

**SECTION 01 22 00 – MEASUREMENT AND PAYMENT**

**PART 1 – GENERAL**

1.01 SECTION INCLUDES

- A. Measurement.
- B. General Scope of Payment.
- C. Unit Price Work Descriptions and Scope of Payment.
- D. Administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.02 MEASUREMENT

- A. All Work completed under the Contract shall be measured by Engineer according to the standards of weights and measures recognized by the U.S. Bureau of Standards.
- B. The method of measurement and computations to be used in determination of quantities of material furnished and of Work performed under the Contract will be those methods generally recognized as conforming to good engineering practice.
- C. Unless otherwise specified, measurements for area computations will be made on the surface. Pay measurements for area computations will not exceed the neat dimensions shown on the Drawings, unless otherwise ordered in writing by the Engineer.
- D. Structures will be measured according to neat lines shown on the Drawings or as altered to fit field conditions. No payment will be made for length, width, or depth, in excess of that shown on the Drawings or specified in the Specifications for any construction, unless otherwise approved by the Engineer in writing.
- E. All piping will be measured on a Linear Foot Basis along the centerline of the pipe unless otherwise specified.
- F. In computing volumes of excavation, the average end area method, based on horizontal measurements, or other acceptable methods, will be used.
- G. In computing depths of excavations, measurements of depths shall be taken as the depth of cut from invert of pipe, or base of structure, to original grade.

1.03 DEFINITIONS

- A. Unit Price Work: As defined by the General Conditions; Work to be paid for on the basis of unit prices.

- B. Unit Price: The amount stated on the Bid Form, as a price per unit of measurement for completion of the Work specified.
- C. The term “complete in place”, means the completion of the Contract item or portions thereof as determined by the Engineer including the furnishing of all materials, equipment, tools, labor, and Work incident thereto, unless otherwise specified.

#### 1.04 SCOPE OF PAYMENT; GENERAL

- A. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 10.06 of the General Conditions.
- B. The Contractor will receive and accept compensation provided for in the Contract as full payment for furnishing all materials, labor, tools, and equipment and for performing all Work under the Contract in a complete and acceptable manner and for all risk, loss, damage, or expense of whatever character arising out of the nature of the Work or the prosecution thereof, subject to the provisions of the Agreement and General Conditions.
- C. The Contractor shall furnish all labor, materials, equipment, machinery, apparatus and tools and perform all operations necessary to install, equip, adjust and put into satisfactory operation the Work specified and shown on the Drawings, and shall so connect the various items or sections of the Work as to form a complete and properly operating whole. Any miscellaneous labor, materials, equipment or apparatus not specifically mentioned herein, or shown on the Drawings, which may be found necessary to complete or perfect any portion of the Work in a substantial manner and in compliance with the requirements stated or implied by these Specifications or Drawings, shall be furnished by the Contractor without additional compensation. This includes the cost of water for testing and all other testing costs including laboratory fees.
- D. If any Unit Price Work item description requires that the associated unit price cover and be considered compensation for certain Work or material essential to the item, this same Work or material will not be measured or paid for under any other pay item.
- E. Unit prices shall include all necessary material costs, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.

#### 1.05 GENERAL DESCRIPTIONS

- A. SCOPE FOR PIPE
  - 1. Payment and Work for pipe and appurtenances indicated under the various Unit Price Work Items shall include furnishing of all labor, tools, equipment, and materials required to acceptably construct the various units including layout,

pipe, pipe bedding, laying and joining pipe, marking tape, repairing leaks, and all other incidentals necessary to complete the Work indicated.

B. SCOPE FOR EXCAVATION AND BACKFILL

1. Payment and Work for excavation and backfill indicated under the various Unit Price Work Items shall include furnishing of all labor, tools, equipment and materials required to acceptably construct the various units, including locating underground utilities, test pits, layout, saw cutting, excavation and trenching at any depth, proper disposal of materials, dewatering, any required testing, backfilling (backfill material to comply with Restoration Schedule), compaction, Erosion and Sediment Control and all other items necessary to complete the Work indicated in accordance with the requirements of the Contract Documents.

C. SCOPE FOR SURFACE RESTORATION

1. Payment and Work for surface restoration indicated under the various Unit Price Work Items shall include furnishing of all labor, tools, equipment and materials required to complete surface restoration for all areas disturbed as a result of the Work in accordance the requirements of the Contract Documents.

