel Construction 400 North Michigan Avenue Eighth Floor Chicago, IL 60611
AISI	American Iron and Steel Institute 1000 16th Street, N.W. Washington, DC 20036
AMCA	Air Movement and Control Association 30 West University Drive Arlington Heights, IL 60004
ANSI	American National Standards Institute 1430 Broadway New York, NY 10018
APA	American Plywood Association Box 11700 Tacoma, WA 98411
ARI	Air-Conditioning and Refrigeration Institute 1815 North Fort Myer Drive Arlington, VA 22209

REFERENCE STANDARDS

ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers 1791 Tullie Circle, N.E. Atlanta, GA 30329
ASME	American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017
ASTM	American Society for Testing and Materials 1916 Race Street Philadelphia, PA 19103
AWWA	American Water Works Association 6666 West Quincy Avenue Denver, CO 80235
AWI	Architectural Woodwork Institute 2310 South Walter Reed Drive Arlington, VA 22206
AWPA	American Wood-Preservers' Association 7735 Old Georgetown Road Bethesda, MD 20014
AWS	American Welding Society 550 LeJeune Road Miami, FL 33135
CRSI	Concrete Reinforcing Steel Institute 933 Plum Grove Road Schaumburg, IL 60195
EJMA	Expansion Joint Manufacturers Association 707 Westchester Avenue White Plains, NY 10604
FGMA	Flat Glass Marketing Association 3310 Harrison White Lakes Professional Building Topeka, KS 66611

REFERENCE STANDARDS

FM	Factory Mutual System 1151 Boston-Providence Turnpike Norwood, MA 02062
FS	Federal Specification General Services Administration Specifications and Consumer Information Distribution Section (WFSIS) Washington Navy Yard, Bldg. 197 Washington, DC 20407
GA	Gypsum Association 1603 Orrington Avenue Evanston, IL 60201
IEEE	Institute of Electrical and Electronics Engineers 345 East 47th Street
IMIAC	International Masonry Industry All-Weather Council International Masonry Institute 815 15th Street, N.W. Washington, DC 20005
MIL	Military Specification Naval Publications and Forms Center 5801 Tabor Avenue Philadelphia, PA 19120
ML/SFA	Metal Lath/Steel Framing Association 221 North LaSalle Street Chicago, IL 60601
NAAMM	National Association of Architectural Metal Manufacturers 221 North LaSalle Street Chicago, IL 60601
NEMA	National Electrical Manufacturers' Association 2101 L Street, N.W. Washington, DC 20037
NFPA	National Fire Protection Association

REFERENCE STANDARDS

1619 Massachusetts Avenue, N.W.
Washington, DC 20036

PennDOT	Commonwealth of Pennsylvania Department of Transportation
PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 60077
PS	Product Standard U.S. Department of Commerce Washington, DC 20203
SDI	Steel Deck Institute Box 3812 St. Louis, MO 63122
SDI	Steel Door Institute 712 Lakewood Center North Cleveland, OH 44107
SMACNA	Sheet Metal and Air Conditioning Contractors' 8224 Old Court House Road Vienna, VA 22180
SSPC	Steel Structures Paint Council 4400 Fifth Avenue Pittsburgh, PA 15213
TAS	Technical Aid Series Construction Specifications Institute 601 North Madison Street Alexandria, VA 22314
UL	Underwriters' Laboratories, Inc. 333 Pfingston Road Northbrook, IL 60062
WCLIB	West Coast Lumber Inspection Bureau Box 23145 Portland, OR 97223

REFERENCE STANDARDS

PART 2	PRODUCTS
	Not Used
PART 3	EXECUTION
	Not Used
PART 4	BASIS OF PAYMENT
	Not Used

END OF SECTION

REFERENCE STANDARDS

SECTION 01150**MEASUREMENT AND PAYMENT - FOR LUMP SUM CONTRACTS****PART 1 - GENERAL****1.01 SCOPE**

- A. This Section defines procedures for calculation, measurement and payment for additional or deleted work on the basis of unit prices either included in the bidder's Form of Proposal or otherwise determined in accordance with procedures set forth in the Contract Documents.

1.02 UNIT PRICES

A. Unit price requirements:

1. The Contractor, prior to execution of the Contract Agreement, shall submit a listing of unit prices for lump sum contracts, which unit prices shall be used as a basis of payment and also applied to changes in the scope of the work to arrive at the cost of added or deducted work. Appropriate adjustment in the Contract amount will be arrived at by multiplying the measured quantity of work by the agreed upon unit price. The net difference of like work items on a given change order shall apply.

B. Unit price rejection:

1. On a lump sum bid, if the Engineer perceives any of the unit prices offered by the Contractor to be unbalanced or unreasonable, he may reject such unit prices. should the scope of work be changed with regard to items so rejected, and a revised unit price be not accepted by all parties, the work shall be performed on the basis of another method of payment as provided in the General Conditions.

C. Change in scope of work:

1. Work based on a specific change in scope of work front that included in the Contract Documents shall be executed by the Contractor until complete in every respect. It shall include not only labor, materials, tools, and equipment, but also the following without limitation: preparatory work; supervision; layout; insurance; bonds; clean-up; overhead; profit; and all other items as may be necessary for completing the work as shown on the Drawings and/or specified or required by Contract Documents.
2. Measurement and payment for the foregoing items, if unit prices are acceptable, shall be made on the basis of the quantities added and/or deducted and the units specified in the Proposal Form and in accordance with Paragraph 1.03 of this Section.

1.03 MEASUREMENT AND PAYMENT

A. General:

1. This paragraph sets forth the methods to be used for measurement of and payment for work performed in addition to or deducted from the scope of work of this Project, as more fully described in the Contract Documents.
2. All additional work performed on the basis of the various unit prices shall be furnished and installed to conform to these Specifications to the extent that they relate to and address like items of work.
3. All work shall, at the discretion of the Engineer, be measured in place or be estimated from drawings and shall be described in terms of the units noted on the Proposal Form. A complete record of the work item shall be kept and, if it is a continuing item, daily progress of the work must be specifically noted in the job diary in terms of the applicable units.
4. The payment for, or Contract adjustment for, all unit price items will be calculated as the agreed total quantity of added or deducted work multiplied by the Contractor's unit price(s). In determining the total quantity, only the net difference of like items shall be used.

1.04 PROGRESS PAYMENTS

A. Certain items of equipment furnished for this Project are recognized, in their respective Sections, as having significant value in the work and as being specifically manufactured for this project. For these items only, the Contractor furnishing the item shall be entitled to progress payments in accordance with the following schedule:

1. Upon delivery and unloading of the item at the job site or protected storage area of the Contractor, the invoice price (less retainage) shall be paid provided the Contractor furnishes Certificates of Insurance and Title to the Owner for the delivered items and adequately insures and protects same.
2. Ninety-five percent (95%) of the Contractor's quoted installed price to the Owner for the particular item, reduced by any previous payments made under Items 1 above, shall be due to the Contractor furnishing the item, upon completion of installation and successful start-up services.
3. The balance of the Contractor's quoted installed price to the Owner for the particular item shall become due upon the Contractor furnishing the item; upon satisfactory demonstration of compliance with the performance requirements of these specifications; and upon furnishing to the Owner with all required documentation, reports, approvals, certificates, bonds, extended guarantees, warranties and other items as may be specifically required herein.

B. For payment for Items 1 above, the Contractor shall furnish proof of the claimed pricing in the form of manufacturer's invoices, written confirmations from the Manufacturer, and such

other documentation as may be required by the Engineer to satisfactorily prove the amount of the claimed pricing.

- C. Retainage shall be withheld from each monthly payment request in accordance with the percentages set forth within the General Conditions Item 15.01B which are part of these Contract Documents.

PART 4 – BASIS OF PAYMENT

- 4.01 Measurement and Payment - Incidental. No additional compensation.

END OF SECTION

SECTION 01300SUBMITTALS AND SUBSTITUTIONS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included:

1. To assure that the products furnished and methods of construction/ installation provided under the various Contracts of this Project are in conformance with the intent of the Drawings and these Specifications, each Contractor shall submit sufficient testing data; Manufacturer's data and pertinent information; certifications; installation drawings and instructions; shop drawings; samples; and/or requests for substitutions as required by and in strict conformance with the provisions of this Section.
2. The General Contractor is responsible for all scheduling for all trades. He shall not allow or direct materials of any trade to be installed prematurely or when it is obvious that such materials may be damaged by subsequent work of other trades. In case of disputes as to timeliness of any installation, the Engineer shall make the determination including any protective measures required.

B. Related Work described elsewhere:

1. It is the intent of this Section to establish minimum standards of procedure for submittals and/or substitutions regarding all products, materials and/or methods furnished or provided under the various Contracts of this Project. Therefore, the provisions of this Section shall apply equally to all other Sections of these Specifications and shall be deemed a part of all other Sections as if reproduced entirely within each Section whether or not this Section is specifically referred to therein. In certain instances, particular other Sections may specify standards of procedure covering submittals and/or substitutions, which parallel those of this Section. This duplication is not meant to impart a greater or lesser degree of importance to any of the parties involved in this Project or to provide further clarification of specific additional information required. In the event that any conflict exists between any standards of procedure established in this Section and those of any other Section, the stricter requirement shall govern.
2. Wherever possible throughout the Contract Documents, the minimum acceptable quality of workmanship and materials has been defined either by Manufacturer's name and catalog number or by reference to recognized industry standards.

PART 2 - PRODUCTS

2.1 SHOP DRAWINGS AND SPECIFICATIONS

A. Equipment plans and specifications:

1. Prior to the fabrication of equipment to be furnished under these Contracts, the Contractors shall submit to the Engineer for approval the Manufacturer's detailed specifications and drawings covering the equipment proposed. The specifications and drawings shall show the materials and details of construction of the equipment, illustrations, scale details, sizes, dimensions, capacities, and layout in sufficient detail to indicate its relative location and/or incorporation with adjacent concrete or other facilities.
2. Such drawings shall show the principal dimensions, weight, structural and operating features, performance characteristics, control and wiring diagrams, space required, clearances, type and/or brand of finish or shop coat, grease fittings and other such items depending on the subject of the drawings. When it is customary to do so, when the dimensions are of particular importance, or when so specified, the drawings shall be certified in writing by the Manufacturer as correct for this Project.
3. When so specified or if considered by the Engineer to be acceptable, Manufacturer's specifications, catalog data, descriptive matter, illustrations and other products may be submitted for approval in place of shop and working drawings. In such case the requirements shall be as specified for shop and working drawings, insofar as applicable.

B. Type of prints required:

Unless otherwise specifically directed by the Engineer, all shop drawing prints shall be rendered in blue or black line on white background.

C. Number of prints required:

The Contractors shall submit three (3) copies plus the number of copies to be returned of all shop drawings, specifications, and other items submitted under this Section.

2.2 SAMPLES

A. Accuracy of sample:

Unless otherwise specifically directed by the Engineer, all samples shall be of the precise article proposed to be furnished and shall show the maximum variations in color, texture and/or permissible defects.

B. Number of samples required:

The Contractor shall submit all samples in the quantity which is required to be returned plus one which will be retained by the Engineer. All samples shall be identified by an appropriate tag or label listing the name of the Project; the Owner's name; the Engineer and the Contractor as well as the exact identification of the sample. Tags or labels shall be large enough to provide a blank space for approval stamps.

2.3 COLORS AND PATTERNS

A. General:

Unless the precise color and pattern is specifically described in the Contract Documents and whenever a choice of color or pattern is available in a specified product, the Contractor shall submit accurate color charts and pattern charts to the Engineer for his review and selection of color and/or pattern.

B. Comparative analyses:

Unless all available colors and patterns have identical costs and identical wearing capabilities and are identically suited for the installation, the Contractor shall provide the relative costs and capabilities of each.

2.4 APPROVED EQUAL MATERIALS AND PRODUCTS

A. Engineer's approval required:

1. The various materials and products specified in the Contract Documents by name and description are provided to establish a standard of quality. It is not the intent to limit the acceptance to any one material or product specified, but rather to name or describe a material or product as a minimum standard that is desired and acceptable. Where proprietary names are used, whether or not followed by the words "or approved equal", "equal to", or "or equal" equal materials and products may be approved by the Engineer provided that the alternate meets the approved minimum.

B. Availability of specified items:

1. The Contractor shall verify prior to bidding that all specified items will be available in time for installation during orderly and timely progress of the Work.
2. In the event specified items will not be available, the Contractor shall so notify the Engineer prior to the opening of bids.
3. Costs of delays because of non-availability of specified items, when the Engineer determines that such delays could have been avoided by the Contractor, will be charged to the Contractor as necessary and shall not be

borne by the Owner. When such delays could not have been avoided by the Contractor, an appropriate extension of Contract Time will be granted to the Contractor. There shall be no additional costs charged to the Owner by the Contractors for such time extensions.

2.6 OPERATION AND MAINTENANCE INSTRUCTIONS AND MANUALS

The various Sections of these Specifications require submittal of three (3) or more copies of various installation, operation and maintenance instructions and other data relative to the equipment and other items requiring any degree of operation and/or maintenance.

PART 3 - EXECUTION

3.1 IDENTIFICATION OF SUBMITTALS

The Contractor shall completely identify each submittal and resubmittal by showing at least the following information:

- A. Name and address of submitter, plus name and telephone number of the individual who may be contacted for further information.
- B. Name of Project as it appears on these Specifications and the Contract Name and Number to which the submittal applies.
- C. Drawing number and Specifications Section number to which the submittal applies.
- D. Whether this is an original submittal or a resubmittal.

3.2 COORDINATION OF SUBMITTALS

A. General:

Prior to submittal for the Engineer's review, the Contractor shall use all means necessary to fully coordinate all material, including the following procedures:

- 1. Determine and verify all field dimensions and conditions, materials, catalog numbers, and similar data.
- 2. Coordinate as required with all trades and with all public agencies involved.
- 3. Secure all necessary approvals from public agencies and others and signify by stamp or other means that they have been secured.
- 4. Clearly indicate all deviations from the Contract Documents.
- 5. Submittals shall be marked with the date, the checker's name and stamped "Approved for Submittal," or bear some other indication of the Contractor's approval. Submittals not marked in this manner will be returned for correction without action by the Engineer.

B. Grouping of Submittals:

Unless otherwise specifically permitted by the Engineer, the Contractor shall make all submittals in groups containing all associated items. The Engineer may reject partial submittals as not complying with the provisions of the Contract Documents.

3.3 TIMING OF SUBMITTALS

A. General:

1. The Contractor shall make all submittals far enough in advance of scheduled dates of installation to provide all required time for reviews, for securing all necessary approvals, for possible revision and resubmittal, and for placing orders and securing delivery.
2. No material shall be purchased or fabricated especially for this Project until the required shop and working drawings have been submitted and approved by the Engineer as conforming to the Contract requirements. All materials and Work involved in the construction shall then be as represented by said drawings.
3. The Engineer's approval of shop and working drawings will follow a general check made to ascertain conformance with the design concept and functional result desired of the information given in the Contract Documents. The Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the Work of all trades.
4. The Engineer's review will be made as soon as practical following receipt of each submittal. In scheduling, at least ten (10) full working days shall be allowed for the Engineer's review following his receipt of each submittal.

B. Delays:

Costs of delays occasioned by tardiness of submittals may be backcharged as necessary and shall not be borne by the Owner.

3.4 CERTIFICATIONS AND TESTS

Certifications and reports of tests, when required under the various sections of these Specifications, shall be submitted in the same quantities as specified for shop drawings in 2.2-C above.

PART 4 – BASIS OF PAYMENT

- 4.1 Submittals and Substitutions – Incidental. No separate payment will be made for Submittals and Substitutions.

END OF SECTION

SUBMITTALS AND SUBSTITUTIONS

SECTION 01700CONTRACT CLOSE-OUT**PART 1 - GENERAL****1.01 DESCRIPTION**

- A. This Section describes the general requirements and documents necessary to complete the Project and/or to effect Contract Close-Out for each prime Contractor performing Work on this Project.
- B. The requirements specified herein are general and are provided solely for the convenience of the Contractors to serve as a basic reference check-list of the minimum requirements for Project completion and Contract Close-Out. This Section is not intended to eliminate or supersede other requirements which may be specified in the various and several other Sections of these Specifications nor to waive any of the specific requirements set forth therein. All such requirements shall be compiled with and all documents must be submitted as specified prior to Project completion and Contract Close-Out.

PART 2 - PRODUCTS**2.01 RECORD DRAWINGS**

- A. In addition to the prints furnished for construction and for public bodies, each Contractor will be furnished, without charge, one set of Blue Prints for record purposes.
- B. These prints shall be marked "Record Set" and shall be maintained at the Project Site. Each Contractor shall record on these prints all deviations from the Contract Drawings, at the time that such deviation is made. All changes made in process, sewer and water lines; equipment; utilities; partitions; doors; or in arrangements or construction of the Project, as well as a complete record of the exact manner in which mechanical and electrical work items are installed, shall be recorded on these prints. Dimensions shall be included where necessary to accurately locate piping and other items which will be concealed in the finished work and which may later be necessary to locate for service, including underground piping and electrical facilities.

PART 3 - EXECUTION**3.01 FINAL CLEAN-UP**

In addition to the various requirements of the General Conditions and Division 1 of these Specifications and the requirements for special cleaning in the various trade sections of these Specifications, the General Contractor shall perform final cleaning as follows:

- A. Sweep and, if necessary, wash and buff resilient floors and bases.

- B. Dust and, if necessary, wash all plumbing and electrical fixtures and remove all tags and stickers except those giving operating instructions or safety precautions.
- C. Clean all cabinets and casework.
- D. Clean, polish and wax, as required, all finished products that are not specified to be cleaned, etc., under the various trade sections of these Specifications.
- E. Remove smears and paint and wash all glass.
- F. Final cleaning shall be performed after the work of all trades is completed and immediately before turning the Work over to the Owner.
- G. Cleaning materials shall be free from harmful abrasives and shall be acceptable to the manufacturers of the materials, equipment and/or surfaces on which they are used.

