MWalaan@pgh2o.com
Direct Dial: 412.255.2289

February 2, 2026

VIA ELECTRONIC FILING
Matt Homsher, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building, 2nd Floor
Harrisburg, PA 17120

Re: Public Utility Municipal Contract – Reimbursement Agreement between The City of Pittsburgh and The Pittsburgh Water and Sewer Authority d/b/a Pittsburgh Water related to the Smithfield Street Phase 1 Project

Dear Secretary, Homsher:

Please be advised that the above-reference Public Utility Municipal Contract (dated January 30, 2026) ("Agreement") between The Pittsburgh Water and Sewer Authority ("Pittsburgh Water") and The City of Pittsburgh was filed with the Commission by Pittsburgh Water on February 2, 2026.

Should you have any questions regarding the enclosed Public Utility Municipal Contract, please contact me at 412-255-2289.

Very truly yours,

/s/ Monica Walaan
Monica Walaan, Esquire
PA Attorney ID. #318624

Enclosures

cc: Darryl Lawrence, Office of Consumer Advocate
NazAarah Sabree, Office of Small Business Advocate
Allison Kaster, Bureau of Investigation and Enforcement

REIMBURSEMENT AGREEMENT BETWEEN THE CITY OF PITTSBURGH AND THE PITTSBURGH WATER AND SEWER AUTHORITY FOR UTILITY ADJUSTMENT IN CONNECTION WITH THE SMITHFIELD STREET PHASE 1 PROJECT

THIS AGREEMENT, made and entered into as of

1/30/2026

by and between the

THE CITY OF PITTSBURGH, a Municipal Corporation existing under the laws of the Commonwealth of Pennsylvania (the "CITY"),

A

N

D

THE PITTSBURGH WATER AND SEWER AUTHORITY D/B/A PITTSBURGH WATER, a municipal authority organized and existing under the laws of the Commonwealth of Pennsylvania and having a principal place of business located at Penn Liberty Plaza 1, 1200 Penn Avenue, Pittsburgh PA 15222, ("PITTSBURGH WATER").

WITNESSETH:

WHEREAS, the CITY is advancing the Smithfield Street Phase 1 project, which will consist of roadway reconstruction of Smithfield Street from Forbes Avenue to Sixth Avenue, including sidewalks, curb ramps, and cartway, landscaping upgrades, and signal upgrades, in the City's Central Business District neighborhood, ("PROJECT"); and

WHEREAS, the CITY is about to construct the PROJECT; and

WHEREAS, the PITTSBURGH WATER owns and/or leases and operates a water and sewer system in City of Pittsburgh; and

WHEREAS, Pursuant to Resolution No. 297 of 2025, the Council of the CITY has authorized the Mayor and the Director of the Department of Mobility and Infrastructure, on behalf of the CITY, to enter into a Reimbursement Agreement with PITTSBURGH WATER for certain utility adjustment work in connection with the PROJECT; and

WHEREAS, this PROJECT is being made under the terms of an Agreement to be entered into between the CITY and Commonwealth of Pennsylvania, Department of Transportation, which provides, *inter alia*, that the Pennsylvania Department of Transportation ("PENNDOT") is acting as an agent of the Federal Highway Administration in the design and construction of the PROJECT; and

WHEREAS, a portion of the construction cost is to be provided by the Federal Highway Administration and by the Commonwealth of Pennsylvania; and

WHEREAS, the PROJECT construction will require the adjustment, transfer and/or reconstruction of certain of the PITTSBURGH WATER's infrastructure, as described in the Utility Relocation Clearance Report and PennDOT ECMS Special Provision documents, attached as Exhibit A ("Infrastructure"), located 100% in public right of way; and 0% of which are presently located outside the existing public right of way; and,

WHEREAS, any such Infrastructure transferred to or remaining at a location within the right of way of a Federally aided highway will be accommodated in accordance with the provisions of the current 23 Code of Federal Regulations, Part 645, Subpart B, Accommodation of Utilities; and,

WHEREAS, the CITY will include certain work within CITY's construction contract, to accommodate the relocation or adjustment of the Infrastructure by the CITY's contractor; and

WHEREAS, the CITY will award the construction to the lowest responsible bidder for the PROJECT, the total cost of which will include direct and indirect costs for work described in Paragraph 1 and Exhibits A and B; and

WHEREAS, CITY has agreed to pay costs for work to be performed by the CITY's contractor, in order to accommodate the relocation or adjustment of Infrastructure by the CITY's contractor, as more fully described hereunder, and PITTSBURGH WATER has agreed to provide reimbursement of actual expenses in an amount estimated to be One Hundred and Twenty Three Thousand and Zero Cents ($123,000.00) necessary for the performance of work. Upon completion of the work contemplated by this Agreement, as itemized in Exhibit C, the CITY shall provide to PITTSBURGH WATER the final invoice for such reimbursement.

WHEREAS, this agreement outlines the respective duties and entitlements of both the CITY and the PITTSBURGH WATER.

NOW THEREFORE, in consideration of the mutual promises and intending to be legally bound, the parties agree as follows:

1. SCOPE OF SERVICES: The parties will adjust, transfer, relocate, and/or reconstruct certain Infrastructure within the public right-of-way, as further described and defined in the attached Exhibit A. All Incorporated Work (as defined in Exhibit A) will be performed by CITY, through contract. All work will be performed in accordance with PennDOT and PITTSBURGH WATER standards and specifications that are part of the CITY's construction contract. Any proposed changes to the PROJECT's Incorporated Work as defined in Exhibit A must be mutually agreed upon and follow applicable PennDOT project scope change procedures. The special provisions relating to PITTSBURGH WATER facilities are attached and made part of this agreement as Exhibit B.