1.06 UNIT PRICE WORK ITEM DESCRIPTIONS AND SCOPE OF PAYMENT

A. Item No. 1: Mobilization and Project Management

1. Mobilization includes the assembling and setting up for the Project, the Contractor's necessary general plant, including Contractor's offices, signs, shops, plants, storage areas, sanitary and any other facilities, as required by the Contract Documents, erosion and sedimentation controls as required by the Contract Documents, Site videotaping and documentations, as well as compliance with local and State Law and Regulations.
2. Project Management includes all administrative requirements associated with completion of the Work for the Project as described in the General Conditions, and Division 1 of the Project Manual. Project Management shall also include Contractor's overhead costs, such as bonding and insurance.
3. Payment for this item shall be made to the Contractor in accordance with the following schedule:
  - a. On the initial Application for Payment, ten percent (10%) the amount Bid will be paid.
  - b. For each monthly Application for Payment following the initial application, ten percent (10%) the amount Bid will be paid.
  - c. Whenever Work performed equals 25% of the total Contract price excluding the Bid price for this item, any remaining amount will be paid.

- B. Item No. 2: Traffic Maintenance and Protection
1. Traffic Maintenance and Protection includes installation and maintenance of all temporary or long-term traffic controls used in the course of the construction Project, to assure safe and adequate flow of traffic per PENNDOT Pub. 213 including but not limited to: traffic detour(s), signs, barriers, flashers, removal of existing/temporary pavement markings, temporary pavement markings, flagmen, and any items required by PENNDOT or the Owner for Work along roads.
  2. Payment for this item shall be made to the Contractor in accordance with the following schedule:
    - a. On the initial Application for Payment, five percent (5 %) the amount Bid will be paid.
    - b. For each monthly Application for Payment following the initial application, five percent (5%) the amount Bid will be paid.
    - c. Whenever Work performed equals 80% of the total Contract price excluding the Bid price for this item, any remaining amount will be paid.
- C. Item No. 3: Erosion and Sedimentation Control
1. Erosion and Sedimentation Control includes all Work described in Section 31 25 00 of the Project Manual and as identified on the contract plans.
  2. The lump sum Bid price for this item shall be paid to the Contractor on a percentage of Total Work completed basis.
- D. Item No. 4: Clearing and Grubbing
1. Clearing and Grubbing includes all Work described in Section 31 10 00 of the Project Manual. Work under this item also includes those items listed under “Scope for Excavation and Backfill”. This work shall include removal of trees and debris if encountered within the Limits of Disturbance at no additional cost.
  2. The lump sum Bid price for this item shall be paid to the Contractor on a percentage of Work completed basis.
- E. Item No. 5: Site Grading
1. Site Grading includes all Work described in Section 31 22 13 and Section 32 91 19 of the Project Manual and as the grading work identified on the contract plans. Work shall include all excavation, cut, fill, grading, compaction, disposal of excess material, and various items to acceptably grade the site as shown on the Plans. This work shall include removal of rock and debris if encountered at no additional cost.
  2. The lump sum Bid price for this item shall be paid to the Contractor on a percentage of Work completed basis.

- F. Item No. 6: Connection to Existing Inlet
1. Connection to Existing Inlet includes all labor, equipment, and materials necessary for the connection of the proposed pipe to the existing inlet at Franklin Avenue in accordance with the Contract Documents. Work shall include all demolition, excavation (at any depth), backfill, compaction, roadway/curb/wall restoration, sawcutting, connection grouting, and various items in accordance with the contract documents.
  2. Quantities for this item shall be measured and paid for on a lump sum basis in accordance with the Contract Documents.
- G. Item No. 7: 18" SLCPP Pipe Installation
1. 18" SLCPP Pipe Installation includes all those items listed under "Scope for Pipe" and "Scope for Excavation and Backfill", and shall include layout, pipe, laying and joining pipe, connection of piping to structures, fittings, pipe bedding, excavation (at any depth), backfill, compaction, and all other materials and Work required for an installation in accordance with the Contract Documents.
  2. Quantities for this item shall be measured and paid for on a linear foot basis. Measurement for lengths will be taken between the inside walls of the structure to include the total length of pipe installed in accordance with the Contract Documents. Payment shall be made only for completed runs between structures.
- H. Item No. 8: Type 4 Inlet Box – Type C
1. Type 4 Inlet Box – Type C includes all those items listed under "Scope for Excavation and Backfill" and shall include various items to acceptably construct pre-cast inlet box in accordance with the Contract Documents, including, but not limited to, excavation (at any depth), stone subbase, concrete base, flow channel, riser sections, grade adjustments, joint sealing compound, frame, bicycle safe grate, and all various items required to construct pre-cast inlets as indicated in the Contract Documents.
  2. Quantities for this item shall be measured and paid for on an each basis for precast concrete inlet boxes installed in accordance with the Contract Documents.
- I. Item No. 9: Standard Inlet Box – Type C
1. Standard Inlet Box – Type C includes all those items listed under "Scope for Excavation and Backfill" and shall include various items to acceptably construct pre-cast inlet box in accordance with the Contract Documents, including, but not limited to, excavation (at any depth), stone subbase, concrete base, flow channel, riser sections, grade adjustments, joint sealing compound, frame, bicycle safe grate, and all various items required to construct pre-cast inlets as indicated in the Contract Documents.