3.02 CLOSE-OUT DOCUMENTS

- A. Before approval of the final payment and issuance of the certificate of completion, each Contractor shall be required to submit to the Engineer the following documents, completed and executed in every detail as required:
 - 1. The "Record Set" of prints.
 - 2. Statement of Surety Company.
 - 3. Contractor's Release.
 - 4. Contractor's Affidavit.
 - 5. Maintenance Bond.
 - 6. Other bonds and warranties as specified in the various Sections of these Specifications.
 - 7. Certificates of Approval from all governing approval agencies if required (Plumbing, Building, Electrical, Pressure Vessel, Underwriters, etc.).
 - 8. Spare parts and tools.
 - 9. Such additional items as may be required in the various Sections of these Specifications.

PART 4 – BASIS OF PAYMENT

- 4.01 Contract Close-Out – Incidental. No additional compensation.

END OF SECTION

SECTION 02200**EXCAVATION, BACKFILLING AND GRADING****PART 1 - GENERAL****1.01 DESCRIPTION****A. Work included:**

Excavating, backfilling and grading required for this Work includes, but is not necessarily limited to: excavating, filling and backfilling for structures, footings, foundations, slabs, utilities, drainage, etc.; trenching and trench backfilling; rough and finish grading of the site; restoration of disturbed surfaces; dewatering; furnishing and installing all required shoring, sheeting and bracing; furnishing and installing granular cushion or fill under all interior and exterior concrete slabs; furnishing of sub-base and base courses for paving; furnishing and installing rip-rap; and such other Work as shown on the Drawings, as required by these Specifications, or as may be reasonably inferred there from.

B. Classification:

The Contractor shall make a personal examination of the sites in which the improvements are to be installed and determine for himself the extent and character of any Work that may be required. All excavation shall be unclassified and no additional payment shall be made for hand excavation or for removal of rock, shale, masonry or other materials encountered in this Project.

C. Underground utilities:

1. Attention is directed to the fact that there may be underground utilities located in the vicinity of the Work. Some of these have been indicated on the Drawings; however, the completeness and accuracy of the information presented therein or elsewhere in these Specifications is not guaranteed.
2. The Contract shall comply with Pennsylvania Act 287-1974 which requires the Contractor to notify all utilities serving the site three (3) days before starting to excavate. The utilities, in turn, are required to respond within two (2) days of receipt of notification and give the location of their lines.

D. O.S.H.A.:

The Contractor shall perform his Work so as to comply fully with the regulations of O.S.H.A. (Occupational Safety and Health Administration) of the U.S. Department of Labor, latest revision.

1.02 QUALITY CONTROL

- A. Testing and inspection of fill materials and compaction Work shall be performed in accordance with the provisions of these Specifications.
- B. Test results shall be submitted to the Engineer in accordance with the provisions of Section 01300 of these Specifications.

1.03 JOB CONDITIONS

- A. Dust control:
 - 1. The Contractor shall use all means necessary to control dust on or near the Work and on or near all off-site borrow areas, if such dust is caused by the Contractor's operations during performance of the Work or if results from the condition in which the Contractor leaves the site.
 - 2. The Contractor shall thoroughly moisten all surfaces as required to prevent dust from being a nuisance to the public, neighbors, and concurrent performance of other Work on the site.
- B. Protection:
 - 1. The Contractor shall use all means necessary to protect all materials of this Section before, during, and after installation and to protect all objects designated to remain.
 - 2. In the event of damage, the Contractor shall immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 FILL MATERIAL, GENERAL

- A. All fill material shall be in accordance with these Specifications and subject to approval of the Engineer.
- B. For approval or imported fill material, the Contractor shall notify the Engineer at least four (4) working days in advance of his intention to import material; designate the proposed borrow area; and shall have the approved testing laboratory analyze samples as necessary from the borrow area and make sufficient acceptance tests to prove the quality of the material.

2.02 FILL MATERIAL

- A. In general, unless other material is indicated on the Drawings or required by these Specifications, material from the excavation may be used for backfilling trenches and around structures provided that it meets the applicable requirements set forth herein. Materials needed in addition to that available from construction operations

shall be obtained from approved borrow pits or deposits at no additional cost to the Owner.

- B. All backfill material shall be generally well-graded from fine to coarse and free from large clods; roots; cinders; vegetation; ashes; refuse; boulders, large rock, shale pieces or lumps larger than 6 inches in any dimension with no more than 15 percent of the rocks or lumps larger than 2-1/2 inch in any dimension; organic material or any other deleterious substances. Backfill material shall not be frozen or excessively wet so as to impair proper field compaction. All backfill material shall be of such nature that, after it has been placed and compacted, it will make a dense, stable fill.
- C. Where layers of crushed stone, screened gravel or sand are called for on the Drawings or required by these Specifications for granular cushion beneath certain structures, slabs pipes or other facilities, material conforming to the following particle size gradation shall be provided.

Percent Passing by Weight

<u>Square Mesh Sieve Size</u>	<u>Crushed Stone or Screened Gravel</u>	<u>Sand</u>
1-1/2 inch	100	100
1 inch	90-100	100
3/4 inch	---	100
1/2 inch	25-60	100
Number 4	0-15	95-100
Number 8	0-5	80-100
Number 16	1	50-85
Number 30	---	25-60
Number 50	---	10-30
Number 100	---	2-10
Number 200	---	0-5

- D. Other types of fill materials will be considered by the Engineer for use on a case-by-case basis provided that the Contractor submits sufficient evidence as to the suitability and acceptability of the particular materials for the intended application.
- E. Suitable or selected fill materials shall be kept separated from unsuitable materials and shall not be permitted to be contaminated therewith. Contaminated materials shall not be used for trench or structural backfill and shall be removed from the site or used for site grading as required herein.
- F. Imported fill materials shall conform to Paragraph 2.02 (B) above and, in addition, shall be predominantly granular with max. particle size of two inches and a plasticity index of 12 or less. Imported cohesionless materials shall conform generally to the gradation requirements listed above for sand.

- G. All fill material placed within 3 feet of the base of buildings, footings and/or slabs shall conform to Paragraph 2.02 (F) above and, shall have a plasticity index of 15 or less.

2.03 RIP-RAP

Rip-rap where called for on the Drawings shall conform to the requirements of these Specifications.

2.04 OTHER MATERIALS

All other materials not specifically described but required for proper completion of the Work of this Section shall be as selected by the Contractor subject to the approval of the Engineer.

PART 3 - EXECUTION

3.01 GENERAL

- A. Prior to all Work of this Section, the Contractor shall become thoroughly familiar with the site, the site conditions, and all portions of the Work falling within this Section.
- B. The Contractor shall not allow or cause any of the Work performed or installed to be covered up or enclosed by Work of this Section prior to all required inspections, tests and approvals. Should any of the Work has been completely tested, inspected and approved, the Contractor shall restore the Work by enclosing or covering as required, all at no additional cost to the Owner.
- C. Before beginning excavation and/or filling Work, the topsoil from all areas to be affected shall be stripped to a depth of 6 inches and shall be stored at a location designated by the Engineer. After completion of the major construction Work, the topsoil shall then be replaced as the upper layer of backfill to a depth of not less than six (6) inches so that the final grade shall be as required by the Drawings. If additional topsoil over and above that salvage from the site is required in order to maintain the 6 inches of depth specified, the Contractor shall furnish and install same at no cost to the Owner.
- D. Backfill around all structures and in all trenches shall be carried to the grade indicated on the Drawings and/or specified herein.
- E. All open excavation, piles of material, freshly backfilled or uncompacted areas which present hazards to personnel or equipment on the construction site shall be adequately barricaded and posted with battery-operated warning lights, signs and other safety-related items as required by any local, state, or federal regulations governing same or, in the absence of any such regulation, to the satisfaction of the Owner.

- F. Backfill under structures or pavements shall, in general, be compacted to 95 percent of Standard Proctor Density, and all other backfill shall be compacted to 90 percent of Standard Proctor Density unless otherwise noted herein.
- G. All excavation materials not used in backfill or final grading operations shall be disposed of by the Contractor on the WWTP site at his own expense.
- H. No blasting shall be permitted to be performed in relation to this Work.

3.02 FINISH ELEVATIONS AND LINES

For setting and establishing finish elevations and lines, the Contractor shall secure the services of a qualified engineer or surveyor acceptable to the Engineer and shall carefully preserve all data and all monuments set by such engineer or surveyor and, if displaced or lost, immediately replace them to the satisfaction of the Engineer and at no additional cost to the Owner.

3.03 SHEET PILING, SHORING AND BRACING

- A. The Contractor shall furnish, install and maintain such sheeting, shoring and bracing as may be required to facilitate dewatering; to support the sides of the excavations; to prevent the movement of earth which could in any way diminish the width of the excavation below that necessary for construction or otherwise injure persons in or about the Work; endanger adjacent structures; cause excavations to extend beyond the Owner's property lines; or delay Work.
- B. Whenever possible, sheeting shall be driven ahead of the excavation to avoid loss of material from behind the sheeting. If it is necessary to excavate below the sheeting, care shall be taken to avoid trimming behind the face along which the sheeting will be driven. Care should be taken to prevent voids outside the sheeting, but if voids are formed, they shall be filled immediately with sand and compacted.
- C. The Engineer may require that sheeting, shoring and/or bracing installed for excavation be left in place in order to protect adjacent facilities or structures. Where such is not required in these Specifications or shown on the Drawings, the Contractor will be reimbursed as stipulated in the General Conditions of these Specifications. All other sheeting may be salvaged when the removal of same will not present a hazard to the adjacent facilities or to the safety of the Contractor's personnel.
- D. All sheeting, shoring and bracing not to be left in place shall be carefully removed in such a manner as not to present a hazard to the safety of the workmen or to endanger the construction of other structures. All voids left or caused by withdrawal of sheeting shall be immediately backfilled and well-compacted. The Contractor shall be fully responsible and liable for any bodily injury or property damage resulting from any improper or premature removal of sheeting, shoring or bracing.

3.04 DEWATERING

- A. At all times during construction the Contractor shall provide, place, operate and maintain ample means and devices with which to remove promptly, and dispose properly all water entering trenches and other excavations, or water that may flow along or across the site of the Work and shall keep said excavations dry until the structures and appurtenances to be built therein have been completed to such extent that they will not be damaged by the discontinuance of dewatering operations. At that time, such temporary means and devices shall be removed.
- B. The Contractor shall provide, install and operate pumping equipment of suitable capacity as necessary to maintain all excavations free of surface and subsurface water. He shall dispose of pumped water in accordance with approved E & S plan. Standby pumps will be required to be maintained at the site of the Work of this Section.

3.05 EXCAVATION NEAR EXISTING STRUCTURES/FACILITIES

- A. The Drawings show those underground utility lines and appurtenances for which such location information was either made available to the Engineer or was observed by the Engineer in the field. Neither the number of such underground facilities nor their respective types, sizes and/or locations can be assured or guaranteed. It is therefore the responsibility of the Contractor to obtain such additional information as is required to properly complete the Work in compliance with these Specifications and to contact the owners of the various utilities in the area prior to starting and to maintain communications with these owners during performance of the Work.
- B. The location of all power and telephone poles along the route of the Work and the overhead lines supported by all such poles shall be observed and located by the Contractor prior to commencement of the Work.
- C. The Contractor shall be completely and solely responsible and liable for any and all property damages, bodily injuries, financial losses and interruption of service that result from or are attributable to his construction activities and that affect gas lines, electric lines, telephone lines, drain lines and storm sewer lines, and all appurtenances and service facilities connected thereto. Restoration of all damaged or disturbed facilities shall be accomplished immediately after such facilities have been found to be damaged or disturbed, in accordance with the directions of the respective utility company or private owner and at no cost to the Owner.
- D. Gas, power and telephone service shall be maintained with a minimum of interruption throughout the construction of the Project. No such service shall be intentionally interrupted without the approval of the respective utility company concerned and without first giving due warning to any affected parties.

- E. The proposed Work is in proximity to overhead power lines which transmit electric current at high voltages and which, if disturbed or contacted during construction, would be hazardous to construction personnel and/or other persons. The Contractor shall therefore properly protect such wire, pole supports, or other power line appurtenances to avoid disturbances to those facilities, and shall operate all machinery and conduct all other construction activities in a manner which will assure protection of all construction personnel and other person against said hazards. Work in the vicinity of the existing underground gas lines and appurtenances is also hazardous because, under certain conditions, such materials are flammable and/or explosive, and the Contractor shall avoid disturbance and/or displacement of those facilities and shall provide all temporary and permanent supports and other required protection to prevent exposure of same to construction personnel and/or other persons. Where such lines are exposed during construction and leakage is detected, construction Work in those areas shall be immediately suspended, the owner or owners of the affected lines shall be immediately advised of the condition, and the construction Work shall not resume until all repairs have been properly completed.
- F. The Contractor shall thoroughly instruct all his personnel and those of any subcontractor or materialsman involved in the Work so that appropriate and complete safety Work practices are observed at all times. He shall also provide all personnel with all tools, clothing, protective glasses, mechanical air blowing equipment to ventilate manholes and other chambers, explosive atmosphere detectors, ladders, harnesses and other safety-related equipment. No Work shall be performed under any unsafe conditions and, if same is detected at any time, the Contractor shall suspend operations immediately and not resume his activities until remedial measures have been taken or until the unsafe situation has otherwise been completely overcome.
- G. The Contractor's attention is directed to the fact that some of the proposed Work may interfere with existing underground utilities. The Contractor shall provide all temporary and permanent supports and other required protection or relocate these utilities. The Contractor shall be completely responsible for the cost of protection, relocating, repairing, or the reconstruction of all existing underground piping and utilities, regardless of size, that are disturbed because of his construction activities. There shall be no extra cost to the Owner for any relocation, reconstruction or repair of existing underground piping and utilities.
- H. After the appropriate utility companies and the Owner have located their lines, ducts, conduits, structures and other facilities in the field, the Contractor shall locate precisely the position, orientation and depth of all lines, ducts, conduits and other facilities that might conflict with his Work. Any unexpected conflict that becomes evident shall be immediately reported to the Engineer. Failure of the Contractor to notify the Engineer of such interference's far enough in advance will render the Owner not liable for any additional expenses incurred by the Contract while the utility is being relocated.
- I. The cost of supporting or protecting conflicting lines or other obstructions shall be at the Contractor's expense whether performed by him, the utility or the Owner.

- J. As the excavation approaches pipes, conduits, or other underground structures, digging by conventional trenching machine methods shall be done with extreme care. No extra compensation shall be given if manual excavation is necessary to locate or construct utilities and/or underground structures.

3.06 PROTECTION OF EXISTING STRUCTURES/FACILITIES

- A. The Contractor shall maintain in place or remove and replace all interfering pipes, manholes, poles, wires, curbing, property line markers, survey monuments and other structures of facilities throughout the performance of the Work.
- B. If such structures and/or utilities are preserved in place, they shall be carefully supported and protected from injury or damage by the Contractor. In the event they are injured or damaged, the Contractor shall notify the appropriate party so that acceptable steps may be taken to repair any and all damage due to temporary provisions, or if not properly restored by him, the Owner may have the repairs made at the expense of the Contractor.
- C. If, due to the nature of their installation or policy, any utility requires the restoration Work to be done by its own forces, the cost of such Work shall be at the Contractor's expense.
- D. In addition to temporary support of utilities and structures, the Contractor shall provide for permanent support of these items by backfilling and thorough compacting with special material. This fill shall be placed and compacted to a height which will insure the stability of the pipe or obstruction to be supported.
- E. In an emergency affecting the safety of persons or the Work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization by or from the Owner, is obligated to act immediately to prevent such threatened damage, injury or loss. If the Contractor believes that the additional Work done by him in such an emergency, which arose from causes beyond his control, entitles him to an increase in the Contract Price and/or an extension of the Contract Time, he may make a claim therefore as provided in the General Conditions of these Specifications.
- F. In the event of bodily injury to anyone due to the Contractor's Work, he shall secure prompt medical assistance. In the event of property damage, or an evident hazard of possible property damage the Contractor shall act without notice immediately to restore the damaged property or service or to act to prevent the damage whenever property is damaged or imperiled or important services are interrupted or imperiled.
- G. If the Contractor is notified by the Owner to correct such service disruptions or to act to prevent an apparent possible interruption, which notification shall be confirmed in writing, he shall so act immediately. If the Contractor fails to so act within three (3) working days after any such notice, the Owner may act to restore such important service or to prevent the disruption of a service and charge the cost

thereof to the Contractor if the situation is due to his Work.

H. The Contractor shall notify the Owner immediately, for his review and determination of treatment, in any of the following events:

1. Discovery of an unforeseen obstruction.
2. The occurrence of the need to make permanently stable any nearby or adjacent pipe, pole, manhole, structure, or other facility.
3. The failure of any temporary support of a pipe, pole, manhole, structure, or other facility.
4. The discovery of a particular area where undesirable settlement may occur.

3.07 EXCAVATION AND BACKFILL FOR STRUCTURES

A. General Description of Work:

The Work under this item shall include the furnishing of all materials, labor, supervision, tools and equipment necessary to perform all excavation, backfill and disposal or storage, as required, of all surplus material or material required for the proper execution of Work. This Work will include but not necessarily be limited to the following:

1. Removal of existing construction and facilities where necessary.
2. Clearing and grubbing.
3. The loosening, loading, removing, transporting and disposing of all existing structures designated to be removed and wet or dry materials necessary to be removed for the purpose of construction.
4. The construction of ditches required for collection and drainage of surface and subsurface water.
5. All excavation and backfill Work incidental to the proper construction of structures.
6. Furnishings and installation of required sheeting, shoring and bracing; all pumping, bailing and removing of water; and any and all protective Work required.
7. Disposal of excess excavated material and/or spoil.
8. Rough and finish grading of the site.