2. MAINTENANCE: Upon CITY's completion of the installation of the Infrastructure in accordance with the standards and specifications as set forth in this Agreement, PITTSBURGH WATER, at its sole cost and expense, shall be responsible for the maintenance and operation of the Infrastructure.

3. TERM OF AGREEMENT: Subject to applicable provisions of the Pennsylvania Public Utility Code, the term of this Agreement will commence on the earliest date allowed under the applicable law and will continue until the work described herein is complete.

4. TERMINATION OF AGREEMENT:

a. CITY may terminate this Agreement if PITTSBURGH WATER fails to perform any of the terms, conditions or provisions of this Agreement or due to cancellation of the PROJECT as set forth in Section 5 by delivery of notice to PITTSBURGH WATER. Such termination shall become effective upon the expiration of fifteen (15) calendar days following delivery of notice to PITTSBURGH WATER or such later date designated by the notice.

b. PITTSBURGH WATER may terminate this Agreement upon CITY's breach of any of the terms of, or its obligations under, this Agreement if such breach continues without cure for a period of thirty (30) days after written notification from PITTSBURGH WATER to CITY of such breach.

c. This Agreement may be terminated at any time by written mutual agreement between the parties.

d. If the Agreement is terminated by PITTSBURGH WATER pursuant to this Section, the parties understand that it may be impractical and/or unsafe to immediately stop the Incorporated Work. In such instance the CITY may continue to perform the Incorporated Work until it has reached a point where it may reasonably and/or safely suspend the Incorporated Work. PITTSBURGH WATER shall reimburse CITY pursuant to this Agreement for all Incorporated Work completed at the time of suspension.

5. CANCELLATION OF PROJECT: If for any reason, the PROJECT referred to herein should be cancelled, abandoned, or revised in such a manner that the work described in Paragraph 1 of this Agreement should no longer be required, then PITTSBURGH WATER shall be responsible only for reimbursement of the work actually completed at the time of notification, per Section 4.a., by the CITY of said cancellation, abandonment, or revision.

6. MODIFICATION OR AMENDMENT: This Agreement contains all terms and conditions agreed upon by the parties hereto, and no other agreement, oral or otherwise, regarding the subject matter of this Agreement, will be deemed to exist or to bind any of the parties hereto. Also, this Agreement may not be changed, modified, discharged or extended except by written amendment, duly executed by the parties.

7. ASSIGNMENT: PITTSBURGH WATER may not assign, subcontract or otherwise delegate its duties under this Agreement except as permitted by this Agreement or as may be consented, in writing, by the CITY.

8. NOTICES: All notices required to be given pursuant to the terms and provisions of this Agreement shall be in writing, sent by certified mail, return receipt requested, prepaid, and shall be addressed as follows:

TO CITY: City of Pittsburgh Department of Mobility and Infrastructure
301 City-County Building
414 Grant Street
Pittsburgh, PA 15219
ATTENTION: Jeff Skalican, Acting Director

TO PITTSBURGH WATER: The Pittsburgh Water and Sewer Authority
Penn Liberty Plaza 1
1200 Penn Avenue
Pittsburgh, PA 15222
ATTENTION: William J. Pickering, Chief Executive Officer

Or such other address as either party shall subsequently advise the other. Notices shall be deemed delivered two (2) business days following deposit into the mail.

9. SUCCESSORS AND ASSIGNS: All covenants and obligations of the parties under this Agreement will bind their successors, whether or not expressly assumed by successors.

10. GOVERNING LAW: The validity, interpretation and performance of this Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Pennsylvania. The provisions of this Agreement shall be deemed severable and if any portion shall be held invalid, illegal or unenforceable for any reason, the remainder of this Agreement shall be effective and binding upon the parties.

11. MONITORING AND EVALUATION: The CITY shall provide an opportunity for the PITTSBURGH WATER or its authorized representative to monitor and evaluate the services provided. Upon request, CITY will endeavor in good faith, subject to applicable law, to provide the PITTSBURGH WATER with any additional information and data required by federal authorities, state authorities, or the PITTSBURGH WATER.

12. PITTSBURGH WATER ESTIMATED COSTS: Upon completion of the work set forth in this agreement, the CITY shall certify the actual and related indirect costs to the PWSA, in accordance with the current 23 Code of Federal Regulations, Part 645, Subpart A. The costs shall include the right of way costs, if any. The CITY will then invoice the PWSA for said costs and the PWSA shall pay to the CITY 100 percent of the actual costs, which is estimated to be One Hundred and Twenty Three Thousand and Zero Cents ($123,000.00).

13. CITY AUTHORIZING RESOLUTION: This agreement is entered into by the CITY pursuant to Resolution No. 297 of 2025, approved May 19, 2025, effective May 21, 2025.

14. PITTSBURGH HOME RULE CHARTER; LIABILITY OF CITY: This agreement is subject to the provisions of the Pittsburgh Home Rule Charter, and the liability of CITY hereunder is limited to the sum of Zero Dollars ($0.00).

15. PITTSBURGH WATER AUTHORIZATION: PITTSBURGH WATER's authorization is conditioned upon the approval of this Agreement by the Pennsylvania Public Utilities Commission ("PUC"), if legally required; PITTSBURGH WATER agrees that it will submit this Agreement for PUC

review and/or approval, as the same may be legally required, and that PITTSBURGH WATER will take all good-faith actions needed to obtain such approval from the PUC as promptly as possible.

[THE REMAINDER OF THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK.]

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement on the day and year first above written.