2. Quantities for this item shall be measured and paid for on an each basis for precast concrete inlet boxes installed in accordance with the Contract Documents.
- J. Item No. 10: Grout Interior of Existing Inlets
1. Grout Interior of Existing Inlets shall include various items to acceptably grout the interior of existing inlets in accordance with the Contract Documents, including, but not limited to, removal of debris and heavy cleaning, formwork, grout, maintenance of existing flow, and all various items required to grout existing inlets in accordance with the contract documents.
  2. Quantities for this item shall be measured and paid for on an each basis for grouting of existing inlets in accordance with the Contract Documents.
- K. Item No. 11: Replace Inlet Grates (2' x 6')
1. Replace Inlet Grates (2' x 6') shall include various items to acceptably replace inlet grates in accordance with the Contract Documents, including, but not limited to, removal of debris and heavy cleaning, removal and disposal of existing grates, installation of new bicycle safe grates, maintenance of existing flow, and all various items required to replace existing inlet grates in accordance with the contract documents.
  2. Quantities for this item shall be measured and paid for on an each basis for replacing inlet grates in accordance with the Contract Documents.
- L. Item No. 12: Remove and Store Existing Slate Sidewalk
1. Remove and Store Existing Slate Sidewalk includes all labor, materials, and equipment required to remove and store the existing slate sidewalk along the existing wall in accordance with the contract documents. Work shall include removal of slate sidewalk, excavation (at any depth), and delivery to the Wilkinsburg DPW laydown in accordance with the contract documents.
  2. Quantities for this item shall be measured and paid for on a lump sum basis in accordance with the Contract Documents.
- M. Item No. 13: Remove and Store Existing Stone Wall
1. Remove and Store Existing Stone Wall includes all labor, materials, and equipment required to remove and store the existing stone wall along the existing slate sidewalk in accordance with the contract documents. Work shall include removal of stone wall, excavation (at any depth), and delivery to the Wilkinsburg DPW laydown in accordance with the contract documents.
  2. Quantities for this item shall be measured and paid for on a lump sum basis in accordance with the Contract Documents.

- N. Item No. 14: Remove Railing, Capitals, and Top 6" of Wall
1. Remove Railing, Capitals, and Top 6" of Wall includes all labor, materials, and equipment required to remove and dispose of the upper most portion of the existing retaining wall. Work shall include sawcutting of existing retaining wall and disposal of the railing, capitals, and top 6" of wall in accordance with the contract documents.
  2. Quantities for this item shall be measured and paid for on a linear foot basis.
- O. Item No. 15: Remove Portion of Interior Wall (South Avenue)
1. Remove Portion of Interior Wall (South Avenue) includes all labor, materials, and equipment required to remove and dispose of the upper portion of the retaining wall adjacent to the steps at the South Avenue intersection in accordance with the contract documents. Work shall include sawcutting, excavation (at any depth), removal, and disposal of the existing wall to the extents necessary to install the storm sewer and all other proposed infrastructure in the vicinity of the existing interior retaining wall in accordance with the contract documents.
  2. Quantities for this item shall be measured and paid for on a lump sum basis in accordance with the Contract Documents.
- P. Item No. 16: Remove Concrete Wall, Stairs, Sidewalk, and Curb (Penn Avenue)
1. Remove Concrete Wall, Stairs, Sidewalk, and Curb (Penn Avenue) includes all labor, materials, and equipment required to remove and dispose of the indicated existing infrastructure as specified on "Detail A" of the contract drawings and in accordance with the contract documents. Work shall include sawcutting, excavation (at any depth), and removal/disposal of the existing concrete wall, stairs (including railing), sidewalk, and curb as shown on the drawings and in accordance with the contract documents.
  2. Quantities for this item shall be measured and paid for on a lump sum basis in accordance with the Contract Documents.
- Q. Item No. 17: Concrete Wall Construction (South Avenue)
1. Concrete Wall Construction (South Avenue) includes all those listed under "Scope for Excavation and Backfill" and shall include furnishing of all labor, tools, equipment and materials and all Work required for the construction of the concrete retaining wall, at all heights. Work shall include excavation (at any depth), footings, concrete, backfill, weep hole, rebar, and concrete for landing at bottom of steps in accordance with the contract documents.
  2. Quantities for this item shall be measured and paid for on a lump sum basis in accordance with the Contract Documents.