B. Excavation for Structures:

1. Cut limits:

- a. The excavation for all structures shall be to the lines, grades, and limits as shown on the Drawings and/or as required for proper installation of construction, and shall be sufficient to allow for construction and removal of all formwork; for dewatering purposes; and for other construction needs. No additional compensation will be allowed for additional excavation or backfill that might be necessary to eliminate stoppages or the Work caused by slides due to the nature of the excavated materials, due to movement of equipment, or such other conditions. The Contractor must determine the extent of excavation and backfill required for execution of the Work.
- b. The Contractor will be permitted to machine excavate to within three (3) inches of the bottom of footings, floors and foundations, but shall excavate to final grade by the use of hand shovels in order to insure undisturbed final grade. Any foundation areas which are overcut, disturbed final grade. Any foundation areas which are overcut, disturbed or made unsuitable as a result of the Contractor's operations shall be repaired as required below, at no additional cost to the Owner.

2. Unsuitable Bottom:

In the event that the material encountered at the bottom of the excavation is not suitable for foundations or other Work, as determined by the Engineer, the excavation shall be carried to such additional depth as ordered by the Engineer. The Contractor will be reimbursed for such additional Work as stipulated in the General Conditions of these Specifications, provided that the unsuitable nature of the bottom material did not result from the Contractor's operations.

3. Overcutting:

- a. The Contractor shall excavate to the exact elevations necessary unless otherwise directed by the Engineer.
- b. If excavated below the elevations shown for footings, pilings, foundation walls and other structures, the excavation may, subject to the discretion and advance approval of the Engineer on a case-by-case basis, be backfilled with select fill materials as described under Paragraph 2.02 (C) of this section or Class C concrete. In some cases, the structure design may be revised in order that it bear on undisturbed soil.
- c. Any increase in cost resulting from backfilling or increasing the size of the footings or foundations because of overcutting shall be borne by the Contractor.

4. Slabs on earth:

- a. Where slabs occur on earth, all loose, shattered or spongy materials and all loam, organic or other undesirable materials shall be removed to a depth sufficient to encounter solid material of suitable load-bearing capacity.
- b. Where slabs on fill occur, the fill shall be placed in accordance with Paragraph 3.07 (C) below.

C. Backfilling for Structures:

1. General:

- a. Placement and compaction of material shall be only after permission has been given by the Engineer. No material shall be placed or compacted when it is too wet or frozen or when the subgrade of previously placed material is too wet or frozen. The Engineer shall determine when conditions are suitable for placing and compacting material. All loam, topsoil and other material judged to be unsuitable by the Engineer shall be removed before any material is placed and compacted.
- b. Where excavated material or any portion thereof is deemed unsuitable for use as backfilling material, the Contractor shall procure and place approved "special" backfill materials, such as crushed stone, screened gravel or sand. The backfill around structures shall be placed in layers not exceeding six (6) inches in thickness, each of which shall be thoroughly compacted by mechanical means sufficient to prevent subsequent settlement. Machine backfilling will not be permitted.

2. Structural Fill:

- a. Structural fill material shall be compacted by suitable power equipment sufficient to bring the field density, as determined by "Test for Density of Soil in Place by the Sand Cone Method" (ASTM D1556-64), to within the following percentage of the maximum density as determined by the "Tests for Moisture-Density Relations of Soils, Using 10 lb. Rammer and 18-inch Drop" (ASTM D1557-70 Modified Proctor Compaction Test).
 1. Soil - Not less than 95 percent.
 2. Granular Material - Not less than 97 percent.
 3. The moisture content of the material at the time of compaction shall not be more than 2 percentage points

above the optimum moisture content.

- b. Material which is deposited in one day shall spread, shaped, brought to optimum moisture content and compacted the same day unless otherwise directed by the direct by the Engineer.
- c. In the event inclement weather or unforeseen circumstances render impractical the spreading and compaction of the material during the first 24-hour period, the material shall be spread and scarified as directed by the Engineer.

3. Backfill around structures:

- a. The placement of material shall be carried out symmetrically around structures in lifts not to exceed eight (8) inches of loose material, which shall be maintained as nearly horizontal as is possible to avoid differential or non-uniform loading of exterior walls. In this regard, the maximum permissible differential elevation of backfill at any given time will be four (4) feet.
- b. Compaction of material shall be at a moisture content equal to or slightly above optimum as determined by the Modified Proctor Compaction Test. It shall be done by mobile mechanical equipment not closer to the structure than the depth of the structure below finished grade unless otherwise approved by the Engineer.
- c. Each layer of material shall be compacted to an in-place density greater than 95 percent of the maximum as determined by the Modified Proctor Compaction Test.
- d. At points which cannot be reached by mobile mechanical equipment, suitable power-driven tampers shall be used to achieve the same degree of compaction. Backfilling around concrete structures shall start only after the concrete has reached the specified 28-day compressive strength and finishes have been applied and appropriately cured.
- e. Backfill against structure foundation walls shall begin only after the top slab is in place and has obtained sufficient strength to give support to the walls.

4. Testing:

- a. The optimum moisture content and the maximum density of each type of material used for structural fill and backfill shall be determined by "Tests for Moisture Density Relations of Solid, Using 1-0lb. Rammer and 18-inch Drop" (ASTM D1557-70 or AASHTO T-180-60).
- b. The field moisture content of materials being compacted shall be

determined by "Laboratory Determination of Moisture Content of Soil" (ASTM D2216-71). The field density of compacted material shall be determined by either "Test for Density of Soil in Place by the Sand-Cone Method" (ASTM D1556-64) or "Test for Density of Soil by the Rubber Balloon Method" (ASTM D2167-66).

- c. The Contractor shall perform field density and field moisture content tests on each lift of material to insure to the satisfaction of the Engineer that the requirements of this Section of these Specifications are being complied with. Field compaction test including reference tests in number not to exceed one (1) compaction test per 2000 square feet
 - d. Reports verifying these test results shall be submitted to the Engineer and the Contractor shall notify the Engineer when and where the tests are to be made so that the Engineer can observe the tests.
5. All structures designed to contain water shall be tested for water-tightness, using standard approved procedures, before any backfill is placed above the respective footings.

3.08 EXCAVATION AND BACKFILL FOR PIPE LINES

A. Open excavation:

- 1. Unless otherwise indicated on the Drawings, all pipe lines shall be laid in open trenches. The depth of such trenches shall be such that the pipe, in its installed position, will comply with the lines and grades shown on the Drawings, or with the lines and grade established by the Engineer in the field. Unless otherwise indicated on the Drawings, the minimum cover for pipe lines conveying liquids shall be four (4) feet. Minimum cover for gas lines shall be two (2) feet.
- 2. The Contractor shall make personal examination of the locations in which the pipe lines are to be constructed to determine for himself the extent and character of any rock which may be encountered. The Contractor shall not at any time a misunderstanding in regard to depth or character of the excavation to be made or in the nature of the materials to be encountered. All excavation shall be classified and no extra payment will be made for hand excavation or for rock, masonry, paving, boulders, shale, timbers or other natural or artificial materials encountered in the trenching operations.
- 3. Where excavation is to be made along roads or traveled ways, the Contractor shall familiarize himself with the requirements of the governing body having jurisdiction of said property and shall pattern his operations accordingly. In the event that the governing body has established no requirements, the Contractor shall limit his trench excavation to the limits hereinafter described. He shall schedule his operations so that at least one

lane of traffic is always open unless he is specifically permitted to do otherwise by both the governing body having jurisdiction over the roadway and the Engineer. Where the flow of traffic must be restricted, or rerouted due to activities of the Contractor, the Contractor shall be responsible for providing all barriers, signage, temporary traffic surfaces and traffic control personnel necessary to insure the safe movement of traffic around the site of the Work and sufficient to the requirements of any governing body of jurisdiction.

4. The Contractor shall shape trenches which are located adjacent to existing above-ground or underground structures and/or facilities or in other confined areas so that such structures and facilities are properly protected against damage or disturbance resulting from settlement or displacement. Adequate sheeting, shoring and/or bracing shall be installed and maintained to provide such protection and the Contractor shall be responsible for all damages resulting to such structures and/or facilities as the result of his failure to use adequate supports as well as those resulting from any other construction activities.
5. Should the Contractor's operations imperil foundations for new or existing structures, he shall provide concrete underpinning piers or supports for such structures at no additional cost to the Owner. Concrete used for underpinning piers shall consist of materials as described in Division 3 of these Specifications.
6. Any excavation where the depth of a trench with vertical sides is four (4) feet or greater or which presents a hazard to personnel working in the trench because of embankments, stockpiling of excavated materials along the top of the trench or other such condition, the Contractor shall provide adequate and suitable means of shoring, sheeting and/or bracing to prevent the trench walls from collapsing and to protect his personnel working in the trench. The system of shoring shall be as required in Paragraph 3.03 of this Section.
7. In excavation for all pipelines where made in open cut and where space permits, the banks of the trench from the ground surface to a depth not closer than 1 foot above the top of the pipe may be excavated to non-vertical and non-parallel planes. In no case shall the side walls of the trench in the pipe zone, defined as all that trench area below a point of 12 inches above the top of the pipe in its installed position, be permitted to be other than vertical and parallel planes equidistant from the pipe centerline.

The horizontal distance between the vertical planes shall be no greater than the outside diameter of the pipe plus 24 inches. The Contractor is cautioned that if the pipe zone trench widths are exceeded, he shall install the pipe in a concrete cradle or provide other special trench backfilling procedures which will result in a final installation equal to that specified, subject to the approval of the Engineer.

8. Where the available space does not permit where the trench is through pave areas or where existing or proposed above ground or underground structures may be endangered, the sides of the trench above the pipe zone shall be excavated to vertical and parallel planes. The horizontal distance between the vertical planes shall be no greater than necessary to permit construction of the pipeline with all required sheeting, shoring and bracing in place.
9. No pipe shall be installed under any circumstances which bears on rock or a rock projection. All bell holes shall be excavated before the pipe is lowered in the trench. Bell holes shall be no larger than required to permit proper jointing.
10. For all pipelines, the bottom of the trenches shall be excavated and overcut a minimum of six (6) inches below the bottom of the outside of the pipe as determined from the finished grade shown on the Drawings or established in the bottom of the pipe barrel with sand, crushed stone or other similar material approved by the Engineer. In all other respects, the requirements of this Section shall apply.
11. Where muck, quicksand, soft clay, swampy or other material is encounter in the trench bottom which, in the opinion of the Engineer, is unsuitable for pipe foundation subgrade or backfill, such material shall be removed to a depth satisfactory to the Engineer. The trench shall then be backfilled to grade with acceptable material and mechanically compacted in successive layers of not greater than four (4) inches. For the removal and replacement of such unsuitable materials to a depth greater than six (6) inches below the bottom of the pipe, and when authorized by the Engineer, the Contractor shall be reimbursed in accordance with the General Conditions.
12. Materials excavated from trenches shall be stored or deposited within the rights-of-way established for this Work unless the Contractor secures permission writing from adjacent property owners to use their property for this purpose.
13. The Contractor shall schedule his excavation and backfill operations so that no more than 100 feet of trench remains open at one time. All such open trench and piles of deposited materials and all freshly backfilled or uncompacted trench areas shall be adequately barricaded and posted with suitable battery-operated warning lights, signs and other safety-related equipment provided in accordance with local, state or federal governmental requirements, or in the absence of same, to the satisfaction of the Engineer.

B. Excavation in paved areas:

1. The Contractor shall at all times care not to excavate beyond the temporary construction lines where such are shown on the Drawings unless otherwise authorized by the Engineer.

2. When it is necessary during trenching for pipe laying to cut and remove paving, the removal shall be done by or under the direction of the Contractor responsible for replacing the paving.
3. The pavement to be removed shall be saw-cut through the wearing and base courses if bituminous, and through the concrete course if concrete. The removal of pavement and disposal of spoil shall be accomplished before and not coincidentally with the excavation Work.

C. Concrete cradle and/or encasement:

1. Concrete cradle and/or encasement is required to be furnished and installed at the locations shown on the Drawings and under all sewer pipe within the excavated areas around manholes and other structures or where the specified trench widths are exceeded. Said cradle and encasement material shall consist of concrete as described in Division 3 of these Specifications. Care shall be exercised in placing encasement or cradle to provide adequate anchorage for the sewer pipe lines in order to preclude flotation and/or displacement of the pipe.
2. The Contractor shall provide and install all reinforcing steel that may be required or shown on the Drawings to assure adequate strength for concrete cradle or encasement.

3.09 PIPE BEDDING AND EMBEDMENT

A. Pipe bedding:

All pipe lines shall be supported on a granular bedding material approved by the Engineer. The minimum thickness shall be six (6) inches at the bottom of the pipe, and it shall be installed for the full width of the trench, beginning at a minimum of six (6) inches below the bottom of the pipe and along the sides of the pipe to the horizontal centerline of the pipe. This bedding material shall be placed on both sides of the pipe simultaneously for the full width of the trench and shall be mechanically tamped in layers not to exceed four (4) inches, to not less than 97 percent of the maximum density as specified under Paragraph 3.07 (C) of this Section.

B. Flexible water pipe (PVC and ABS/PVC composite pipe) shall have Class I bedding, as described in ASTM D-2321 and modified here:

1. All water pipe shall be supported on an embedded in granular bedding material as described in Part 2.02 of this section. The bedding and embedment shall be deposited in four (4) inch layers on both sides of, six (6) inches below and to 12 inches above the top of the pipe and carefully compacted. Tamping within 12 inches of the pipe shall be by hand tamping. Subsequent compaction shall

be performed with mechanical tampers which have a zone of influence less than the depth from the point of usage to the top of the pipe. In no case shall compactors of the hydrohammer type be utilized within 48 inches of the pipe surface and shall be utilized more than such distance from the pipe surface only if pipe embedment has previously been compacted to at least 85% of Standard Proctor Density.

Bell holes in the bedding shall be provided at each joint to permit proper assembly of the joint while maximizing uniform pipe support.

In cold or freezing weather, the max. size of aggregate in the special materials shall be 3/4-inch.

2. Embedment and backfill shall be such that diametric deflection of the pipe due to the pressure of backfill shall not exceed 7.5 percent of the actual inside pipe diameter for PVC pipe and 5 percent of the actual inside pipe diameter for PVC pipe and 5 percent of same for ABS/PVC composite pipe. Due to the importance of proper bedding and embedment of PVC and ABS composite pipe, the Contractor shall lay and backfill not less than 200 feet of pipe and test it for compliance with the max. 7.5 percent for PVC pipe and 5 percent for ABS/PVC composite pipe allowable vertical ring deflection. This procedure will demonstrate if the Contractor's bedding and embedment procedure is adequate. The Contractor shall furnish the pipe Manufacturer's written approval of his method of installation as developed from his initial installation.

C. Pipe Zone backfill:

Backfill in the pipe zone above the pipe bedding material to an elevation of one (1) foot above the top of the respective pipe shall be of selected excavated and compactable material free from rocks, boulders, and stones greater than 3/4 inch in maximum dimension. The material shall be uniformly placed on both sides of the pipe in 4-inch layers for the full trench width and shall be mechanically tamped in place. If necessary to achieve thorough compaction, the material shall be moistened during the tamping process.

D. Backfill above the pipe zone:

1. Insofar as is practical, the material excavated during the trenching operations shall be utilized as backfill above the pipe zone to an elevation equal to the bottom of top soil or other special surface treatments. The Engineer shall determine whether material is unsuitable and, upon the Engineer's notice, unsuitable material shall be disposed of and suitable selected fill materials shall be brought in from an outside source, at no additional cost to the Owner.
2. Those trenches which are located along or across traveled ways, or in the berms of streets, roads, parking areas or other traffic use

area which must be made safe for vehicular traffic as soon as possible, shall be backfilled above the pipe zone with compactable material, free from rocks or boulders greater than four (4) inches in maximum dimension. The materials shall be placed and tamped with mechanical tampers in successive layers not to exceed four (4) inches in vertical depth. Where permanent type pavement is required, a temporary fill shall be placed thereon prior to paving.

3. Where excavation is made through planted, cultivated, lawned or similar areas, the topsoil shall be removed and separately stored. Backfill material and placement shall be the same as previously specified, except that the backfill shall be carried to within six inch of the final grade. The topsoil salvaged from the excavation (or brought in from an outside source) shall then be placed to approximately one (1) inch above the adjacent grade, rolled with a light roller, and seeded or planted to a condition equivalent to that existing before the commencement of construction.
4. Trenches which are located in areas not specified in these Specifications or noted on the Drawings to be seeded or sodded, or for which surface settlement is not important in the opinion of the Engineer, may be filled above the pipe zone with a compatible material free from rocks or boulders larger than eight (8) inches in maximum dimension. However, the Contractor shall place the material in layers no greater than 12 inches in vertical depth and shall tamp as required to assure that no excessive voids are present in the backfill. He shall carry the backfill in this manner to grade. He shall then add backfill neatly rounded over the trench to a sufficient height to allow for settlement to grade after consolidation. Future settlements within a period of one year following Contract close-out shall immediately rectified by adding material to bring the surface to a little above the grade.
5. The Contractor shall make up all deficiency in backfill material at his own expense.
6. In the event that the Contractor desires to attain compaction by flooding the backfill, such methods may be approved by the Engineer, subject to demonstration by the Contractor that satisfactory end results can be achieved. In any event, any trench settlements occurring within one (1) year after the date of Contract close-out shall be required to be rectified by the Contractor at no extra cost to the Owner.
7. Particular care shall be exercised by the Contractor in backfilling trenches located along or crossing roadways, roadway berms, parking areas, and other traveled ways, such that the resumption of normal traffic patterns will occur reasonably soon after the pipe in those areas has been installed.