THE PITTSBURGH WATER AND SEWER AUTHORITY

By: William J. Pickering
Name: William J. Pickering
Title: Chief Executive Officer
Date: 1/16/2026

Edward Barca
Edward Barca, Director of Finance for PITTSBURGH WATER

Approved as to Form:

Monica Walaan
Legal Counsel for PITTSBURGH WATER

CITY OF PITTSBURGH

Signed by:
Corey O'Connor
AA1F670B64C14EA...
Mayor

Signed by:
15B79A1231B247B...
Director, Department of Mobility and Infrastructure

EXAMINED BY: DocuSigned by:
Forrest Paul
44C9F3BD29F548B...
Assistant City Solicitor

APPROVED AS TO FORM: Signed by:
Lisa Zeidner Marcus
D63082116595413...
City Solicitor

COUNTERSIGNED: DocuSigned by:
Rachael Heisler
F185D3537092479...
City Controller

AUTHORIZING RESOLUTION(S)

City of Pittsburgh

510 City-County Building
414 Grant Street
Pittsburgh, PA 15219

Legislation Details (With Text)

File #:	2025-1799 **Version:** 1		
Type:	Resolution	**Status:**	Passed Finally
File created:	5/2/2025	**In control:**	Committee on Intergovernmental and Educational Affairs
On agenda:	5/6/2025	**Final action:**	5/19/2025
Enactment date:	5/19/2025	**Enactment #:**	297
Effective date:	5/21/2025		
Title:	Resolution providing for a Reimbursement Agreement or Agreements with Pittsburgh Water for costs associated with the Smithfield Street Phase 1 project where Pittsburgh Water would be responsible for paying 100% of the actual expenses involved in certain work to be described in the Agreement(s).		
Sponsors:			
Indexes:	AGREEMENTS		
Code sections:			
Attachments:	1. 2025-1799 Cover Letter-Smithfield St Phase 1 - Pittsburgh Water Letter - signed, 2. Summary 2025-1799		

Date	Ver.	Action By	Action	Result
5/21/2025	1	Mayor	Signed by the Mayor	
5/19/2025	1	City Council	Passed Finally	Pass
5/14/2025	1	Standing Committee	Affirmatively Recommended	Pass
5/6/2025	1	City Council	Read and referred	

Resolution providing for a Reimbursement Agreement or Agreements with Pittsburgh Water for costs associated with the Smithfield Street Phase 1 project where Pittsburgh Water would be responsible for paying 100% of the actual expenses involved in certain work to be described in the Agreement(s).

Be it resolved by the Council of the City of Pittsburgh as follows:

Section 1. The Mayor and the Director of the Department of Mobility and Infrastructure, on behalf of the City of Pittsburgh, are hereby authorized to enter into a Reimbursement Agreement or Agreements with Pittsburgh Water for costs associated with the Smithfield Street Phase 1 project where Pittsburgh Water would be responsible for paying 100% of the actual expenses involved in certain work to be described in the Reimbursement Agreement(s).

Funding for reimbursable utility work will be deposited to:

JDE JOB NO.	JDE FUND	BUDGET YEAR	SOURCE
6073840125	40114	2025	Pittsburgh Water

Fiscal Impact Statement

Updated 1/29/2020 to satisfy City Code §219.07

Department	Mobility and Infrastructure
Preparer	Jeannine Opie
Standing Committee Representative	Kimberly Lucas
Type of Legislation	Contract Authorization

Description of Legislation

Legislation authorizing an agreement with Pittsburgh Water for costs associated with the Smithfield Street Phase 1 project, where Pittsburgh Water would be 100% responsible for all expenses involved.

Total Cost	$0			
Frequency of Expenditure	☒ One-Time		☐ Multi-Year	
Funding Source	☐ Operating	☒ Capital	☐ Grant	☐ Trust Fund
Is this item budgeted?	☒ Yes		☐ No	

JDE Account Information

JDE JOB NO.	JDE FUND	BUDGET YEAR	SOURCE
6073840125	40114	2025	Pittsburgh Water

BC
5.1.25

If the resolution authorizes a professional services contract, complete this page:

Method of Procurement *Select one.*	☐ RFP	☐ Signed Waiver from OMB	☐ Amendment to Existing Contract *Do not fill out the rest of the form.*

Name of Vendor and Award Justification
List the name of the awarded vendor and its qualifications.

Other Respondents
List the other respondents. If there were none, clearly state that.

Selection Criteria

Selection Committee Representation

Waiver Justification
If a waiver was granted, explain the justification.

EORC Synopsis

Date Presented at EORC: Insert date.	☐ Approved	☐ Not Approved

*Per §219.07 of the City Code, you **must** include an electronic copy of the solicitation or your signed waiver with your submission to the Office of Management and Budget.*

Attachments

- *Please attach any additional documents and/or exhibits.*

ED GAINEY
MAYOR

KIMBERLY LUCAS
DIRECTOR

CITY OF PITTSBURGH
DEPARTMENT OF MOBILITY & INFRASTRUCTURE
CITY-COUNTY BUILDING

April 25, 2025

President and Members of City Council
City of Pittsburgh

RE: Pittsburgh Water Cost Share Agreement

Dear Members of City Council:

Enclosed is a proposed Resolution providing for an Agreement or Agreements with Pittsburgh Water for costs associated with the Smithfield Street Phase 1 project where Pittsburgh Water would be responsible for paying 100% of the actual expenses involved in certain work to be described in the Agreement(s).

Your favorable consideration of the attached proposed Resolution is hereby requested.