- R. Item No. 18: Concrete Wall Construction (Penn Avenue)
1. Concrete Wall Construction (Penn Avenue) includes all those listed under “Scope for Excavation and Backfill” and shall include furnishing of all labor, tools, equipment and materials and all Work required for the construction of the concrete retaining wall, at all heights. Work shall include excavation (at any depth), footings, concrete, backfill, weep hole, rebar, and concrete for landing at bottom of steps in accordance with the contract documents.
  2. Quantities for this item shall be measured and paid for on a lump sum basis in accordance with the Contract Documents.
- S. Item No. 19: Shotcrete Facade
1. Shotcrete Facade shall include furnishing of all labor, tools, equipment and materials and all work required for installation of the permanent shotcrete facing in accordance with Section 03 37 13 and related sections in the Contract Documents. Work shall also include preparation of wall surface for shotcrete application.
  2. Quantities for this item shall be measured and paid for on a square foot basis. Measurement for lengths and heights will be taken horizontally and vertically along the surface of the facing.
- T. Item No. 20: Concrete Cap
1. Roadway Retaining Wall Concrete Cap includes construction of the new 6” x 2’-11” concrete cap per the Contract Drawings.
  2. This item shall include the proposed concrete cap, the rebar, and all other work and appurtenances required to complete the construction of the concrete cap.
  3. Quantities for this item shall be measured and paid for on a linear foot basis. Measurement shall be made horizontally along the centerline of the concrete cap installed.
- U. Item No. 21: Pedestrian Railing
1. Pedestrian Railing includes furnishing of all labor, tools, equipment and materials and all work required for installation of a Pedestrian Railing on top of the roadway retaining wall in accordance with the Contract Documents.
  2. Quantities for this item shall be measured and paid for on a linear foot basis. Measurement shall be made horizontally along the centerline of the railing installed.
- V. Item No. 22: Concrete Sidewalk
1. Concrete Sidewalk includes all those items listed under “Scope for Excavation and Backfill” and shall include the Work as indicated on the Contract Drawings.
  2. Concrete Sidewalk includes furnishing of all labor, tools, equipment and materials and all Work required for construction of concrete sidewalk. Work for this item



includes installation of concrete sidewalk sections, excavation (at any depth), depressions, transitions, welded wire mesh, compaction of subgrade, 2A aggregate base, pads, and tie-ins to existing curbing, sidewalks, and retaining wall.

3. Quantities for this item shall be measured and paid for on a square foot basis. Measurements for area computations will be made on the surface.

W. Item No. 23: Concrete Curb

1. Concrete Curb includes furnishing of all labor, tools, equipment and materials and all Work required for the installation of concrete curb including aggregate base and excavation (at any depth). Work must conform to PENNDOT Specifications and the requirements provided in the Contract Documents.
2. Quantities for this item shall be measured on a linear foot basis. Measurement shall be made horizontally along the centerline of the concrete curb installed.
3. Payment shall be made for the actual number of linear feet of concrete curb installed in accordance with the requirements of the Contract Documents.

X. Item No. 24: Block Retaining Wall

1. Block Retaining Wall includes all those listed under “Scope for Excavation and Backfill” and shall include furnishing of all labor, tools, equipment and materials and all Work required for the construction of the modular block retaining wall, per the manufacturer’s requirements, at all heights. Work shall include excavation (at any depth), aggregate base and backfill, underdrain, connection of underdrain to inlets, topsoil, cap units, and modular concrete units in accordance with the contract documents.
2. Quantities for this item shall be measured and paid for on a square foot basis. Measurement for lengths and heights will be taken horizontally and vertically along the surface of the facing.