3.10 DISPOSAL OF UNSATISFACTORY AND/OR EXCESS EXCAVATED MATERIAL

Where the Contractor encounters boulders, rocks, spongy or swampy materials, old paving materials, masonry, debris, or other materials determined by the Engineer to be unsatisfactory for use as backfill or backfill becomes excessively wet, frozen, or otherwise unsuitable, the same shall be disposed of at the WWTP site by the Contractor at no extra cost to the Owner. All excess material remaining after completion of trench backfilling and all excavated material replaced by special backfill shall be similarly disposed of by the Contractor in the same manner at no extra cost to the Owner.

3.11 ROUGH AND FINISH GRADING OF THE SITE:

- A. Fill material shall be installed up to subgrades to accommodate finish grades as shown on the Drawings for pavements, grass or other surface treatments. Prior to placing the fill, the area shall be compacted in the manner described under Part 3.07 of this Section.
- B. The fill material shall be spread in 6 inch layers. Each layer shall be compacted using equipment such as vibrating rollers, equipment with caterpillar treads having traction lugs, or sheepsfoot rollers. Hand air tampers are acceptable in confined quarters. The compacted area shall be covered at least twice by the equipment.

3.12 INSTALLATION OF RIP-RAP

Rip-rap shall be furnished and installed where shown on the Drawings, in accordance with the provisions of these Specifications.

PART 4 – BASIS OF PAYMENT

- 4.01 Excavation, Backfilling and Grading – Incidental. No additional compensation will be provided for Excavation, Backfilling and Grading. The cost associated with Excavation, Backfilling and Grading shall be included in the Lump Sum price bid for the items specified in the Bid Schedule.

END OF SECTION

SECTION 03100
CONCRETE FORMWORK

PART 1 - GENERAL

1.1 Description.

A. Work includes:

The erection of forms for all cast-in-place concrete indicated on the Drawings and the subsequent removal of all such forms except those earth forms described in this Section.

B. Related Sections:

1. Section 03200 – Concrete Reinforcement
2. Section 03300 – Cast-In-Place Concrete

1.2 Quality Assurance.

In addition to complying with all pertinent codes, standards and regulations, the Contractor shall comply with all pertinent recommendations contained in "Recommended Practice for Concrete Formwork", ACI 347, and "Specifications for Structural Concrete", ACI 301.

PART 2 - PRODUCTS

2.1 Form Materials.

Form sheathing for exposed surfaces may be composed of tongue and groove lumber, ship lap, plywood, concrete form board or steel. Steel lining on wood lagging will not be permitted.

Tongue and groove ship lap when used shall conform to the American Lumber Standards for No. 2 boards. Plywood used for sheathing or lining shall be Grade B-B, exterior or better, as described in U.S. Product Standard PS1-74 of the American Plywood Association. The forms used shall produce a concrete surface with "abrupt" irregularities less than 1/4 inch in 5 feet and gradual irregularities less than 1/2 inch in 5 feet. All form sealers shall be first quality of their respective kinds and subject to the approval of the Engineer.

2.2 Ties and Spreaders.

- A. All form ties shall be of a type which does not leave an open hole through the concrete and which permits neat and solid patching at every hole. All concrete form ties shall be of the water stop design.
- B. Embedded metal rods of a design approved by the 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 3/4 inch of any concrete surface. The ties used shall be manufactured in such a way that installation will not necessitate a hole in the form larger than the tie rod. Waterstops are required for all form-ties used in wall construction of all structures designed to hold water. Ordinary wire ties, wood spreaders and ties that require removal from the concrete will not be permitted.

2.3 Waterstops.

- A. Premolded waterstops shall be of polyvinyl chloride and comply with U.S. Corps of Engineers Specification Number CRD-C572. The stop shall be of the serrated fin

type with large end projections and shall be at least 6 inches in width and 3/8 inch in thickness.

- B. Where indicated on the Drawings, Waterstop RX101 manufactured by American Colloid Company, Arlington Heights, Illinois, or approved equal, shall be used. A minimum of 3 inches of concrete cover shall be provided to the waterstop.

2.4 Other Material.

All other materials not specifically described but required for proper completion of concrete formwork shall be as selected by the Contractor subject to the advance approval of the Engineer.

PART 3 - EXECUTION

3.1 Construction of Forms.

- A. Forms shall be constructed in accordance with ACI 301 and shall conform to the shape, lines, grades, and dimensions of the concrete as indicated on the Drawings. All lumber used for forms shall be thoroughly cleaned and treated with an approved form oil. Lumber used in forms for surfaces requiring a rubbed finish shall be dressed to a uniform thickness; shall be free from loose knots or other defects; shall be faced with coated plywood; and shall be used only one time for forming surfaces requiring a rubbed finish. For surfaces not requiring a rubbed finish and for rough Work, undressed lumber, free of nails and clean of hardened concrete or other foreign material, may be used.
- B. Forms shall be sufficiently tight to prevent leakage of mortar. They shall be properly braced or tied together so as to maintain the desired position and shape during and after placement of concrete and so they will not tremble or distort in a high wind. Chamfer strips, placed in the corners of forms to produce beveled edges on permanent exposed surfaces, shall have a minimum dimension of 3/4 inch unless otherwise shown on the Drawings.
- C. Temporary openings shall be provided at the base of wall forms and at other points where necessary to facilitate cleaning and inspection immediately before depositing concrete.
- D. The Contractor shall exercise particular care in the layout of forms to avoid necessity for setting of concrete after it is in place; shall make proper provision for all openings, offsets, recesses, anchorage, blockage, embedded items and other features of the Work as shown on the Drawings or required for Work of other trades and do all cutting and repairing of forms required to permit such installation. The Contractor shall carefully examine the Drawings and Specifications and consult with other trades as required relative to provision for openings, reglets, chases, and other items in the forms.
- E. The Contractor shall set all required sleeves, frames, angles, grilles, bolts, inserts, waterstops and other such items required to be anchored in the concrete before the concrete is placed. Waterstops shall be installed in all construction, expansion or any other joints (where there is exposure to hydrostatic pressure) and as shown on the Drawings. Joints shall be made by heating the material ends until they melt or by applying a compatible adhesive to the ends and then pressing the two sections neatly together forming a continuous water stop. All corners shall be made by cutting mitered corners and joining together or by the use of preformed corners.

Bending of the waterstop at corners will not be permitted. Tee intersections shall be formed by use of preformed tees.

- F. The forms shall be properly braced and tied together so as to maintain position and shape and to ensure safety to personnel. Forms shall be properly spaced apart with spreaders or spreader ties that provide accurate spreading. The Contractor shall construct all bracing, supporting members and centering of ample size and strength to safely carry all dead and live loads to which they may be subjected, without deflection in any form member in excess of one in 360 where the concrete surfaces are exposed, or in excess of one in 240 elsewhere.
- G. The Contractor shall construct all forms straight, true, plumb and square, within a tolerance horizontally of one in 200 and a tolerance vertically of one in 500.
- H. All forms shall be sufficiently wetted or coated with an approved form oil in accordance with the Manufacturer's recommendations before concrete is placed.

3.2 Plywood Forms.

Plywood form panels shall be nailed directly to studs and applied in a manner to minimize the number of joints. The Contractor shall make all panel joints tight butt joints with all edges true and square.

3.3 Reuse of Forms.

- A. Reuse of forms shall be subject to advance approval of the Engineer. 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.
- B. Except as specifically approved in advance by the Engineer, reuse of forms shall in no way delay or change the schedule for placement of concrete from the schedule obtainable if all forms were new and shall in no way impart less structural stability to the forms nor less acceptable appearance to finished concrete.
- C. Reuse of forms will not be permitted for forming surfaces requiring a rubbed finish.

3.4 Removal of Forms.

- A. No form or form support shall be removed from the formed surface for at least 24 hours. Forms shall be removed in such a manner as to insure the complete safety of the structure. Vertical wall forms may be removed only after the compressive strength of the concrete has reached a minimum of 70% of its design compressive strength. (i.e. 70% X 4000 psi or 2800 psi).
- B. Responsibility for the removal of forms shall be with the Contractor; however, the following minimum requirements shall be adhered to:
 - 1. In cold or inclement weather the requirement for removal of forms shall be as specified in Section 03300-Cast-in-Place Concrete under "Placing Concrete in Cold or Hot Weather".
 - 2. Forms for supporting weight of concrete shall not be removed nor form supports slackened for a period of 14 days or until the concrete has attained 70% of the specified 28-day compressive strength based on testing of field cured cylinders. The cost of all compressive tests shall be the responsibility of the General Contractor. Testing of the concrete shall be performed at an independent laboratory as directed by the Engineer that is PennDOT

approved.

3. Portions of the structure which will be subject to construction loads or backfill shall have attained sufficient strength to withstand these loads before being so loaded. No construction loads exceeding the structural design loads shall be supported upon any unshored portion of the structure under construction.
- C. The Contractor shall cut nails and tie wires or form ties off flush, and leave all surfaces smooth and clean. The Contractor shall remove metal spreader ties on exposed concrete by removing or snapping off inside the wall surface and pointing up and rubbing the resulting pockets to match the surrounding areas.
- D. The Contractor shall flush with water all holes resulting from the use of spreader rods and sleeve nuts and the solidly pack throughout the wall thickness with cement grout applied under pressure by means of a grouting gun immediately after removing forms. Grout shall be one part Portland Cement to 2 1/2 parts sand.
- E. In case the Contractor shall remove any form or slacken any supports before the above conditions have been met, the concrete elements may be condemned even though there is no apparent defect.

PART 4 – BASIS OF PAYMENT

4.1 Concrete Formwork – Incidental.

Concrete Formwork is considered incidental to cast-in-place concrete and will not be paid for separately.

END OF SECTION

SECTION 03200
CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.1 Description.

A. Work includes:

The Contractor shall furnish and install all reinforcement and associated items required and/or indicated on the Drawings for all cast-in-place concrete.

B. Related Sections:

1. Section 03100 – Concrete Formwork
2. Section 03300 - Cast-In-Place Concrete

1.2 Quality Assurance.

In addition to complying with all pertinent codes, standards and regulations, the Contractor shall comply with all standards referenced in these Specifications and applicable portions of the following standards:

- A. "Manual of Standard Practice for Detailing Reinforced Concrete Structures", ACI 315.
- B. "Manual of Standard Practice", Concrete Reinforcing Steel Institute (CRSI).
- C. "Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement", ASTM A-615.
- D. "Standard Specification for Cold-Drawn Steel Wire for Concrete Reinforcement", ASTM A-82.
- E. "Standard Specification for Welded Steel Wire Fabric for Concrete Reinforcement", ASTM A-185.
- F. "Building Code Requirements for Reinforced Concrete", ACI 318.

1.3 Submittals.

- A. Before any concrete reinforcement materials are delivered to the job site, shop drawings shall be submitted in accordance with Section 01300-Approved Equal Materials and Products and Submittals of these Specifications.
- B. The Contractor shall provide certified mill tests of the reinforcing steel in accordance with the standards referenced in these Specifications sufficient to demonstrate compliance with the requirements set forth herein.

PART 2 - PRODUCTS

2.1 Concrete Reinforcement

All concrete reinforcement materials shall be new and free from rust and shall comply with the following standards:

- A. Bars for reinforcement - ASTM A-615, Grade 60.
- B. Wire Fabric - ASTM A-185.
- C. Dowels - Richmond Dowel Bar Splices.

2.2 Other Materials.

All other materials, not specifically described but required for a complete and proper installation of concrete reinforcement, shall be as selected by the Contractor subject to the approval of the Engineer.

PART 3 - EXECUTION

3.1 Fabrication.

- A. Reinforcement shall be accurately formed to the dimensions required. Stirrups, ties, bars and hooks shall be bent around a pin and shall have a minimum bend diameters in accordance with ACI 318. All bars shall be bent cold.
- B. Metal reinforcement shall not be straightened or rebent in a manner that will injure the material. Bars with kinks, or with bends not shown on the Drawings, shall not be used. Heating of the reinforcement will not be permitted.

3.2 Placement.

- A. Metal reinforcement shall be placed in accordance with ACI 318, except as otherwise noted herein, and accurately positioned in accordance with the information on the Drawings. Protective concrete cover and tolerances shall be as required by ACI 318 except as modified herein. Reinforcement shall be 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.
- B. Metal reinforcement before being positioned shall be free from loose mill scale, rust, mud, oil or coatings, including ice, any of which may destroy or reduce the bond. Where there is delay in depositing concrete, reinforcement shall be reinspected and cleaned when necessary.
- C. Clear space shall be preserved between bars of not less than 1-1/2 times the nominal diameter of round bars. In no case shall the clear distance be less than 1-1/2 inches nor less than 1-1/3 times the maximum size of aggregate. Concrete deposited against earth shall have minimum of 3 inches concrete cover between the reinforcement and the earth. Unless otherwise noted, reinforcement shall be placed and maintained at the minimum clear distances given in ACI 318.
- D. Place bars in horizontal members with minimum laps at splices sufficient to develop the strength of the bars. Bars may be wired together at laps except at points of support of the member, at which points the clear space described above shall be preserved. Wherever possible, the splices of adjacent bars shall be staggered, with splices of 30 bar diameters minimum unless otherwise specified on Drawings.
- E. All laps of wire mesh shall be one width of wire spacing, and adjoining sheets shall be securely tied together with No. 14 tie wire, one tie for each two running feet. At laps, wires shall be staggered and tied in such a manner that they cannot slip.
- F. The Contractor shall make only those splices that are indicated on the approved shop drawings or specifically approved by the Engineer.

PART 4 – BASIS OF PAYMENT

4.1 Concrete Reinforcement – Incidental. No additional compensation.

Concrete Reinforcement is considered incidental to cast-in-place concrete and will not be paid for separately.

END OF SECTION

SECTION 03300**CAST-IN-PLACE CONCRETE****PART 1 - GENERAL****1.1 Description.****A. Work Includes:**

Cast-in-place concrete required for the Work is indicated on the Drawings and includes, but is not necessarily limited to: footings and foundations; slabs on grade; concrete equipment bases; etc.; and such other concrete as shown on the Drawings and/or as required by these Specifications or as may be reasonably inferred from either.

1.2 Quality Assurance.

In addition to complying with all pertinent codes, standards and regulations, the Contractor shall comply with all standards referenced in these Specifications and applicable portions of the following standards:

- A. "Specifications for Structural Concrete", ACI 301.
- B. "Recommended Practice for Measuring, Mixing and Placing Concrete", ACI 304.
- C. "Recommended Practice for Hot Weather Concreting", ACI 305.
- D. "Recommended Practice for Cold Weather Concreting", ACI 306.
- E. "Building Code Requirements for Reinforced Concrete", ACE 318.
- F. "Standard Specification for Portland Cement", ASTM C-150.
- G. "Standard Specification for Concrete Aggregates", ASTM C-33.
- H. "Test for Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing", ASTM C-88.
- I. "Test for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate", ASTM C-88.
- J. "Test for Resistance to Abrasion of Small Size Coarse Aggregate by Use of the Los Angeles Machine", ASTM C-131.
- K. "Standard Specification for Air-Entraining Admixtures for Concrete", ASTM C-260.
- L. "Standard Specification for Chemical Admixtures for Concrete", ASTM C-494.
- M. Deleted.
- N. "Standard Specification for Ready-Mixed Concrete", ASTM C-94.
- O. "Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction", ASTM D-1752.
- P. "Method for Making and Curing Concrete Test Specimens in the Field", ASTM C-31.
- Q. "Test for Compressive Strength of Cylindrical Concrete Specimens", ASTM C-39.
- R. "Method of Sampling Fresh Concrete", ASTM C-172.
- S. "Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete", ASTM C-42.

1.3 Submittals.

A. Materials List.

Before any concrete is delivered to the job site, the Contractor shall submit concrete mix design proportions; certified test results for the proposed mix; a complete list of all materials proposed to be furnished and installed under this portion of the Work, showing Manufacturer's name and catalog number of all items such as admixture and membrane; the name and address of the transit-mix concrete supplier; and sufficient additional evidence that the proposed concrete mix of mixes will meet the requirements set forth herein.

B. Transit-mix delivery slips.

A record shall be kept at the job site showing outdoor temperature, time and place of each pour of concrete, together with transit-mix delivery slips certifying the contents of the pour and that all materials conform to the requirements of these Specifications. The delivery slip shall indicate the mix; maximum size of aggregate; amount of mix water; design strength of the concrete; the time when the mix was made and such other information as may be required by the Engineers. Failure to render such slip to the General Contractor job superintendent shall automatically be cause for rejection of the concrete. The General Contractor's job superintendent shall write on the back of the slip: 1) the time of arrival of the truck mixer on the site; 2) the time of deposit of the concrete from the truck mixer; and 3) the place of deposit of the concrete from the truck mixer. This record shall be made available to the Owner for his inspection upon request. Upon completion of each portion of the Work, the Contractor shall deliver the record and the delivery slips to the Owner. Repeated failure to deliver this information to the Owner may be cause for the Owner to reject the deposited concrete at any time and to require that it be removed and replaced at the Contractor's expense.

PART 2 - PRODUCTS

2.1 Materials.

A. Cement shall be Portland Cement, conforming to ASTM C-150, Type IA, or in the event that field conditions require, and where approved, high-early strength Portland Cement, Type IIIA. All cement shall be obtained from one source. Cement used in the Work shall correspond to that upon which the selection of concrete proportions was based.

B. Aggregates shall conform to ASTM C-33, except as revised herein. Aggregates failing to meet the aforementioned standard, but which have been shown by special test or actual service to produce concrete of adequate strength and durability, may be used when specifically approved by the Engineer. Additional specific requirements for aggregates are as follows:

1. Fine aggregates shall be clean, hard, natural sand. When tested in accordance with ASTM C-117, the weight removed by the test shall not exceed 3%. The amount of coal and clay shall not exceed 0.25% and 1% respectively.
2. Coarse aggregates shall consist of crushed stone or crushed gravel. When tested in accordance with ASTM C-88, the loss shall not exceed 10%, and when tested in accordance with ASTM C-131, the loss shall not exceed 45%.