Sincerely,

Kimberly Lucas (Apr 25, 2025 15:00 EDT)

Kimberly Lucas
Director

KL/JS/jo

EXHIBIT A

Utility Clearance Report

D-4181-UC (9-14)

pennsylvania
DEPARTMENT OF TRANSPORTATION

UTILITY RELOCATION CLEARANCE REPORT INSTRUCTIONS

- State Route – Identify the state route for the proposed facilities.
- Station to Station or Segment & Offset to Segment & Offset – Identify the location of the proposed facilities.
- RT/LT – Identify if the proposed facilities are right or left of the highway centerline.
- Brief Description of the Adjustment – Identify the type of work required for the relocation/adjustment (i.e., install new pole, relocate gas line, etc.).
- Type of Relocation - Each Location – Identify the type of relocation for each location. See the definitions for the different types of relocations on the form.
- Describe Conditional Restrictions or Time Requirements for Coordinated Work – Identify any conditional restrictions or time requirements for the utility work, including sequencing of utility work. See the definitions for the different types of relocations on the form.
- Calendar Days Required or Date of Completion – Identify how many calendar days are required to complete the work for each location. For PRIOR work, give the anticipated or actual completion date.
    - If applicable, the utilities should also include time to order material, the sequencing of operations between utilities and scheduling crews and outages.
- Sign and Date the form.
- If needed, attach additional sheets to list additional information.

D-4181-UC (9-14)

pennsylvania
DEPARTMENT OF TRANSPORTATION

UTILITY RELOCATION CLEARANCE REPORT

COUNTY ALLEGHENY
CITY, BORO, TWP PITTSBURGH
ROUTE & SECTION SMITHFIELD STREET - FORBES TO SIXTH
FEDERAL PROJ. NO 27493

Utility PITTSBURGH WATER & SEWER AUTHORITY

Date November 1, 2024

Prepared by BENJAMIN GRUNAUER

Phone 412 255 2423 EXT. 5543

Construction Contact BENJAMIN GRUNAUER

Phone 412 255 2423 EXT. 5543

TYPE OF RELOCATION WORK (REF: DESIGN MANUAL PART 5)

1. **PRIOR:** Anticipated completion of work before the highway contractor's Notice to Proceed is issued. Use actual or anticipated completion date.
2. **RESTRICTIVE:** To be completed by the UTILITY before highway contractor can operate without restriction. Number of calendar days required AFTER THE DATE OF NOTICE TO PROCEED AND AFTER CONTRACTOR NOTIFIES UTILITIES.
3. **CONCURRENT:** Simultaneous with, but not restricting. the contractors operation. Number of calendar days required.
4. **COORDINATED:** Phasing with a specific construction operations.. Number of calendar days required AFTER COMPLETION OF SPECIFIC CONSTRUCTION OPERATIONS (e.g.: clearing & grubbing, rough grading, pipe hangers).
5. **NOT AFFECTED:** Identifies UTILITY with facilities in the construction area not anticipated to be affected. Specific information may be provided by the UTILITY.
6. **INCORPORATED:** Utility relocation work to be incorporated into the prime highway construction contract.

CONDITIONAL RESTRICTIONS AND TIME REQUIREMENTS: Identify conditions affecting the utility's ability to perform work, i.e.: certain times of the day, week or year that a facility cannot shutdown, acquisition of R/W by the State, demolition of buildings, relocation of other utilities, etc. Show number of calendar days.

LIST EACH AREA OF INVOLVEMENT BELOW

ROUTE	STATION TO STATION OR SEG. & OFFSET TO SEG. & OFFSET	RT./ LT.	BRIEF DESCRIPTION OF ADJUSTMENT	TYPE OF RELOCATION EACH AREA (SEE ABOVE)	DESCRIBE CONDITIONAL RESTRICTIONS OR TIME REQUIREMENTS SPECIFY CONTRACTOR'S OPERATION FOR COORDINATED WORK. SEE NOTES ABOVE	CALENDAR DAYS REQ'D OR DATE OF COMPLETION
SMITHFIELD ST	37+82	LT	CONTRACTOR TO SUPPORT DURING CONSTRUCTION	5	FIRE HYDRANT 01 IMPACT	
SMITHFIELD ST	37+96 to 38+02	LT	DRAINAGE DESIGN UPDATE	5		
SMITHFIELD ST	37+95 to 38+01	LT	DRAINAGE DESIGN UPDATE	5		
SMITHFIELD ST	38+11	RT	RELOCATE SERVICE LATERAL	6		
SMITHFIELD ST	38+16	RT	RELOCATE SERVICE LATERAL	6		
SMITHFIELD ST	39+12	RT	RELOCATE SERVICE LATERAL	6		
SMITHFIELD ST	39+91	RT	UTILITY TO RELOCATE	6	FIRE HYDRANT 02 IMPACT	
SMITHFIELD ST	40+83	RT	UTILITY TO RELOCATE	6	FIRE HYDRANT 03 IMPACT	
SMITHFIELD ST	40+83	LT	UTILITY TO RELOCATE	6	FIRE HYDRANT 04 IMPACT	
SMITHFIELD ST	41+24	LT	RELOCATE SERVICE LATERAL	6		
SMITHFIELD ST	43+12	LT	UTILITY TO RELOCATE	6	FIRE HYDRANT 05 IMPACT	
SMITHFIELD ST	43+56 to 43+62	LT	CONTRACTOR TO SUPPORT DURING CONSTRUCTION	5	SIGNAL CONDUIT	
SMITHFIELD ST	43+57 to 43+63	LT	CONTRACTOR TO SUPPORT DURING CONSTRUCTION	5	SIGNAL CONDUIT	

The proposed adjustments described above are the necessary relocation adjustments to be undertaken by the above named utility to accommodate the construction of the above listed highway project. Contingent upon the approval of a necessary occupancy permit and/or execution of a reimbursement agreement and upon notice to proceed by the Department of Transportation, the above named utility agrees to proceed with these adjustments.