Y. Item No. 25: Relocate Stub Pole

1. Relocate Stub Pole includes all labor, materials, and equipment required to relocate stub pole at the Penn Avenue intersection in accordance with the contract documents. Work shall include removal of stub pole, disconnection of wiring, temporary storage, reconnection of wiring, reinstallation of the stub pole, and excavation (at any depth) in accordance with the contract documents and PennDOT Publication 408.
2. Quantities for this item shall be measured and paid for on a lump sum basis in accordance with the Contract Documents.

Z. Item No. 26: Remove and Replace Residential Steps

1. Remove and Replace Residential Steps includes all labor, materials, and equipment required to remove and replace the residential steps at the South Avenue intersection in accordance with the contract documents. Work shall

include demolition of existing steps, railing, and landings, and installation of cheek walls, railing, landings, footings, and steps, and excavation (at any depth) as indicated in the contract documents.

2. Quantities for this item shall be measured and paid for on a lump sum basis in accordance with the Contract Documents.

AA. Item No. 27: Signage Restoration

1. Signage Restoration includes all labor, materials, and equipment required to restore signage in accordance with the contract documents. Work shall include furnishing and installation of new signage as indicated in the contract documents.
2. Quantities for this item shall be measured and paid for on a lump sum basis in accordance with the Contract Documents.

BB. Item No. 28: Pavement Markings Restoration

1. Pavement Markings Restoration includes all labor, materials, and equipment required to restore pavement markings to original condition as indicated in the contract documents. Pavement Markings Restoration shall be completed in accordance the requirements of the Contract Documents and accordance with Section 32 17 23 Pavement Markings and must conform to PENNDOT Specifications.
2. Quantities for this item shall be measured and paid for on a lump sum basis in accordance with the Contract Documents.

CC. Item No. 29: Vegetative Surface Restoration

1. Vegetative Surface Restoration includes all labor, materials, and equipment required to establish vegetation within the Limits of Disturbance as indicated in the contract documents. Work shall include placement of topsoil (6" min. depth), fertilizer, soil testing, seed, mulch, and watering as indicated in the contract documents.
2. Quantities for this item shall be measured and paid for on a lump sum basis in accordance with the Contract Documents.

DD. Item No. 30: Underground Electrical Conduit

1. Underground Electrical Conduit includes all those items listed under "Scope for Pipe" and "Scope for Excavation and Backfill", and shall include layout, conduit, fittings, laying and joining conduit, excavation (at any depth), backfill, compaction, metallic identification tape, and all other materials and Work required for an installation in accordance with the Contract Documents.
2. Quantities for this item shall be measured on a linear foot basis. Measurement shall be made horizontally along the centerline of the electrical conduit installed.
3. Payment shall be made for the actual number of linear feet of electrical conduit installed in accordance with the requirements of the Contract Documents.

1.07 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be submitted in accordance with the provisions of the General Conditions and shall be consistent with previous applications and payments as recommended by Engineer and paid for by Owner.
  - 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Forms: Use forms provided by Engineer for Applications for Payment.
- C. Application Preparation: Complete every entry on form. Execute by a person authorized to sign legal documents on behalf of Contractor. Engineer will return incomplete applications without action.
  - 1. Entries shall match data on the Schedule of Values. Use updated schedules if revisions were made.
  - 2. Include amounts of Change Orders and Work Change Directives issued before last day of construction period covered by application.
- D. Transmittal: Submit four (4) executed originals of each Application for Payment to Engineer by a method ensuring receipt within 24 hours.
  - 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- E. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
  - 1. List of Subcontractors.
  - 2. Contractor's Construction Schedule (preliminary if not final).
  - 3. Products list.
  - 4. Submittals Schedule (preliminary if not final).
  - 5. Certificates of insurance and insurance policies.
- F. Application for Payment at Substantial Completion: After issuance of the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete less the amounts certified by the Engineer as remaining.
  - 1. Administrative actions and submittals that must precede or coincide with submittal of the Substantial Completion Application for Payment include the following:
    - a. Final Operation and Maintenance Manuals, as applicable.
    - b. Final test and field reports.
    - c. Draft Project Record Documents.

- G. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following. Final Application will be prepared by the Engineer following completion of the final inspection per Section 01 77 00.
1. Evidence of completion of Project closeout requirements.
  2. Final Project Record Documents.
  3. Insurance certificates for products and completed operations and proof that taxes, fees, and similar obligations were paid.
  4. Contractor's Affidavit: Submit on form provided by Engineer.
  5. Consent of Surety to Final Payment: Submit on form provided by Engineer.

**PART 2 - PRODUCTS** – Not Used

**PART 3 - EXECUTION** – Not Used

**END OF SECTION**