3. The nominal maximum size of coarse aggregate shall not be larger than one-fifth the narrowest dimension between sides of forms; nor one-third the depth of slabs; nor three-fourths the minimum clear spacing between individual reinforcing bars or wires, bundles of bars, or prestressing tendons or ducts. In no case shall the maximum size exceed 1-1/2 inches. For section of 12 inch thickness or less, the maximum size shall not exceed 1 inch. Coarse aggregate gradations shall conform to ASTM C-33 for the types of concrete being used in this Work as described hereafter.
- C. Water used in mixing and curing concrete shall be fresh, clean and free from injurious amounts of sewage, oil, acid, alkali, organic matter or other deleterious substances. Water shall be approved for human consumption.
- D. Admixtures to be used in concrete shall be subject to prior approval by the Owner. Air-entraining admixtures shall conform to ASTM C-260. Water reducing admixtures, retarding admixtures, accelerating admixtures, water-reducing and retarding admixtures, and water-reducing and accelerating admixtures shall conform to ASTM C-494. Fly ash will not be permitted on this Project. Other pozzolans such as plasticizers used as admixtures shall conform to ASTM C-618. Admixture proportions shall be in strict accordance with the Manufacturer's recommendations and must approved by the Engineer prior to using same.

2.2 Concrete.

- A. For the purposes of this Project, the following minimum criteria for the various classes of concrete shall be established:

<u>Class of Concrete</u>	<u>Compressive Strength</u>	<u>Coarse Aggregate ASTM C-33 Size No.</u>	<u>Bags of Portland Cement Per CY of Concrete</u>
Class A	4,000 psi	No. 467 or 57	6 1/2 Bag Mix

- B. Proportions of materials for concrete shall be established to provide adequate workability and proper consistency to permit concrete to be worked readily into the forms and around reinforcement under conditions of placement to be employed without excessive segregation bleeding; to provide resistance to freezing and thawing and other aggressive actions; and to provide conformance with the strength requirements as established by these Specifications. Methods of determining proportions and design mixes shall conform to ACI 318. All concrete, unless otherwise approved, shall be transit-mixed in accordance with ASTM C-94. Concrete shall, unless otherwise specified or approved, be air-entrained conforming to ACI 318. The slump of the concrete mix shall not in any case exceed 3 inches for heavy sections or suspended or at-grade floors, or 4 inches elsewhere.
- C. The use of admixtures will be considered provided that the Contractor submits sufficient evidence that the concrete produced will meet the requirements of these Specifications and that such admixtures are capable of maintaining essentially the same composition and performance throughout the Work as the project used in establishing concrete proportions. Admixtures containing chloride ions shall not be used in concrete containing aluminum embedments if their use will produce a deleterious concentration of chloride ions in the mixing water. The use of fly ash will not be permitted in concrete for this Project.

- D. Concrete shall be Class A at all locations unless otherwise specified. Class B concrete shall be used in walls and slabs 6 inches or less in thickness; and for closing openings in walls around pipes. Class C concrete shall be used for pipe cradle backfill or as shown on the Drawings.

2.3 Membranes.

- A. All vapor barrier membrane under concrete slabs shall be 6-mil weight sheet plastic in sheet as wide as possible to minimize joints.
- B. All curing membrane shall be sheet plastic as specified for vapor barrier, a combination sheet plastic and paper, or an equal approved in advance by the Engineer.
- C. All cement or tape used for sealing membrane joints shall be only as recommended by the Manufacturer of the membrane being joined.

2.4 Other Materials.

- A. Preformed expansion joint filler shall be a self-expanding cork conforming to ASTM D-1752, Type III as manufactured by Serviced Products Division, W.R. Grace & Co., Sonoflex Cork as manufactured by Sonneborn-Contech, or approved equal.
- B. Epoxy bonding compounds shall be Sikastik 370 as manufactured by Sika Chemical Corporation; Concrecive 1001-LPL or 1180 as manufactured by Adhesive Engineering Company; Sonobond as Manufactured by Sonneborn-Contech; or approved equal. Products shall be suitable for use on horizontal or vertical surfaces as required for the Work and applied in accordance with the Manufacturer's recommendations.
- C. Premixed non-shrink grout shall be Vibro Foil as manufactured by W.R. Grace & Co.; Embeco 636 as manufactured by Master Builders; or approved equal.
- D. Materials for repair of existing concrete surfaces shall be Colma Dur LV, Colma Dur Gel and/or Colma Fix LV as manufactured by Sika Chemical Corporation, similar products as manufactured by American Metaseal Company, or approved equal, and shall be installed in accordance with the Manufacturer's recommendations and the requirements of this Section.
- E. All other materials not specifically described but required for a complete and proper installation of cast-in-place concrete shall be as selected by the Contractor subject to the approval of the Engineer. Materials identified on the Drawings by Manufacturer or product name shall conform to the standard specifications for the particular manufactured product.

PART 3 - EXECUTION

3.1 Preparation.

Preparation of equipment and place of deposits of concrete shall conform to ACI 318 and ACI 614. The Contractor shall notify the Engineer at least 48 hours before placing concrete.

3.2 Mixing and Placing Concrete.

- A. Mixing and placing concrete shall be done in accordance with appropriate portions of ASTM C-94, ACI 318 and/or ACI 304, except as modified or revised by these Specifications.

- B. Before deposition of concrete, all debris shall be removed from the space to be occupied by the concrete. Forms, if constructed of lumber, shall be thoroughly wetted except in freezing weather. Reinforcement, pipe sleeves and other materials to be embedded in the concrete shall be thoroughly secured in position and cleaned of ice or other deleterious substances. Water shall be removed from the space to be occupied by the concrete before concrete is deposited.
- C. 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.
- D. Where concrete is conveyed to chutes, the equipment shall be of such size and design as to insure a continuous flow in the chute. The chutes shall be of metal, or metal-lined, and if two or more lengths are used, they shall have approximately the same slope. The slope shall not be less than one vertical to three horizontal nor more than one vertical to two horizontal and shall be such as to prevent the segregation of the ingredients. The discharge end of the chute shall be provided with a baffle plate to prevent segregation. If the distance of the discharge end of the chute above the surface of the concrete is more than 3 times the thickness of the layer being deposited, or more than 4 feet above the surface of the concrete, a spout or "elephant trunk" shall be used, and the lower end maintained as near to the surface of deposit as practical. When the operation is intermittent, the chute shall discharge into a hopper. The chute shall be thoroughly cleaned before and after each run and the debris from any water used shall be discharged outside the forms.
- E. Before depositing new concrete on or against concrete which has hardened and to which it is to bond, the forms shall be re-tightened. The surface of the 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 saturated with water. To insure an excess of mortar at the juncture of the hardened and newly deposited concrete, the cleaned and saturated surface, including inclined surfaces, shall be first thoroughly covered with a coating of mortar or neat cement grout against which the new concrete shall be placed before the grout has attained its initial set. Epoxy bonding compound shall be used where new concrete is to be deposited on or against existing concrete surfaces and/or where indicated on the Drawings. It shall be applied in accordance with the Manufacturer's recommendations.
- F. Concrete during and immediately after deposition shall be thoroughly compacted by means of vibration. The number of vibrators used shall at all times be subject to the approval of the Engineer. The concrete shall be thoroughly worked around the reinforcement, around embedded fixtures, and into the corners of the forms. The accumulation of water on the surface of the concrete due to water gain, segregation, or other causes during placement and compacting shall be prevented as far as possible by adjustments in the mixture. Provision shall be made for the removal of such accumulated water so that under no circumstances will concrete be placed in such accumulation.
- G. To minimize the formation of laitance, great care shall be exercised to disturb the concrete as little as possible while it is being deposited. Upon completion of a

section of concrete, all laitance shall be entirely removed before Work is resumed. The Contractor shall submit to the Engineer, prior to start of Work, the details of procedures he proposes to use to minimize and control the development of shrinkage cracks.

- H. Sufficient time must elapse after depositing concrete in the walls for the walls to obtain sufficient strength before depositing concrete in beams, girders, or slabs supported thereon. Beams and girders shall be considered as part of the floor system and shall be placed monolithically therewith.

3.3 Sampling and Testing Requirements.

- A. The Contractor shall provide and pay for sampling and testing of the concrete incorporated into the Work by an approved Independent Testing Laboratory (ITL). All test results must be furnished to the Engineer within five (5) days following the date of testing. Failure to submit test results in accordance with this provision will be deemed sufficient cause for the Engineer to reject the respective concrete incorporated in the Work.
- B. One test shall be made for each pour and each 25 cubic yards of concrete placed. The laboratory shall maintain records showing brands of cement, brand and quality of admixtures, time and location of the batch from which the test was made, air content, slump and compressive strength. The laboratory shall supply the test cylinders, slump cones, field technicians and all equipment necessary for performance of field and laboratory testing specified herein.
- C. One strength test shall consist of four field specimens, one (1) specimen for testing at seven (7) days, one (1) specimen for testing at fourteen (14) days, and two (2) specimens for testing at twenty-eight (28) days. The samples for strength tests shall be taken in accordance with ASTM C0-172. Cylinders for acceptance tests shall be molded and laboratory cured in accordance with ASTM C-31 and tested in accordance with ASTM C-39. Each strength test result shall be the average of two cylinders from the same sample tested at seven (7), fourteen (14), and twenty-eight (28) days.
- D. When the frequency of testing will provide less than five strength tests for a given class of concrete, test shall be made from five randomly selected batches or from each batch if fewer than five are used. When the total quantity of a given class of concrete is less than 50 cubic yards, the strength tests may be waived by the Engineer if, in his judgment, adequate evidence of satisfactory strength is provided.
- E. Strength tests of specimens cured under field conditions in accordance with ASTM C-31 may be required by the Engineer to check the adequacy of curing and protection of the concrete in the structure. Such specimens shall be molded at the same time and from the same samples as the laboratory-cured acceptance test specimens. Procedures for protecting and curing the concrete shall be improved when strength of field-cured cylinders at the test age designated for measuring specified strength (f'_c) is less than 85% of that of the companion laboratory-cured cylinders. When the laboratory-cured cylinder strengths are appreciably higher than specified strength (f'_c) the field-cured cylinder strengths need not exceed f'_c by more than 500 psi, even though the 85% criterion is not met.

- F. Non-compliance and/or non-satisfactory strength test results shall be determined by the Engineer and/or Contractor and such information will be relayed expeditiously to the concrete supplier and confirmed promptly in writing. Test results of concrete furnished subsequent to such notification shall comply or a second warning will be issued. Non-compliance after two warnings will be sufficient cause to refuse additional concrete from the non-complying concrete supplier.
- G. Reinstatement of a disqualified concrete supplier may be permitted only upon certification by an independent qualified engineer, retained by the concrete supplier and acceptable to the Engineer, attesting to the fact that adequate corrective measures have been taken. Failure after this point will result from the job. Any additional cost resulting therefrom will be the responsibility of the General Contractor.
- H. Should individual test of laboratory-cured specimens produce strengths more than 500 psi below specified strength (f'c), or should tests of field cured cylinders indicate deficiencies in protection and curing, steps shall be taken to assure that load-carrying capacity of the structure is not jeopardized. If the likelihood of low strength concrete is confirmed and computations indicate that the load-carrying capacity may have been significantly reduced, tests of cores drilled from the area in question may be required in accordance with ASTM C-42. Three cores shall be taken for each cylinder test more than 500 psi below specified strength (f'c).

If the concrete in the structure will be dry under service conditions, the cores shall be air-dried (temperature 60°F to 80°F., relative humidity less than 60%) for 7 days before the test and shall be tested dry. If the concrete in the structure will be more than superficially wet under service conditions, the cores shall be immersed in water for at least 48 hours and then tested wet.
- I. Concrete represented by the core tests will be considered structurally adequate if the average of the three cores is equal to at least 85% of specified strength (f'c) and if no single core is less than 75% of f'c. To check testing accuracy, locations represented by erratic core strengths may be retested. If these strength acceptance criteria are not met by the core tests, and if structural adequacy remains in doubt, the Engineer may order load tests for the questionable portion of the structure, or take other appropriate action, which may include the complete replacement of the defective portion.
- J. Costs of all sampling and testing as specified herein shall be paid for by the Contractor.

3.4 Placing Concrete in Cold or Hot Weather.

- A. When the temperature of the surrounding air is below 40°F or above 90°F, concrete placement shall be performed in accordance with the provisions of ACI 306 or ACI 305, respectively, except as modified or revised by these Specifications.
- B. During cold weather, the concrete shall be maintained at a temperature of 55°F for Class B concrete and 50°F for Class A or Class C concrete for a minimum of five days after placing. During this period concrete and adjacent form surfaces shall be kept moist at all times. When heated enclosures are to be provided, care shall be taken to provide adequate space around the other edges and top of the concrete structure to permit circulation of the heated air, so that neither freezing nor excessive heating of these extremities can occur. All facilities for protection and

heating must be on hand before the concrete is placed.

- C. After the required protection period is over, the heat shall be removed gradually and uniformly so that there will be a temperature differential of no more than 40°F over any 24-hour period.
- D. Forms shall not be removed from the concrete surface during the protection period of three (3) days during those seasons of the year when the difference between the daily high and low temperatures may reasonably be expected to exceed 40°F.
- E. At air temperatures of 90°F or above, concrete should be kept as cool as possible during placing and curing. Concrete surfaces shall be kept continuously moist by wet-curing for at least 24 hours after the concrete has been placed and water shall be applied to formed surfaces while forms are still in place. After the period of wet curing, a suitable heat-reflecting plastic membrane or white-pigmented curing compound may be used.

3.5 Defective Concrete.

- A. Defective concrete is defined as concrete, in place which does not conform to the strength, shapes, alignments or elevations as shown on the Drawings and/or which presents faulty surface areas.
- B. All defective concrete shall be removed and replaced in a manner meeting with the approval of the Engineer or, should only surface imperfections occur, may be patched at the discretion of and in a manner satisfactory to the Engineer; however, permission to patch the Work shall not be considered as a waiver of the Owner's right to require complete removal and replacement of such defective concrete should the patching fail to satisfactorily restore the required quality and/or appearance of the surface.
- C. Surface defects that require replacement or repair are those that consist of honeycomb; damage due to stripping forms; loose pieces of concrete; surface holes caused by bolts and ties; excessive ridges at form joints; and bulges due to movement of the forms. Ridges and bulges shall be removed by chipping, tooling or grinding on finished surfaces. Honeycomb and other defective concrete shall be chipped out and filled with mortar, the chipped openings having sharp edges and shaped so that the mortar filling will be keyed in place. All holes shall be kept thoroughly moistened for several hours before mortar filling is placed.
- D. Imperfections, bolt and tie-rod holes, and chipped-out honeycomb areas to be repaired shall be filled with drypatching mortar composed of one part of Portland Cement to two parts of regular concrete sand (volume measurement) and just enough water so that, after the ingredients are mixed thoroughly, the mortar will stick together on being molded into a ball by slight pressure of the hands, and not exude free water. Mortar repairs shall be placed in thin layers thoroughly compacted by suitable tools. Care shall be taken in filling rod and bolt holes so that the entire depth of the hole is completely filled with compacted mortar. "Embeco", or equal, shall be added to all patching mortar in an amount as recommended by the Manufacturer for the mix to be used except for unpainted, exposed surfaces.

3.6 Construction Joints.

The Contractor shall make and locate construction joints so as not to impair the strength of the structure. The Contractor shall obtain the Engineer's approval of the locations of all

construction joints and control joints in the Work prior to the start of concrete placement.

3.7 Concrete Finishing.

- A. All concrete surfaces shall be finished as specified as soon after the placing of concrete and removal of forms as conditions will permit. All patching and pointing shall be performed immediately after the forms have been removed and rubbing of concrete surfaces shall be performed as soon as possible thereafter.
- B. All exposed formed concrete surfaces on the interior of structures or on the exterior of structures or appendages from the top to a depth of 1 foot below finished grade shall receive a rubbed finish. Unless otherwise specified, all other formed concrete surfaces shall be pointed with mortar as described herein and shall be pointed with mortar as described herein and shall have all fins and projections in excess of 1/8 inch removed. Form ties shall be removed to a depth of at least 1 inch beneath the surface and all air bubbles, cavities, stone pockets, honeycombing and tie and bolt holes shall be pointed with mortar. The mortar mix shall be determined by trial to obtain a good color match with the concrete when both the patch and concrete are cured and dry.

The amount of mixing water shall be the minimum possible consistent with the requirements for handling and placing the mortar. Fins, form marks, projections and uneven spots shall be removed by rubbing or grinding and surfaces left smooth, dense and free of grain marking and bulges or depressions more than 1/8-inch in 4 feet. When the mortar pointing has set and when rubbed finish is required, the entire exposed surface shall be thoroughly covered with water and rubbed with a carborundum brick or other approved means to remove all blemishes and provide a smooth finish of uniform texture and appearance.

- C. Unless otherwise indicated, the tops of all exposed walls or steps and all slabs or flat unformed concrete surfaces shall be struck off to establish grade and floated with a wood float until all irregularities are removed, as a minimum, to produce a relatively smooth, level and even textured surface without sharp ridges. All interior floors, platforms and flume bottoms which are exposed to view shall receive a steel trowel finish once all excess water has evaporated from the floated surface. Tolerance from finish surface lines shall be a maximum of 1/8-inch in 10 feet with maximum high and low variances not occurring in less than 20 feet and with 1/16-inch tolerances in any one running foot with no abrupt variations. Floors shall slope uniformly to floor drains where they are provided.
- D. Additional finishing shall be provided as required in Division 9 for those surfaces which are to receive paints or protective coatings, dampproofing and other treatments, and be in accordance with the recommendations of the coating Manufacturer.
- E. All concrete stairs, steps, platforms, landings and sidewalks shall receive an application of 1/2-pound per square foot of silicon carbide grit. Surfaces receiving grit shall be finished with a wood float to provide a non-skid walking surface.