BY Benjamin Grunauer 11/19/24
(Signature)

Associate Project Manager
TITLE

LIST EACH AREA OF INVOLVEMENT BELOW

ROUTE	STATION TO STATION OR SEG. & OFFSET TO SEG. & OFFSET	RT./ LT	BRIEF DESCRIPTION OF ADJUSTMENT	TYPE OF RELOCATION EACH AREA (SEE ABOVE)	DESCRIBE CONDITIONAL RESTRICTIONS OR TIME REQUIREMENTS SPECIFY CONTRACTOR'S OPERATION FOR COORDINATED WORK. SEE NOTES ABOVE	CALENDAR DAYS REQ'D OR DATE OF COMPLETION
SMITHFIELD ST	45+84	RT	UTILITY TO RELOCATE	6		
SMITHFIELD ST	37+93	LT	WATER VALVE ELEV ADJUSTMENT	6		
SMITHFIELD ST	38+12	RT	WATER VALVE ELEV ADJUSTMENT	6		
SMITHFIELD ST	38+16	RT	SQUARE WATER VALVE REPLACEMENT	6		
SMITHFIELD ST	38+61	LT	WATER VALVE ELEV ADJUSTMENT	6		
SMITHFIELD ST	38+79	LT	WATER VALVE ELEV ADJUSTMENT	6		
SMITHFIELD ST	39+12	RT	SQUARE WATER VALVE RELOCATION	6		
SMITHFIELD ST	39+99	LT	WATER VALVE ELEV ADJUSTMENT	6		
SMITHFIELD ST	40+00	LT	WATER VALVE ELEV ADJUSTMENT	6		
SMITHFIELD ST	40+02	RT	WATER VALVE ELEV ADJUSTMENT	6		
SMITHFIELD ST	40+24	LT	WATER VALVE ELEV ADJUSTMENT	6		
SMITHFIELD ST	40+29	LT	WATER VALVE ELEV ADJUSTMENT	6		
SMITHFIELD ST	40+30	LT	WATER VALVE ELEV ADJUSTMENT	6		
SMITHFIELD ST	40+34	RT	WATER VALVE ELEV ADJUSTMENT	6		
SMITHFIELD ST	40+36	RT	WATER VALVE ELEV ADJUSTMENT	6		
SMITHFIELD ST	40+67	LT	WATER VALVE ELEV ADJUSTMENT	6		
SMITHFIELD ST	40+82	LT	SQUARE WATER VALVE REPLACEMENT	6		
SMITHFIELD ST	40+82	LT	SQUARE WATER VALVE REPLACEMENT	6		
SMITHFIELD ST	40+97	LT	SQUARE WATER VALVE REPLACEMENT	6		
SMITHFIELD ST	41+22	LT	WATER VALVE RELOCATION	6		
SMITHFIELD ST	41+24	LT	SQUARE WATER VALVE REPLACEMENT	6		
SMITHFIELD ST	43+05	LT/RT	SQUARE WATER VALVE REPLACEMENT	6		
SMITHFIELD ST	43+06	LT	WATER VALVE ELEV ADJUSTMENT	6		
SMITHFIELD ST	43+13	LT	SQUARE WATER VALVE REPLACEMENT	6		
SMITHFIELD ST	43+20	LT	WATER VALVE ELEV ADJUSTMENT	6		
SMITHFIELD ST	43+27	RT	WATER VALVE ELEV ADJUSTMENT	6		
SMITHFIELD ST	44+26	RT	SQUARE WATER VALVE REPLACEMENT	6		
SMITHFIELD ST	44+43	RT	SQUARE WATER VALVE REPLACEMENT	6		
SMITHFIELD ST	45+62	LT	SQUARE WATER VALVE REPLACEMENT	6		
SMITHFIELD ST	45+70	LT	WATER VALVE ELEV ADJUSTMENT	6		
SMITHFIELD ST	45+70	LT	WATER VALVE ELEV ADJUSTMENT	6		
SMITHFIELD ST	45+83	RT	WATER VALVE ELEV ADJUSTMENT	6		

The proposed adjustments described above are the necessary relocation adjustments to be undertaken by the above named utility to accommodate the construction of the above listed highway project. Contingent upon the approval of a necessary occupancy permit and/or execution of a reimbursement agreement and upon notice to proceed by the Department of Transportation, the above named utility agrees to proceed with these adjustments.

BY Benjamin Grunauer 11/19/24
(Signature)

TITLE

EXHIBIT B

Special Provision Documents

ITEM 9000-0120 – PWSA CATCH BASIN, TYPE 13, WITH 3-FLANGE CAST IRON FRAME AND BICYCLE SAFE GRATE

ITEM 9000-0121 – PWSA CATCH BASIN, TYPE 13 MODIFIED, WITH 3-FLANGE CAST IRON FRAME AND BICYCLE SAFE GRATE

DESCRIPTION - This work is the excavation, construction and backfilling of catch basins of the type and locations indicated and as directed, and in accordance with the Pittsburgh Water and Sewer Authority Standards for Construction and as follows:

MATERIAL –

1. Cement Concrete - H.E.S. Cement Concrete - As specified in Section 704, except, achieve 4000 psi compressive strength at 28 days. Hoods are to be Granite.

2. Concrete Admixtures - As specified in Section 711.3.

3. Expansion Joint Material - As specified in Section 705, pre-molded 3/4" thick closed cell expanded polyethylene expansion joint filler.

4. Caulking Compound - As specified in Section 705.8, premium-grade, high performance moisture-cured, one-component, polyurethane-based, non-sag elastomeric caulk, color gray.

5. Brick Masonry (optional) - As specified in Section 663 except as otherwise stipulated in the supplements to the Pittsburgh Water and Sewer Authority Specifications.

6. Cast Iron Frame, Grate and Castings for Catch Basin, Type 11 - Conforming to the City of Pittsburgh Standard Casting Numbers as shown on the current City of Pittsburgh Standards for Construction, Accession No. ML-188, Folder No. M-16. Frame and grate apply two coats of coal-tar pitch.
   a) Frame Casting No. 75
   b) Hook - No. 404
   c) Grate Casting No. 71
   d) Trap - No. 402-15

7. Mortar - As specified in Section 705.7(b), Type M Mortar, Latex Polymer additive.

8. Steel Reinforcement - Epoxy coated as specified in Sections 709.3, 709.4 and 709.5. ¾" x 10" Stainless Steel Dowels from a supplier listed in Bulletin 15

9. Backfill. Placed to grade elevation - Crushed stone or gravel aggregate conforming to Select Granular material (#57 aggregate), as specified in Section 703.3, except NO SLAG is permitted.

10. Concrete Infill for Type 13 Modified Frame and Cover: In accordance with Item 9000-0102, Exposed Aggregate Concrete Sidewalk, Type 1 (Included Removal of Existing Sidewalk), to match appearance of adjacent exposed aggregate sidewalk.

CONSTRUCTION - As specified in Section 605.3, add the following:

1. Excavate for the box no more than one foot beyond outside perimeter. Compact subgrade and add compacted subbase material to achieve bottom of footer grade. Form the base and walls of the catch basin or storm inlet, both inside and outside, and provide reinforcement to meet the specifications and dimensions shown on the Pittsburgh Water and Sewer Authority and City of Pittsburgh Standards.

2. Remove existing catch basin or portions thereof as required and as indicated. Exercise caution not to damage the portion of the existing catch basin to remain, including pipes, hoods and accessories.

3. Where existing castings are indicated to be refurbished and reset, carefully remove these and chip out all existing concrete infill. Clean with materials and methods suitable for cast iron items and apply two coats of coal tar pitch.

4. Construct catch basins and storm inlets in accordance with Pittsburgh Water and Sewer Authority Specifications and Standards and set to the proper line and grade as indicated. Install curb drain outlet pipes and other piping to proper grade and slope. Compact backfill to grade. Connect curb drain piping in walls as indicated and directed.

5. Allow substitution of brick masonry for the reinforced concrete as the construction material for the walls. Submit a written request to the Representative for approval to substitute materials

6. If abandoned utility lines are within excavated trench, remove at no additional payment. If live utilities are within the excavated trench, let the Chief Inspector know and wait for a decision from the representative as how to proceed.

MEASUREMENT AND PAYMENT - Each, for the type indicated.
Includes all labor, material, tools, and equipment required to complete the work listed in the above Description, Material and Construction sections, and the satisfactory disposal of all unsuitable and surplus material.

ITEM 9000-0124 – CONNECT 15" RCP TO 15" PVC WITH CONCRETE COLLAR

ITEM 9000-0125 – 6" PVC PIPE, SDR 26, CONNECT TO CATCH BASIN

ITEM 9000-0126 – PWSA 15" REINFORCED CONCRETE PIPE, TYPE A, 15' – 3' FILL, SHORE/TRENCH BOX

DESCRIPTION - This work is the construction of pipe sewers and appropriate connections to existing or proposed facilities in accordance with these specifications, the Pittsburgh Water and Sewer Authority Specifications and Standards, as indicated and as directed.

MATERIAL - As specified in Section 601.2 and add the following:

1. Cement Concrete - Class A Cement Concrete - As specified in Section 704, except exceed 3400 psi compressive strength in 28 days.

2. Bedding Material - AASHTO No. 67 crushed stone or gravel aggregate. Do not accept materials as bedding that include sharp edged aggregate, earth, wet granulated slag, and open hearth slag. As specified in Section 703, except NO SLAG will be permitted.

3. Backfill - Placed to street subgrade elevation - Crushed stone or gravel aggregate conforming to Select Granular material, #57 Aggregate Backfill. As specified in Section 703.3, except NO SLAG will be permitted

4. Flexible Elastomeric Seals - ASTM D3212, Seal Material - ASTM F477 from a supplier listed in Bulletin 15.

5. Pipe - Reinforced Cement Concrete Pipe (R.C.C.P.) will be Class IV and meet the requirements of ASTM C76, AASHTO M170 and M242 and the Pittsburgh Water and Sewer Authority Standard Specifications. All pipe joints will have rubber gaskets in accordance with ASTM C443. All reinforced concrete pipes will be of 8' maximum lengths and closed joint design from a supplier listed in Bulletin 15.

CONSTRUCTION –

1. Construct R.C.C.P. sewers in accordance with the details indicated and in accordance with the Pittsburgh Water and Sewer Authority Standards.

2. Excavate, prepare trenches, install bedding, install pipe to grade and backfill according to the Pittsburgh Water and Sewer Authority standards and as indicated and as specified in Section 601. Backfill sewer trench with approved material, hand compacted in 6" lifts.

3. Any additional excavation, shoring and/or trench boxes required by OSHA regulations and additional backfill material beyond the pipe trench will be considered incidental to the appropriate pipe item and there will be no additional payment for this work.

4. Provide fittings and couplings made for the pipe. Join lengths of pipe and fittings in strict conformance with the manufacturer's written specification so as to provide a watertight conduit.

5. Provide and use fitting agents such as grout, mortar, flanges, gaskets and bands as are required to make the pipe a continuous watertight conduit between structures, branches and points of service connections in accordance with manufacturer's recommendations and as specified in Section 601.