3.8 Concrete Curing.

- A. Protection against loss of moisture from the surface of the concrete shall be accomplished by keeping the surface continuously wet. One of the following methods shall be used: surface remaining in contact with the form; the covering

with burlap or mottion mats kept continuously wet and covered with polyethylene plastic; or continuous sprinkling of the expose surfaces.

- B. No curing compounds shall be used on any surfaces to which pneumatic mortar is to be applied, or on which any other type of concrete mortar, paint or chemical waterproofing coating is to be used unless they are compatible with the intended coating and approved by the Engineer. In addition, curing compounds shall not be used on any concrete which will be used to store potable water.
- C. During cold or hot weather, curing shall be as specified under "Placing Concrete in Cold or Hot Weather".

3.9 Repair of Existing Concrete Surfaces.

- A. All existing surfaces, particularly those to be painted and/or surfaces roughened or damaged by demolition, cutting or patching shall be patched and/or repaired as required to produced a uniform surface suitable for the application of coatings and in accordance with the coating manufacturer's recommendations. Non-shrinking grout shall be used to fill all holes in existing surfaces; holes left due to the removal of existing equipment and facilities; or holes made as required for the installation of new equipment for the facilities. The methods of patching and/or repairing shall conform to the recommendations of the Manufacturer of the patching compounds or sealers used.

PART 4 – BASIS OF PAYMENT

- 4.1 Cast-in-Place Concrete – Incidental. No additional compensation will be provided for Cast-in-Place Concrete. The cost associated with Cast-in-Place Concrete shall be included in the Lump Sum price bid for the items specified in the Bid Schedule.

END OF SECTION

SECTION 04200**UNIT MASONRY****PART 1 - GENERAL****1.01 DESCRIPTION****A. Work included:**

Unit masonry required for this Work is indicated on the Drawings and includes, but is not necessarily limited to, concrete block bearing walls, partition walls, brick, veneer, and related work.

1.02 QUALITY ASSURANCE**A. In addition to complying with all pertinent codes, standards and regulations, the Contractor shall comply with all standards referenced in these Specifications and applicable portions of the following standards.****1. Concrete block:**

- a. "Standard Specifications for Hollow Load Bearing Concrete Masonry Units", ASTM C-90.
- b. "Standard Specification for Solid Load Bearing Concrete Masonry Units", ASTM C-145.
- c. "Standard Methods of Sampling and Testing Concrete Masonry Units", ASTM C-140.
- d. "Standard Specification for Concrete Aggregates", ASTM C-33.
- e. "Tests for Drying Shrinkage of Concrete Masonry Units", ASTM C-426.

2. Architectural Block:

- a. Greensburg Block, Greensburg, PA. Split-face (Gray), Nitterhouse- Split-Face Block - Style "J-13" (light gray) or Duchini Block Split-face (Gray) or pre-approved equal. The charcoal border shall be painted in the field by the General Contractor as directed by the Engineer.
- b. Mortar for Architectural Block shall be supplied by the block manufacturer and match the split-face block perfectly.

3. Mortar and grout:

- a. "Standard Specification for Mortar and Grout for Reinforced Masonry", ASTM C-476.
- b. "Standard Specification for Aggregate for Masonry Mortar", ASTM C-144.
- c. "Standard Specification for Aggregate for Masonry Grout", ASTM C-404.
- d. "Standard Specification for Mortar for Unit Masonry", ASTM C-270.
- e. "Standard Specification for Portland Cement", ASTM C-150.
- f. "Standard Specification for Masonry Cement", ASTM C-91.
- g. "Standard Specification for Quicklime for Structural Purposes", ASTM C-5.
- h. "Standard Specification for Hydrate Lime for Masonry Purposes", ASTM C-207.
- i. "Standard Specification for Air-Entraining Admixtures for Concrete", ASTM C-260.
- j. "Standard Specification for Portland Cements-Lime Mortar for Brick

UNIT MASONRY

Masonry", Brick Institute of America, (BIA) Designation MI-72.

4. All of the foregoing refers to the latest edition of the referenced standards.
5. Included in the list of applicable standards will be all other standards as may be referenced in the full texts of those principal standards enumerated above, whether or not they appear in the foregoing list, and all other standards as may be referenced in this Section.

B. Notification:

At least 48 hours prior to installation of masonry Work, the Contractor shall notify the Engineer of the time and date the masonry work will begin. The Engineer shall be present at the start of the masonry work to verify the acceptability of the masonry work relative to the qualities of appearance, materials and construction.

1.03 SUBMITTALS

A. Samples:

Before any unit masonry materials are delivered to the job site, the Contractor will submit mortar mix design proportions together with sufficient evidence that the proposed mortar mix will meet the requirements of these Specifications and two (2) samples of each of the proposed masonry units to the Engineer for his approval in accordance with Section 01300 of these Specifications.

B. Certification:

Prior to delivery of unit masonry to the job site, the Contractor will deliver to the Engineer a letter from the Manufacturer(s) of the unit masonry certifying that all such unit masonry delivered to the job site is in strict conformance with the provisions of this Section of these Specifications.

1.04 PRODUCT HANDLING

A. Protection:

1. The Contractor will use all means necessary to protect unit masonry materials before, during and after installation and to protect the installed Work and materials of all other trades.
2. Unit masonry will not be dumped but will be handled individually or in suitable groups and properly stacked above ground on a level platform which permits air circulation under the stack. Unit masonry stacks will be covered and protected from weather, moisture and neglect.

B. Replacements:

In the event of damage, the Contractor will immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 CONCRETE BLOCK

- A. Concrete block shall conform to ASTM C-90 or C-145, as applicable, Grade N-1 or better, Type I, normal block widths of 6 inches, nominal face dimensions of 8 by 16 inches as shown on the Drawings, load bearing block, free from chips and spalls with exposed surfaces uniform in color and fine to medium in texture. The Contractor shall provide complete with masonry opening and corner units as required.
- B. All concrete blocks shall be plant cured under cover for at least 30 days prior to delivery.
- C. Aggregates for concrete block shall conform to ASTM C-33 and shall consist of gravel, crushed gravel or crushed stone. The use of air-cooled blast furnace slag as an aggregate shall not be acceptable.
- D. Shrinkage of concrete blocks shall not exceed 0.03 percent for normal length units when tested in accordance with ASTM C-426.
- E. At the time of delivery to the job site, concrete blocks shall have been cured for at least 30 days and shall have a value, in weight of contained water, of not more than 40% of the fully saturated content for the unit tested. All units shall be shipped from the factory and stored at the job site with all necessary protection to prevent increase of water content from rain and other sources.

2.02 MORTAR AND GROUT

- A. Materials used in the preparation of mortar and grout shall conform to the following:
 - 1. Cementitious materials:
 - a. Portland Cement - ASTM C-150, Type I.
 - b. Masonry Cement - ASTM C-91, Type II.
 - c. Quicklime - ASTM C-5.
 - d. Hydrated Lime - ASTM C-207, Type S.
 - 2. Air-Entraining Admixtures: ASTM C-260.
 - 3. Aggregates: ASTM C-144 (Mortar) or ASTM C-404 (Grout).
 - 4. Water: Clean and potable.
 - 5. Admixtures: Integral waterproofing compounds, accelerators or other admixtures not specifically mentioned shall not be used without prior written approval by the Engineer.
 - 6. Mortar Colors: Mortar color shall generally be natural except for colored mortar required for the Architectural (Nitterhouse) split-face block.
 - 7. Antifreeze Compounds: No antifreeze liquid, salts or other substances shall be used in the mortar or grout to lower the freezing point.
- B. Mortar mixes shall conform in all respects to ASTM C-270 or BIA-MI-72, Type M or S, or

ASTM C-476, Type PL or PM. Materials used in mortar mixes shall conform to the standards referenced in Item A above.

- C. Grout mixes shall conform in all respects to ASTM C-476, fine grout or coarse grout as appropriate for the intended application. Materials used in grout mixes shall conform to the standards referenced in Item A above.
- D. Laboratory tests shall be performed for mortar and grout mixes and materials used in these mixes in accordance with the standards referenced in this Section. Test results shall be submitted to the Engineer for approval prior to incorporation of these items into the Work.

2.03 WALL REINFORCING

- A. Horizontal joint reinforcing and ties for masonry: The Contractor shall provide welded wire units prefabricated in straight lengths of not less than 10 feet with matching corner ("L") and intersecting ("T") units, fabricated from cold-drawn steel wire complying with ASTM A-82, with deformed continuous side rods and plan cross rods into units with widths of approximately 2 inches less than nominal width of walls and partitions as required to position side rods for full embedment in mortar with mortar coverage of not less than 5/8 inch on joint faces exposed to exterior and not less than 1/2 inch elsewhere. Truss type of joint reinforcing with diagonal cross rods spaced not more than 16 inches on centers (vertically every other course of block) shall be provided unless otherwise indicated.

Number of side rods: single pair for single wythe masonry and one side rod for each brick wythe.

- B. Wire sizes: Reinforcement for exterior walls shall be fabricated with 3/16-inch diameter side rods and 9-gage cross rods, unless noted otherwise. Reinforcement for interior walls shall be fabricated with 9-gage side and cross rods, unless noted otherwise.
- C. Wire finish: Manufacturer's hot dipped galvanized finish to comply with ASTM A-153, Class B-2 coating, for exterior walls and Manufacturer's standard galvanized finish elsewhere shall be provided.

2.04 ANCHOR AND TIES

- A. Miscellaneous anchoring hardware:
 - 1. Anchoring Hardware shall be provided as shown on the Drawings or as required to produce a strong rigid masonry wall with all required intersections and/or fastened items properly secured.
 - 2. Metal strap anchors, buck and frame anchors and other anchoring devices shall be provided as necessary for the proper installation of the work.
 - 3. Anchoring hardware shall be as manufactured by Heckman Building Products, Inc., Hohmann and Barnard, Inc., or approved equal.

2.05 OTHER MATERIALS

All other materials not specifically described but required for a complete and proper installation of unit masonry shall be as selected by the Contractor subject to the approval of the Engineer.

PART 3 - EXECUTION

3.01 MIXING MORTAR AND GROUT

- A. Materials for mortar and grout mixes shall be measured by either volume or weight, such that the specified proportions of the mortar and grout can be controlled and accurately maintained. Measurement of sand by shovel shall not be permitted.
- B. All cementitious materials and aggregate shall be mixed for at least three (3) minutes and not more than five (5) minutes in a mechanical batch mixer, with the minimum amount of water to produce a workable consistency.
- C. Mortars that have stiffened because of evaporation of water from the mortar shall be retempered by adding water as frequently as needed to restore the required consistency. Mortars shall be used and placed in final position within 2-1/2 hours after initial mixing. Grout mixes shall not be retempered.

3.02 INSTALLATION OF UNIT MASONRY

- A. No unit masonry is to be laid in temperatures of less than 40°F unless suitable means for heating materials and for protecting the work against cold and frost are provided and are approved by the Engineer. Provisions shall be made to protect unit masonry against freezing for at least forty-eight (48) hours after being laid.
- B. Exposed surfaces of masonry walls shall be kept clean of mortar droppings during construction. When Work is not in progress, tops of walls are to be kept covered with non-staining covers, weighted down. On resumption of Work top surfaces shall be cleaned of all loose mortar and foreign matter and wetted down, if required.
- C. Loose steel or reinforced concrete block lintels as shown on the Drawings or as required herein shall be installed. Frame anchors shall be bedded in mortar joints and filled solidly against doorframes with mortar. Joints shall be struck with a concave tool. Unit masonry shall fit tightly against and around pipe sleeves, conduit and against ceiling structures.
- D. Joints in exterior brick walls shall be a nominal 3/8-inch thick. In exposed wall, brick or masonry joints shall be cut flush, then tooled with 5/8-inch diameter approved round tool, compacting mortar tightly against units on both sides of joint. Tool head joints first.
- E. Unit masonry shall be laid plumb with level courses and accurate joints and to dimensions as shown on the Drawings. Bonds shall be running bonds unless otherwise noted. Special units shall be used where required for corners, returns, openings and offsets. Joints shall be tooled with metal tool to a concave surface to achieve a wall design of brick in a running bond except concrete block joints which shall be painted shall be cut flush and not tooled. Care shall be taken at all openings to assure that all exposed returns of masonry units are of same texture as the corresponding wall. Particular care shall also be exercised at these points to obtain uniform and level joints.
- F. Wall reinforcement in all unit masonry walls, whether solid brick, concrete block, cavity walls or composite walls shall be installed. Reinforcement shall be placed in the first and second bed joints; 8 inches apart immediately above lintels and below sills at openings, and in bed joints at 24 inch vertical intervals elsewhere. Reinforcement in the second bed joint

above or below openings shall extend 2 feet beyond jambs, and all other reinforcement continuous and splices with a minimum of 8-inch laps for side rods, or in accordance with the National Concrete Masonry Association Standards shall be made. Reinforcement with minimum 5/8-inch mortar cover on face sides shall be installed. All intersecting walls and corners shall be tied with reinforcement and additional reinforcement as shown on the Drawings or as required herein shall be provided.

- G. Rope wick or plastic weepholes, at 24 inch spacing in vertical joints of the first course, shall be provided over all counter flashing and through wall flashing on all exterior walls.
- H. Uncompleted walls shall be braced during construction to prevent injury to personnel or damage to adjacent structures. Damaged Work shall be replaced, restored, or repaired as required by the Engineer.
- I. Dirt, mortar stains and other markings shall be removed upon completion of masonry Work. No wire brushing shall be permitted. A dilute solution of muriatic acid and water shall be allowed for brick or block walls, provided it is promptly and thoroughly removed with water.
- J. Built-in Work:
 - 1. Work with other trades shall be coordinated to properly install all connecting work.
 - 2. All panel boxes, anchors, grounds, plugs, spandrel waterproofing, flashings, expansion and control joints, electrical devices, and all other incidental Work shall be built-in.
 - 3. Required bedding, grouting for metal doors, windows, frames or lintels shall be provided. Fill in solid behind metal door frames at head and jambs.
 - 4. Caulking spaces 1/4 inch wide by 3/4 inch deep around wall openings shall be provided.
 - 5. Hollow masonry units directly under wall-supported beams, lintels, steel joists and girders shall be filled with concrete and reinforced as shown on the Drawings. Hollow masonry units receiving anchor bolts shall be filled completely with concrete.
 - 6. Chases and recesses shall be built into walls at the time walls are constructed, so that the structural stability and weather resistance of the wall is maintained. Masonry shall be supported directly over chases wider than 12 inches on lintels. At least 8 inches of masonry between chases, jambs, or openings shall be provided.
- K. Upon completion of the Work of this Section, the Contractor shall make a thorough inspection of all installed unit masonry and verify that all units and all joints have been installed in accordance with the provisions of this Section, making all necessary adjustments.
- L. Upon completion of all Work of this Section, the Contractor shall promptly remove from the job site all mortar droppings, broken units, debris arising from the Work of this Section, and all tools and equipment of this Section, leaving all areas in a neat and orderly condition to the approval of the Engineer.

PART 4 – BASIS OF PAYMENT

- 4.01 Unit Masonry – Incidental. No additional compensation will be provided for Unit Masonry. The cost associated with Unit Masonry shall be included in the Lump Sum price bid for the items specified in the Bid Schedule.

END OF SECTION

SECTION 04530**SEALING OF MASONRY BUILDING SURFACES****PART 1 GENERAL****1.01 Section Includes**

A. Sealing of masonry building surfaces

1.02 Project Conditions

A. Protect persons, motor vehicles, surrounding surfaces of building whose masonry surfaces are being restored, building site, and surrounding buildings from injury resulting from masonry restoration work.

PART 2 PRODUCTS**2.01 Sealant**

Professional Water Sealant Waterproofing Sealant or approved equal.

Marine Grade Joint Spray Foam Insulation at Block Seams

PART 3 EXECUTION

3.01 Apply two coats of the sealant in strict accordance with the manufacturer's recommendations. All precautions shall be taken to avoid injury to the user, nearby trees, buildings, and pedestrians. All glass, aluminum, foliage, and painted surfaces shall be protected using polyethylene or other protective materials.

PART 4 BASIS OF PAYMENT

4.01 Sealing of Masonry Building Surfaces - Lump Sum.

END OF SECTION**SEALING OF MASONRY BUILDING SURFACES**

SECTION 05500

MISCELLANEOUS METALS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included:

1. All miscellaneous metal items not specifically described in other Sections of these Specifications but required for a complete and operable facility.

1.02 QUALITY ASSURANCE

A. The Contractor shall use only certified welders and the shielded arc process for all iron and steel welding performed in connection with the Work of this Section. All aluminum welding shall be done in accordance with the standards of the Aluminum Association.

B. Codes and standards:

In addition to complying with all pertinent codes and regulations, the Contractor shall comply with:

1. "Specification for the Design, Fabrication, and Erection of Structural Steel for Building" of the American Institute of Steel Construction.
2. "Code for Welding in Building Construction" of the American Welding Society.
3. Standards and Publications of the Aluminum Association:
 - a. Aluminum Standards and Data.
 - b. Designation System for Aluminum Finishes.
 - c. Standards for Aluminum Sand and Permanent Mold Castings.
 - d. Standards for Anodized Architectural Aluminum.
 - e. Welding Aluminum.
 - f. Care of Aluminum.

1.03 SUBMITTALS

A. Shop drawings:

Before any miscellaneous metal is delivered to the job site, the Contractor shall submit Shop Drawings to the Engineer for approval in accordance with Section 01300 of these Specifications and shall show all locations, markings, quantities, materials, sizes and shapes and indicate all methods of connecting, anchoring, fastening, bracing, and attaching to the Work of other trades.

B. Proof of compliance:

Upon completion of this portion of the Work, and as a condition of its acceptance, the Contractor shall deliver to the Engineer a letter signed by an official of the

miscellaneous metal fabricating and installing firm or firms certifying that all miscellaneous metal was furnished and installed in complete accordance with the Drawings and with this Section of these Specifications.