6. Provide buried pipe identification markers that are brightly colored plastic tape displaying the printed notation "sewer" and are electronically locatable. Lay tape between backfilling lifts over the pipe, not less than 2' above the pipe nor less than 2' below finished ground surface. Locate tape no more than 4' below finished surface.

7. Schedule and construct connections to the existing storm sewer system in a manner such that no drainage from the existing lines enters any portion of the new system until the downstream portion of the new system has been constructed, tested, and accepted by the Pittsburgh Water and Sewer Authority. Construct connections to the existing system as indicated.

8. Testing will be in accordance with the most recently adopted testing procedures of the Pittsburgh Water and Sewer Authority or ASTM C828, as directed by the representative. Refer to special requirements. Contact the Pittsburgh Water and Sewer Authority prior to the commencement of work.

9. In the area where the pavement is to be replaced, place pipe item prior to the placement of pavement, sidewalk, driveway or curb.

MEASUREMENT AND PAYMENT - Linear Foot

Includes all trench excavation, normal rock excavation, removal of abandoned utility lines, connection to existing sewer pipe, all labor, material, equipment, tools, sheeting, bracing, shoring, piping, fluming, testing, connections, plugging, wyes, fittings, backfill, compaction, bedding material, and all other work listed in the above Description, Materials, and Construction sections and the satisfactory disposal of all unsuitable or surplus materials.

ITEM 9000-0704 – PWSA FIRE HYDRANT ASSEMBLY W/ CONCRETE THRUST BLOCK

DESCRIPTION – This work includes providing all labor, material, tools, equipment, and incidentals necessary for the installation of the PWSA fire hydrant assembly with thrust block restraint as indicated and as directed.

This work shall include, but is not limited to, the following activities:

1. Installation of Fire Hydrants
2. Thrust Blocks
3. Excavation
4. Backfill
5. Disinfection
6. Ductile Iron Waterline
7. Fittings
8. Spool Pieces with Insulated Couplings

MATERIAL –

A. Fire Hydrants
   1. Manufacturers:
      a) Kennedy Valve – Guardian Type K81.
      b) American Flow Control – American Darling Type B-84-B-5.
      c) Mueller Co. – Super Centurion - 250 Type A-423.
      d) No substitutions.
   2. Manufacturers:
      e) Kennedy Valve – Guardian Type K81.
      f) American Flow Control – American Darling Type B-84-B-5.
      g) Mueller Co. – Super Centurion - 250 Type A-423.
      h) No substitutions.
   3. Dry-barrel Break-away Type: AWWA C502; cast-iron body, compression type valve.
      a) Bury Depth: Minimum 4-feet.
      b) Inlet Connection: 6 inches.
      c) Valve Opening: 5-1/4 inches diameter.
      d) Ends: Mechanical Joint.
      e) Restrain end to pipe with Mechanical Joint Restraint Gland.
      f) Bolts and Nuts: Galvanized steel Stainless steel Bronze.
      g) Coating: AWWA C550; interior.
      h) Direction of Opening: Clockwise unless otherwise indicated.
      i) Operating Stem Nut: 1 ½” pentagonal.

4. Manufacturers:
    i) Kennedy Valve – Guardian Type K81.
    j) American Flow Control – American Darling Type B-84-B-5.
    k) Mueller Co. – Super Centurion - 250 Type A-423.
    l) No substitutions.
5. Dry-barrel Break-away Type: AWWA C502; cast-iron body, compression type valve.
    j) Bury Depth: Minimum 4-feet.
    k) Inlet Connection: 6 inches.
    l) Valve Opening: 5-1/4 inches diameter.
    m) Ends: Mechanical Joint.
    n) Restrain end to pipe with Mechanical Joint Restraint Gland.
    o) Bolts and Nuts: Galvanized steel Stainless steel Bronze.
    p) Coating: AWWA C550; interior.
    q) Direction of Opening: Clockwise unless otherwise indicated.
    r) Operating Stem Nut: 1 ½" pentagonal.
6. One steamer (pumper), two hose nozzles.
    a) Hose: 2 ½" with thread design per Standard Detail WS-8.
    b) Steamer (Pumper): 4 ½" threaded to meet NFPA No. 194.
    c) Attach nozzle caps by separate chains.
7. Finish
    a) Below Grade: Two (2) coats approved asphaltum paint
    b) Above Grade: Primer and two coats of enamel
    c) Color
        1) Safety Red No. 97-601

B. Concrete for Thrust Restraints: Class AA Cement Concrete Section 704.
C. Concrete for Concrete Pad: Class AA Cement Concrete Section 704.
D. Aggregate: AASHTO#57: Crushed stone or gravel aggregate, Table C, Section 703.2, PennDOT Publication 408 Specifications.

CONSTRUCTION – Determine exact locations and size of fire hydrants from drawings and verify in the field. Obtain clarification and directions from Engineer prior to execution of work. Verify invert elevations prior to excavation and installation of fire hydrants and thrust block restraint. Locate, identify, and protect utilities to remain from damage. Do not interrupt existing utilities without permission and without making arrangements to the provide temporary utility services.

Refer to Standard Detail WS-4 for installation. Provide support blocking and drainage gravel; do not block drain hole. Install concrete pad in any unpaved areas in accordance with Standard Detail

WS-4. Set hydrants plumb with pumper nozzle facing roadway; set hydrants with centerline of pumper nozzle 18 inches above finished grade and safety flange not more than 6 inches nor less than 2 inches above grade. After hydrostatic testing, flush hydrants and check for proper drainage.