PART 2 - PRODUCTS

2.01 STEEL PRODUCTS

- A. Steel tubing - new, free from rust, and conforming to ASTM A-501 (hot formed), welder or seamless.
- B. Structural steel shapes and plates - new, free from rust, and conforming to ASTM A-36.

2.02 ALUMINUM PRODUCTS

- A. Aluminum sheet and plate - Alloy 6061-T6, mill finish.
- B. Aluminum extruded structural shapes, anchors, clips - Alloy 6061-T6, mill finish.
- C. Aluminum stop plates:

Aluminum stop plate guides shall be fabricated of Alloy 6061-T6. Guide frames shall have aluminum shop anchors welded to the frames for embedment in concrete.

2.03 FASTENINGS

- A. The Contractor shall furnish all bolts, nuts, screws, clips, washers and any other fastenings necessary for proper erection of all items provided.
- B. Fastenings shall, in general, match adjacent materials in color, finish and appearance and shall conform to the following:
 - 1. For ferrous metal - new, free from rust and conforming to ASTM A-307.
 - 2. For aluminum - Alloy 2024-T3 or 6061-T6 except concealed fasteners shall be Alloy 2024-T3 or 300 Series Stainless Steel.
- C. Where exposed screws are required, they shall be Phillips flat head and countersunk unless otherwise noted.
- D. Expansion Bolts:
 - 1. Bolts shall be "Wej-It" concrete anchors as manufactured by Wej-It Corporation, Broomfield, Colorado, or "Taper Bolt" as manufactured by U.S. Expansion Bolt Company, York, Pennsylvania, or approved equal. Self-drilling expansion anchors where called for on the plans shall be "Red Heads" as manufactured by ITT, Phillips Drill Division, Michigan City, Indiana. Contractor shall submit certified test reports establishing shear and tensile loads for the anchors used.

2. Bolts shall be the same material as the members which they support, that is, Type 2024-T6 Alloy for aluminum shapes and hot-dipped galvanizes steel for structural steel shapes. Stainless steel bolts shall be used in all process units.

2.04 MISCELLANEOUS ITEMS

- A. The Contractor shall furnish and install all miscellaneous metal items as indicated on the Drawings or as reasonably implied to provide a complete and suitable installation.
- B. Structural steel frames shall be constructed to sizes indicated using rolled shapes and/or plates as detailed. All frames shall be square, corners mitered or coped as required, all intersections fully welded and ground flush. Wall and sill anchors shall be included for construction indicated. Removable spreaders shall be provided at sill to maintain alignment and dimensions: remove after frames are securely anchored in place.

2.05 SCHEDULE OF MATERIALS

All items furnished and installed under this Section shall be steel, unless indicated otherwise on the Drawings or in these Specifications.

PART 3 - EXECUTION

3.01 FABRICATION

- A. The Contractor shall fabricate all miscellaneous metal in strict accordance with the approved Shop Drawings and the referenced standards. Insofar as possible, the Contractor shall shop-prefabricate all items complete and ready for installation.
- B. Welding:
 1. Unless otherwise indicated on the Drawings, the Contractor shall weld all shop connections. Welds shall be uniformly made and ground smooth to match and with finish of adjacent parent material.
 2. All joints and intersections of metal shall be tightly fitted and securely fastened.
 3. All Work shall be square, plumb, straight, true, rigid and neatly trimmed out. Corners and angles of exposed moldings and frames shall be mitered unless otherwise indicated.
 4. All aluminum welding shall be done by the inert gas, shielded arc or fluxless resistance techniques. Structural welds shall be made by qualified welders and shall conform to the general recommendations and regulations of the referenced Aluminum Association publications. Dirt, grease, lubricant, or other organic material shall be removed by vapor degreasing or suitable solvent. Joints rejected because of welding defects may be repaired only by rewelding. Defective welds shall be removed by chipping or machining. Flame cutting shall not be use.

- C. The Contractor shall drill or punch all holes required for the attachment of Work of other trades and for bolted connections. Burned holes are not acceptable.

3.02 SHOP PAINTING AND PROTECTIVE COATINGS

- A. The Contractor shall thoroughly clean all metal as described in Section 09800 of these Specifications and shall provide all required protection for metal to be encased in concrete to prevent accumulation of deleterious foreign material.
- B. The Contractor shall shop prime steel except steel to be encased in concrete; surfaces to be welded; contact surfaces to be high strength bolted; and steel Work which will be concealed by interior finish. Primer paint shall be in accordance with Section 09800 of these Specifications.
- C. Galvanizing shall conform to ASTM A-123 for rolled, pressed and forged shapes, plates, bar stripe; A-153 for hardware items and A-368 for assembled steel products. Galvanizing shall also conform to ASTM A-384 and A-385 (Recommended Practices) pertaining to galvanizing assembled steel products. Unless otherwise permitted, all galvanizing must be done after fabrication, in largest sections practicable. Where galvanizing is removed by welding or other assembly procedure, touch-up abraded areas with molten zinc or zinc-rich paint.
- D. Where aluminum is placed in contact with or fastened to dissimilar metals (excepting galvanized steel, zinc, or small areas of stainless steel or nickel silver), the contact surfaces shall be treated by one of the following methods. If drainage from dissimilar metals passes over aluminum work, the dissimilar metal shall be painted as specified in Item 1 below.
 - 1. Apply prime coat of zinc chromate primer (Fed. Spec. TT-P-645) to the dissimilar metals followed by one or two coats of aluminum metal and masonry paint.
 - 2. Apply a coat of bituminous paint (Fed. Spec TT-C-494 or MIL-P-6883A) to the dissimilar metals.
 - 3. Separate contact surfaces with transparent vinyl plastic pressure tape or approved non-absorptive gaskets.
- E. Where aluminum is placed in contact with, or built with, or will receive drainage from masonry, including lime mortar, concrete or plaster, apply a heavy coat of bituminous paint (Fed. Spec. TT-C-494 or MIL-P-6883A) to the aluminum areas affected.

3.03 GENERAL REQUIREMENTS

- A. Expansion and Contraction: Work shall be so designed and anchored that there will be no objectionable distortion or serious stress of fastenings as the metal expands and contracts.
- B. Castings subject to foot or street traffic shall have bearing surfaces machined to prevent rocking and rattling.
- C. Where items must be incorporated or built into adjacent Work, they shall be delivered

to trade responsible for such Work in sufficient time that progress of Work is not delayed. The Contractor shall be responsible for proper location of such items.

- D. All dissimilar metals shall be protected from galvanic corrosion by pressure tapes, coatings or isolators as specified herein.
- E. All grouting of frames, plates, sill, bolts, and similar items shall be done with non-shrink grout.
- F. The Contractor shall get all railings and similar items shown or required to be set in sleeves or cans with molten lead or Carlstadt Anchor Cement or equal. Unless otherwise noted, sleeves shall be sized for approximately 1/4-inch clearance all around. Where railings are designated to be removable, they shall be securely set in sleeves or cans and held in place with suitable gasketed flanges which shall provide a strong, non-rocking installation firmly bolted or otherwise fastened in place. They shall be removable only in the sense that such removal will possibly be required for unusual maintenance activities and shall not be readily removable by quick disconnect devices or slip removal means. They shall be essentially vandal-proof with special keyed fastenings or similar devices.

3.04 ERECTION

- A. The Contractor shall erect and install all miscellaneous metal in strict accordance with the Drawings, the approved Shop Drawings, and the referenced standards, aligning straight, plumb, and level within a tolerance of one in 200.

PART 4 – BASIS OF PAYMENT

- 4.01 Miscellaneous Metals – Incidental. No additional compensation will be provided for Miscellaneous Metals. The cost associated with Miscellaneous Metals shall be included in the Lump Sum price bid for the items specified in the Bid Schedule.

END OF SECTION

SECTION 06000CARPENTRY AND MILLWORK

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work included:

The Contractor shall provide all labor, supervision, material and equipment necessary to furnish and install all carpentry and millwork shown on the Drawings, and as herein specified, including but not limited to the following:

1. All rough carpentry as shown, indicated, or noted on the Drawings.
2. Wood grounds, blocking and furring.
3. All framing hardware, anchors, clips and fasteners required to erect, fasten and hold all rough hardware.
4. All required drilling, tapping, or other means of fastening woodwork to metal or masonry.
5. All millwork as indicated on the Drawings.
6. Pipe enclosures.
7. Temporary enclosures.
8. Temporary protection of finished work.

1.02 APPLICABLE SPECIFICATIONS

- A. The grades of materials used under this Section shall be defined by the rules of the recognized as of lumber Manufacturers producing the materials specified herein and used in the Work. Where grades of lumber are specified, it shall mean that the best quality of that particular grade shall be required.
- B. "Grade Mark", "Trade Mark" or "Mill Identification Mark" of the Associations having jurisdiction shall appear on each piece of standard yard dimension lumber (not boards), except that shipments may be accompanied by a certificate of inspection identifying the shipment and certifying compliance with the requirements of this Specification. This certificate of inspection shall be issued by an agency authorized to grade by the Manufacturers' association recognized as responsible for the grading rules of the species involved.
- C. All millwork shall conform to the quality standards of the Architectural Woodwork Institute for Premium Grade Work. Finished woodwork shall be dressed and sanded, free from machine and tool marks, abrasions, raised grain or other defects on surfaces exposed to view in the finished work. Exposed wood surfaces shall be uniform in color and grain.

- D. Grading and general requirements for lumber shall conform to American Lumber Standards "Simplified Practice Recommendation R-16"; and Federal Specifications MM-L-751C for Lumber and Timber, Soft Woods. The grading rules of the following shall also govern:
1. Southern Pine.....Southern Pine Association
 2. White Pine (Northern Pine).
 3. Idaho White Pine.....Western Pine Association
 4. Douglas Fir..... West Coast Lumberman's Assn.
 5. Western Hemlock West Coast Lumberman's Assn.
 6. Plywood, Douglas Fir.....American Plywood Assn.
 7. Plywood, Hardwoods..... U.S. Plywood Corp.
 8. Domestic Hardwoods Nat'l Hardwood Lumber Assn.
 9. Miscellaneous.....Nat'l Woodwork Mfg's Assn.
- E. All lumbers shall conform to materials design specifications for stress grade lumber and its fastenings of the American Standards Simplified Practice Recommendations, R-16, latest edition.
- F. Plywood shall conform to grades of the Department of Commerce Publication CS 35-49.

1.03 GENERAL REQUIREMENTS

- A. Pinus ponderosa shall not be accepted as a substitute for Northern or Idaho White Pine.
- B. Trim in connection with operable walls shall be plain sawn solid stock of yellow birch - "Natural". Plywood face veneer shall be rotary cut yellow birch "Natural".
- C. All framing materials shall be No. 1 dimensioned Douglas Fir or equal. Lumber shall not contain more than 12% moisture.
- D. Interior finish lumber and millwork shall be Grade "A" all kiln dried, white pine finished as called for on finish schedule with a maximum moisture content of 12%.
- E. All construction lumber shall be air-dried to a moisture content not to exceed 19% for 90% of each shipment and not to exceed 22% for the remaining 10%. Kiln-dried lumber meeting the moisture content requirements for air-dried lumber may be used in lieu of the air-dried lumber.
- F. All materials for finished work shall be free from knots and other imperfections.

1.04 STORAGE AND PROTECTION

- A. All lumber and plywood materials, when delivered to the site, shall be piled to insure proper drainage and ventilation. Suitable provisions to prevent excessive absorption of moisture and provide protection from the elements shall be made.
- B. Millwork and finished woodwork shall be protected against dampness during and after delivery and shall be stored in well-ventilated spaces and where not exposed to extreme changes in temperature and humidity.

- C. Materials shall not be stored directly on concrete slabs or cement floors. Supports to keep material at least 6 inches above the floor. Finished or finishing material shall not be stored below grade or in unventilated spaces.

PART 2 - PRODUCTS

2.01 LUMBER

- A. Framing Lumber, joists, studs, plates and bracing shall be Western Hemlock, Douglas Fir, or Southern Pine, construction grade.
- B. Grounds shall generally be 3/4" x 2" unless otherwise shown on Details or as required.
- C. Blocking lumber:
 - 1. Lumber of blocking, nailing strips, etc. shall be No. 1 common fir or Southern Pine. Materials shall be S4S and dressed to size.
 - 2. All lumber for blocking, nailing, strips, etc., concerned with roofing work and roof openings shall be kiln dried and pressure-treated with salt preservative, chromated zinc chloride or tanalith in accordance with American Wood Preserver's Association Specification P-5 to a minimum retention of 0.35 lb. per cu. ft. of wood. Redwood and cypress need not be treated.
- D. Lumber shall be surfaced on four sides to conform to Simplified Practice Recommendation SR-16, current. Sizes stated in these Specifications are nominal sizes unless otherwise noted.

2.02 ROUGH HARDWARE

- A. General:
 - 1. All rough hardware and metal fastening, except for blocking, required for proper installation or carpentry and millwork shall be included. Nails, spikes, screws, bolts and similar items shall be of sizes and types to rigidly secure members in place.
 - 2. Miscellaneous anchors shall be best quality and of the proper size to securely anchor the Work in place.
- B. Blocking rough hardware:

Nails, bolts, connectors, etc. shall be galvanized and sized for proper fastening.

PART 3 - EXECUTION

3.01 ERECTION GENERAL

- A. The Contractor shall layout, cut, fit and erect framing for rough and finished work, blocking, nailers, furring and all other rough carpentry and cutting Work in connection with carpentry and finish for other trades. All carpentry shall be set straight, plumb, level and in true alignment. All Work shall be neatly fitted and rigidly fastened into place with sufficient nails, spikes, screws and bolts as necessary. Defects which render any piece or part unable to serve its intended purpose shall be discarded or, if in place, cut out and replaced. Joints shall be tight

and so formed as to conceal shrinkage.

- B. Workmanship shall be of the best quality and all joints shall be tight and secure. Openings shall be formed where required for other trades and all necessary blocking, nailing strips, protections, etc., shall be provided and secured.
- C. Lumber and millwork delivered to site shall be protected from the effects of heat, moisture and weather.
- D. The Contractor shall take measurements and fit the Work correctly and shall introduce filler pieces of otherwise attempt to remedy unsatisfactory installation. The Contractor shall do all Work in proper sequence and cooperate with other trades and other contractors in preparing proper surfaces for their installation, where required.
- E. The Contractor shall back prime all exposed woodwork items herein provided, both for painted and natural finish and before delivering these materials to the site and after trimming or fitting, reseal immediately so that no raw wood is left exposed. This includes cuts made in the Work for hardware items.
- F. All nailing shall be done in accordance with acceptable building practice. All trim and finished hardware shall be installed in strict accordance with the details of the Drawings. Joints shall be made in an approved manner to conceal shrinkage and be tight. Hardware shall be installed in accordance with the outlined procedures of the hardware Manufacturer.
- G. Permanent or temporary grounds shall be provided wherever required to provide proper fastening of all carpentry, forming, metal and other Work.
- H. Wood supporting or contacting all millwork, finish carpentry and custom woodwork shall be of type and dryness that will not affect the finish.
- I. The Contractor shall protect all masonry inclined to damage during Work, including edges of copings, sills, concrete steps, platforms and similar items. Such protective covering shall be removed when directed and special precautions as masonry openings and corners of the building shall be taken.
- J. Wood centering or other necessary supports for openings in masonry walls shall be accurately and strongly made, properly braced and secured into position until masonry has thoroughly set.
- K. All bracing, supports and shoring required to support construction during the formative stages shall be provided.
- L. The Contractor shall treat all grounds, blocking, plates, curbs, exterior wall furring or any woodwork that is subject to dampness or in contact with masonry or concrete with an approved non-staining preservative complying with Federal Specification TT-W-570, latest issue.
- M. The Contractor shall furnish and install rough framing for door openings; blocking around metal windows; furring as required for thin-coat plastering; blocking and rough framing for cabinets, mullion trim, ceiling trim. See drawings of special sizes of material required and for full extent of rough carpentry.

- N. The Contractor shall furnish and install all required block at fascias, windows, gravel strips, cants, nailing strips, frames and blocking for louver, and ducts to receive metal Work.

3.02 FINISHED MILLWORK

- A. Finished woodwork shall be properly framed, closely fitted and accurately set to the required lines and levels and rigidly secured in place.
- B. The Contractor shall make joints in woodwork tight, formed to conceal shrinkage. Interior corners shall be coped and external angle joints shall be mitered. All joints shall be mitered except where shown to be butt-jointed, in which case an approved device to prevent separation shall be used.
- C. The Contractor shall make the minimum number of splices in running finish, beveled and jointed where solid fastening can be made. Butt joints in running finish will not be permitted.
- D. All millwork shall be carefully put up in the best and most rigid manner, straight, plumb, level and in true alignment; shall be neatly and accurately fitted and scribed; and shall be thoroughly secured. Mitered or other fitted joints shall be planed and sanded. Nails and screws, where possible, shall be concealed. All nails shall be blind-nailed wherever possible, otherwise the nailing shall be located and driven so as not to be visible in the finish. Nail and screw heads exposed in the Work shall be countersunk except where nature or thickness of the wood does not permit. Face screws shall be countersunk and plugged with matching wood.
- E. All Work shall be left clean and free from warp, twist, open joints and other defects. The Contractor shall neatly scribe around pipes and other obstructions to fit the Work and furnish and install fillers as necessary.
- F. All cutting and repairing of this work for the accommodations of the Work of others shall be done as part of the Work of this section unless otherwise specified.
- G. All millwork, trim and finish shall be primed and back painted thoroughly with lead and oil. All built-in surfaces of millwork, which will be concealed after erection, shall be protected with two coats of aluminum paint.
- H. Grilles, register faces and like items applied to woodwork will be supplied under other Sections but shall be finally set and installed under this Section. the Contractor shall furnish and install all metal items such as angles, braces, lintels, clips, plates and stiffeners required in the construction and installation of the millwork items. All metal items exposed in the finished Work shall be smooth, without burrs or irregularities. Screws or bolts shall be countersunk.
- I. The Contractor shall not deliver millwork to any part or section of the building until all concrete, cement, thin-coat plastering, tile masonry and other similar Work has been completed and is thoroughly dried out; outside door openings are made watertight; exterior windows are glazed; and, in case of temperatures dropping below 60°F., until temporary heat and ventilation has been supplied. Millwork shall not be delivered in foggy, rainy or otherwise damp weather.

3.03 CLEAN-UP

The Contractor shall keep the Work site clean and free from rubbish, debris and all non-construction materials, and shall upon notification by either the Engineer or Owner, immediately remove any accumulation thereof. Should the Contractor fail to promptly remove such material, the Owner may have the material removed by others and the cost concurred thereby deducted from monies due or to become due the Contractors.

PART 4 – BASIS OF PAYMENT

- 4.01 Carpentry and Millwork – Incidental. No additional compensation will be provided for Carpentry and Millwork. The cost associated with Carpentry and Millwork shall be included in the Lump Sum price bid for the items specified in the Bid Schedule.

END OF SECTION

SECTION 07600**FLASHING AND SHEET METAL****PART 1 - GENERAL****1.1 DESCRIPTION****A. Work included:**

The Contractor shall furnish and install all flashing and sheet metal not specifically described in other Sections of these Specifications but required to prevent penetration of water through the exterior shell of the building. This includes, but is not limited to, roof flashing, wall flashing, counter flashing, and other masonry openings, aluminum caps, and such other Work as shown on the Drawings or required herein.

1.2 QUALITY ASSURANCE

In addition to complying with all pertinent codes, standards and regulations, the Contractor shall comply with all pertinent recommendations contained in "Architectural Sheet Metal Manual", latest revision, of the Sheet Metal and Air Conditioning Contractors National Association, Inc.

1.3 SUBMITTALS

Before any flashing and sheet metal is delivered to the job site, the Contractor shall submit complete Shop Drawings of all flashing and sheet metal proposed to be furnished and installed to the Engineer in accordance with Section 01300 of these Specifications.

PART 2 - PRODUCTS**2.1 MATERIALS AND GAUGES**

Where sheet metal is required and no material or gauge is indicated on the Drawings, the Contractor shall furnish and install the highest quality and lowest gauge commensurate with the referenced standards.

2.4 OTHER MATERIALS**A. All fastenings shall be of stainless steel.****PART 3 - EXECUTION****3.1 WORKMANSHIP****A. All sections shall be installed plumb, straight, square, level and in proper elevation,****FLASHING AND SHEET METAL**

plane, location and alignment with other Work. All workmanship and finishes shall be first-class in every particular, strictly in accordance with the best practices. All work shall be complete in every detail and finished work shall be approved by the Engineer before the job will be accepted. Field connections and erection shall be made with stainless steel fasteners. All internal and external angles shall be fabricated and erected as fully closed miters all along the profile of the miters and then ground smooth to form a neat hairline jointure. The Contractor shall finish watertight and weathertight at all locations.

- B. The Contractor shall furnish the Engineer with shop drawings of installations showing all details, sections, miters, cover plates and erection around all buildings for approval before commencing the work.

3.2 EMBEDMENT

The Contractor shall embed all metal in connection with roofs in a solid bed of caulking, using materials and methods described in these Specifications.

3.4 PROTECTIVE COATING OF ALUMINUM

- A. Where aluminum cap comes in contact with wood or metal incompatible with aluminum, the Contractor shall keep aluminum surfaces from direct contact with such parts by painting the dissimilar metal or wood with a coat of heavy-bodied bituminous paint. The Contractor shall also paint aluminum surfaces in contact with concrete and other masonry materials with alkaline-resistant coatings, such as one coat of heavy-bodied bituminous paint or two coats of water-white methacrylate lacquer.

3.5 TESTS

Upon request of the Engineer, the Contractor shall demonstrate by hose or standing water that all flashing and sheet metal is completely watertight.

PART 4 – BASIS OF PAYMENT

- 4.1 Flashing and Sheet Metal – Incidental. No additional compensation will be provided for Flashing and Sheet Metal. The cost associated with Flashing and Sheet Metal shall be included in the Lump Sum price bid for the items specified in the Bid Schedule.

END OF SECTION

SECTION 07610**ARCHITECTURAL METAL ROOFING****PART 1 - GENERAL****1.01 DESCRIPTION****A. General**

1. Furnish all labor, material, tools, equipment, and services for all preformed as indicated, in accordance with provisions of Contract Documents.
2. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
3. Install drip edge at all outer edging and necessary flashing at all other edges.

1.02 QUALITY ASSURANCE**A. Applicable Standards:**

1. SMACNA: "Architectural Sheet Metal Manual" Sheet Metal and Air Conditioning Contractors National Association, Inc.
2. AISC: "Steel Construction Manual" American Institute of Steel Construction.
3. AISI: "Cold Form Steel Design Manual" American Iron and Steel Institute.
4. ASTM A792-89: Standard Specification for Steel Sheet, Aluminum Zinc Alloy Coated by the Hot Dip Process, General Requirements.
5. ASTM A527-90: Standard Specification for Steel Sheet, Zinc Coated (Galvanized) by the Hot Dip Process, Lock-Forming Quality.
6. ASTM A526-90: Standard Specification for Steel Sheet, Zinc, Coated (Galvanized) by the Hot Dip Process, Commercial Quality.
7. ASTM A446-91: Standard Specification for Steel Sheet, Zinc Coated (Galvanized) by the Hot Dip Process, Structural (Physical) Quality.
8. UL2218: Class 4 Impact Resistance Rating
9. ASTM E 1592-95: "Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference", American Society for Testing and Materials

B. Manufacturer's Qualifications:

1. Manufacturer has a minimum of three (3) years experience in manufacturing panels of this nature in a permanent, stationary, indoor production facility.

C. Installer's Qualifications:

1. Installation of panels and accessories by installers with a minimum of three (3) years experience in panel projects of this nature.

1.03 SUBMITTALS

A. Shop Drawings:

1. Submit complete shop drawings and erection details to Engineer for review. Do not proceed with manufacture prior to review of shop drawings. Do not use drawings prepared by Engineer for shop or erection drawings.
2. Shop Drawings show methods of erection, elevations, and plans of roof panels, sections and details, anticipated loads, flashings, roof curbs, vents, sealants, interfaces with all materials not supplied and proposed identification of components parts and their finishes.

B. Samples:

1. Submit samples and color strips for all proposed finishes.
 - a. Submit two (2) color chip samples in color selected by the Engineer.

C. Warranty(s):

1. Metal panel manufacturer, upon final acceptance for project, furnish a warranty covering bare metal against rupture, structural failure, and perforation due to normal atmospheric corrosion exposure for a period of 20 years.
2. Covering panel finish against cracking, checking, blistering, peeling, flaking, chipping, chalking, and fading for a period of twenty (20) years.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Delivery: Deliver panels to job site properly packaged to provide protection against transportation damage.

- B. Handling: Exercise extreme care in unloading, storing, and erecting panels to prevent bending, warping, twisting, end and surface damage.
- C. Storage: Store all materials and accessories above ground on well skidded platforms. Store under waterproof covering. Provide proper ventilation to panels to prevent condensation buildup between each panel.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Panel Profile:

- 1. 3/4 in high rib x 36 in. wide panel.

All accessory items such as soffit, fascia, gutters, and downspouts shall be provided by the same manufacturer as the metal roof panel system. All of this trim and accessories shall match in color and material.

B. Panel Style:

- 1. Narrow rib, vertical leg, exposed fastener with rubber washer-sealed screws

C. Gauge:

- 1. 29 gauge (#UL-90 Rated – Underwriters Laboratories.)

D. Substrate:

- 1. Galvalume steel sheet, 0.55 ounces/square foot, minimum yield of 50,000 psi.

E. Texture:

- 1. Smooth.

F. Finish:

- 1. Premium fluorocarbon coating produced with Kynar-500 or Hylar 5000 resin (minimum 20 year warranty).

G. Color:

- 1. Color to be decided by Owner.

H. Acceptable Manufacturers:

1. Erie Metal Roofing, Pittsburgh, PA; Metal Sales Manufacturing Corp., Jefferson, Ohio; Union Corrugating Company, Fayetteville, NC; Steelox Systems, Mason, OH; MBCI, Houston, TX; or equal.

2.02 FABRICATION

- A. Roll form panels in continuous lengths, full length of detailed runs.
- B. Fabricate trim, flashing and accessories to detailed profiles.
- C. Fabricate trim and flashing from same material as panel. This includes all soffit, fascia, ridge vent, gutters, and downspouts.

PART 3 – EXECUTION

3.01 SURFACE CONDITIONS

- A. Inspection:
 1. Inspect installed work of other trades and verify that such work is complete to a point where this work may continue.
 2. Verify that installation may be made in accordance with approved shop drawings and manufacturer's instructions.
- B. Discrepancies:
 1. In event of discrepancy, notify Engineer.
 2. Do not proceed with installation until discrepancies have been resolved.

3.02 INSTALLATION

- A. Install panels so that they are weathertight, without waves, warps, buckles, fastening, stresses or distortion, allowing for expansion and contraction. Any panels having dents, chips, or other defects will be rejected by the Engineer.
- B. Install panels in accordance with manufacturer's instructions and shop drawings.
- C. Provide concealed anchors at all panel attachment locations.
- D. Install panels plumb, level, and straight with seams and ribs/battens parallel, conforming to design as indicated.
- E. Assure that all roof penetrations are sealed to manufacturers specification.

3.03 CLEANING, PROTECTION

- A. Dispose of excess materials and remove debris from site.
- B. Clean work in accordance with manufacturer's recommendations.
- C. Protect work against damage until final acceptance. Replace or repair to the satisfaction of the Engineer, any work that becomes damaged prior to final acceptance.
- D. Touch up minor scratches and abrasions.

The Contractor shall furnish and install all flashing and sheet metal not specifically described in other Sections of these Specifications but required to prevent penetration of water through the exterior shell of the buildings. This includes, but is not limited to, wall flashing, counter flashing, covering of exposed steel flanges, sills at glass block panels and other masonry openings, aluminum caps, flashing over glass block panels and doors, and such other Work as shown on the Drawings or required herein.

PART 4 – BASIS OF PAYMENT

- 4.1 Architectural Metal Roofing – Incidental. No additional compensation will be provided for Architectural Metal Roofing. The cost associated with Architectural Metal Roofing shall be included in the Lump Sum price bid for the items specified in the Bid Schedule.

END OF SECTION

SECTION 07900CAULKING AND WEATHERSTRIPPING**PART 1 - GENERAL****1.01 DESCRIPTION****A. Work included:**

1. The purpose of caulking and weather-stripping in this Project is to provide a positive barrier against penetration of air and moisture at joints between items where caulking is essential to continued integrity of the barrier.
2. Such caulking and weather-stripping will normally be performed under the Work of various Sections of these Specifications but shall be performed in strict accordance with the provisions of this Section.

B. Related Work described elsewhere:

Individual requirements for caulking and weather-stripping are described in various other Sections of these Specifications and/or shown on the Drawings.

PART 2 - PRODUCTS**2.01 CAULKING AND WEATHERSTRIPPING MATERIALS:**

- A. Caulking compounds - Sonolac ready-to-use acrylic latex compounds as manufactured by Sonneborn Building Products.
- B. Or Approved Equal.

2.02 CAULKING EQUIPMENT

All caulking equipment shall be only such equipment as is specifically recommended by the Manufacturer of the caulking material being installed.

PART 3 - EXECUTION**3.01 CHOICE OF CAULKING MATERIAL**

The Contractor shall use only that caulking material which is best suited to the installation and is so recommended by the caulking material Manufacturer.

3.02 BACK-UP MATERIALS

- A. The Contractor shall verify the compatibility of filler material with caulking before installation and shall use filler about 1/3 to 1/2 wider than width of joint so sufficient pressure is exerted by filler to provide substantial resistance to displacement.
- B. All filler materials shall be non-oily, non-staining back-up filler such as polyethylene foam rod, expanded polyurethane, neoprene, or other filler completely compatible with the caulking material.

3.03 APPLICATION OF CAULKING

- A. Joints and spaces shall be clean and dry prior to caulking. All sides of joints shall be caulked, except where glass or metal shall be primed prior to caulking. Joints more than 3/4 inch deep shall be packed with an approved backing to within 1/2 inch of the surface prior to applying caulking.
- B. The Contractor shall install caulking in strict accordance with the Manufacturer's recommendations, taking care to produce beads of proper width and depth, to tool as recommended by the Manufacturer, and to immediately remove all surplus caulking.
- C. Joints shall be completely filled and caulking shall have a smooth and even finish, free of wrinkles. All caulked joints shall be completely watertight.
- D. Materials adjacent to caulked joints which become soiled shall immediately be cleaned.

3.04 CAULKING SCHEDULE

The Contractor shall carefully study the Drawings and furnish and install the proper caulking at each point where called for on the Drawings, plus at all other points where caulking is essential to maintaining the continued integrity of the airtight or watertight barrier. This includes, but is not limited to, all junctions between masonry and windows, doors, grilles, louvers, vents, sleeves and all openings in exterior walls. In addition, all openings through the floors of the building and roof penetrations for piping, conduit, equipment operators, ventilation ducts and other items are to be caulked air-tight around the perimeter of these openings unless other measures, such as the installation of special gaskets, are specifically called for on the Drawings.

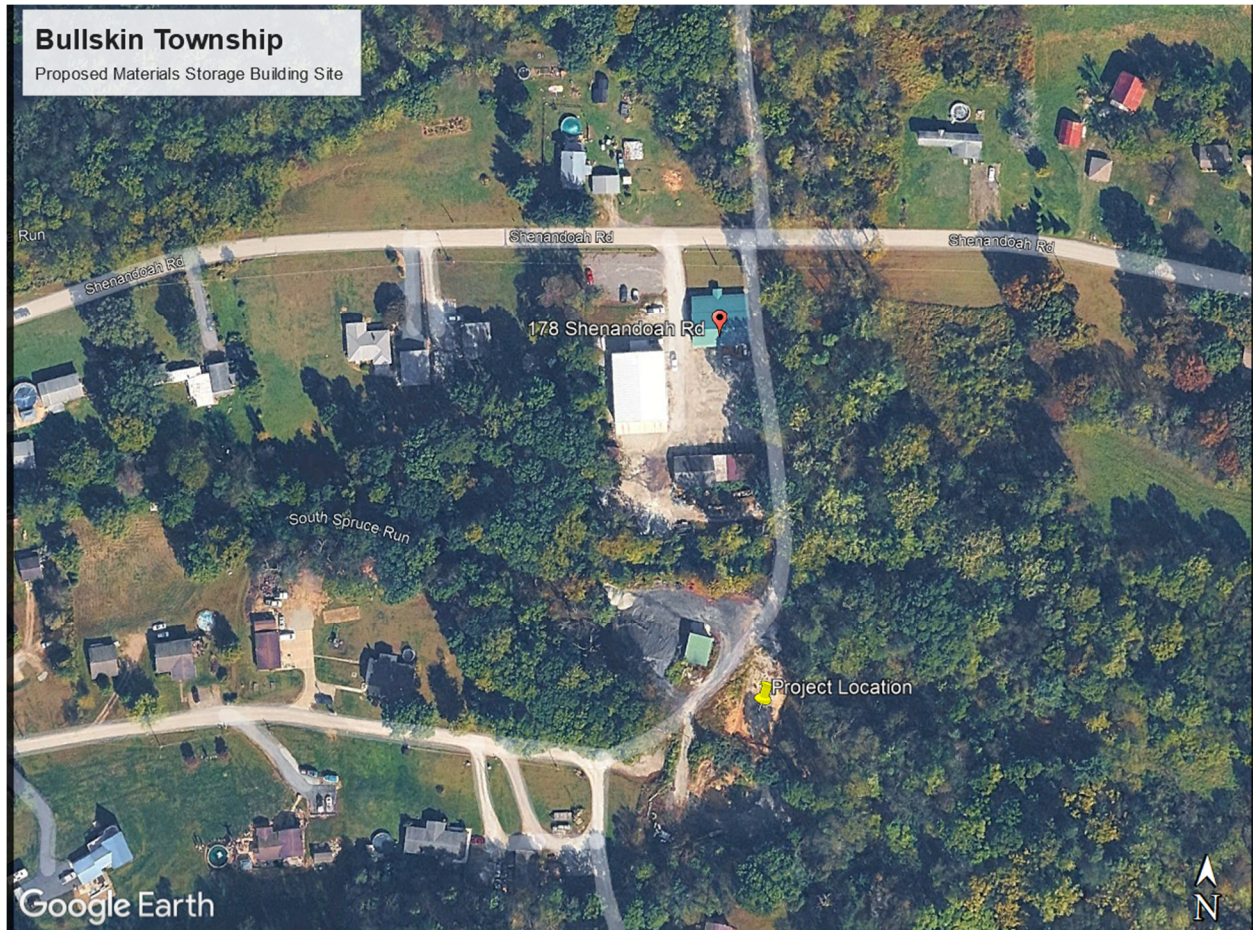
3.05 WEATHERSTRIPPING

All exterior doors shall be provided with weather-stripping, properly installed per manufacturer's recommendations.

PART 4 – BASIS OF PAYMENT

- 4.01 Caulking and Weatherstripping – Incidental. No additional compensation will be provided for Caulking and Weatherstripping. The cost associated with Caulking and Weatherstripping shall be included in the Lump Sum price bid for the items specified in the Bid Schedule.

END OF SECTION



Project Site is located at rear of Bullskin Township Supervisors property at 178 Shenandoah Road, Connellsville, PA 15425.



EXISTING SITE CONDITIONS