Upon installation, pressure test system in accordance with AWWA C600 and the following:

1. Test Pressure: Not less than 200 psi or 50 psi in excess of maximum static pressure, whichever is greater.
2. Conduct hydrostatic test for at least two-hour duration.
3. Fill section to be tested with water slowly, expel air from piping at high points. Install corporation cocks at high points. Close air vents and corporation cocks after air is expelled. Raise pressure to specified test pressure.
4. Observe joints, fittings and valves under test. Remove and renew cracked pipe, joints, fittings, and valves showing visible leakage. Retest.
5. Correct visible deficiencies and continue testing at same test pressure for additional 2 hours to determine leakage rate. Maintain pressure within plus or minus 5.0 psig of test pressure. Leakage is defined as quantity of water supplied to piping necessary to maintain test pressure during period of test.
6. Compute maximum allowable leakage by the following formula:

$L = (SDP^{0.5})/C$
L = testing allowance, in gallons per hour
S = length of pipe tested, in feet
D = nominal diameter of pipe, in inches
P = average test pressure during hydrostatic test, in psig
C = 148,000
When pipe under test contains sections of various diameters, calculate allowable leakage from sum of computed leakage for each size.

7. When test of pipe indicates leakage greater than allowed, locate source of leakage, make corrections and retest until leakage is within allowable limits. Correct visible leaks regardless of quantity of leakage.

MEASUREMENT AND PAYMENT - Each

SECTION 02082

PUBLIC MANHOLES AND STRUCTURES

Revision Log

Revision Date	Part	Revision
9/12/2023	1.3	Added AASHTO M306 reference.
9/12/2023	2.3	Replaced in its entirety.
9/12/2023	2.5	Added Paragraph D "Anchor Bolts."
9/12/2023	3.7.E	Replaced with new paragraph.
12/20/2023	3.8.D	Replaced in its entirety.
6/9/2024	2.2.B.4	Deleted "Bases shall be poured on solid ground."

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Modular precast concrete manholes and structures with tongue-and-groove joints with or without masonry transition to cover frame, covers, anchorage, and accessories.
2. Masonry manhole and structure sections with masonry transition to cover frame, covers, anchorage, and accessories.
3. Bedding and cover materials.

B. Related Sections:
1. Section 02060 – Aggregates for Earthwork
2. Section 02241 – Dewatering
3. Section 02281 – Manhole and Catch Basin Grade Adjustment
4. Section 02324 – Trenching, Backfilling, and Compaction
5. Section 02513 – Public Water Distribution Piping
6. Section 02539 – Public Sanitary and Storm Sewer Piping
7. Section 02952 – Sewer and Manhole Testing
8. Section 03300 – Cast-In-Place Concrete
9. Section 03600 – Grout

1.2 MEASUREMENT AND PAYMENT

A. See Section 01200 – Price and Payment Procedures.

1.3 REFERENCES

A. American Association of State Highway Transportation Officials (AASHTO):
1. AASHTO M31 – Deformed and Plain Carbon and Low-Alloy Steel Bars for Concrete Reinforcement.

2. AASHTO M55 – Standard Method of Test for Steel Welded Wire Reinforcement, Plain, for Concrete.
3. AASHTO M306 – Standard Specification for Drainage, Sewer, Utility, and Related Castings.

B. American Concrete Institute (ACI):
1. ACI 530/530.1 – Building Code Requirements for Masonry Structures and Specifications for Masonry Structures.

C. ASTM International (ASTM):
1. ASTM A48/A48M – Standard Specification for Gray Iron Castings.
2. ASTM A615 – Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
3. ASTM C32 – Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale).
4. ASTM C478 – Standard Specification for Precast Reinforced Concrete Manhole Sections.
5. ASTM C913 – Standard Specification for Precast Concrete Water and Wastewater Structures.
6. ASTM C923 – Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals.
7. ASTM C990 – Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.
8. ASTM D1227 – Standard Specification for Emulsified Asphalt Used as a Protective Coating for Roofing.
9. ASTM F593 – Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.

1.4 SUBMITTALS

A. See Section 01330, Submittal Procedures: Requirements for submittals.

B. Shop Drawings: Indicate structure locations.

C. Product Data: Submit manhole covers, component construction, features, configuration, dimensions.

D. Qualifications listed in paragraph 1.6, Qualifications.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with the more stringent requirements of the City of Pittsburgh, Allegheny County, Pennsylvania Department of Transportation (PennDOT), and OWNER.

B. Shop Inspection:
1. All materials furnished by the CONTRACTOR shall be certified by the supplier for compliance with the pertinent specifications. Shop inspections and testing may be required. The cost of shop testing shall be borne by the supplier or the CONTRACTOR.

C. Field Inspection:

1. All materials furnished shall be tested for defects in material and/or workmanship in the manner specified and in the presence of and as approved by the OWNER.

D. Source Quality Control:
1. Maintain uniform quality of products and component compatibility by using the products of one manufacturer in the case of precast reinforced concrete manholes.
2. Obtain certificate of construction compliance with ASTM C478 from the precast reinforced concrete manhole manufacturer.
3. Obtain sworn certification from manufacturer that manholes were constructed using Type II Portland cement. No payment for manholes shall be approved until such certificate has been submitted.
4. Obtain certificate of material compliance with ASTM A48, Class 35 tensile strength from the manhole frame and cover manufacturer. Furnish certification that tensile test bars were from same pour as castings.
5. Obtain certification from manufacturer that manhole frame and cover meets or exceeds AASHTO HS-20 highway loading requirements per AASHTO M306.
6. Sections shall be steam cured and shall not be shipped until at least 5 days after having been cast.
7. Mark inside of each precast structure by indentation or waterproof paint showing date of manufacture, manufacturer, and identifying symbols and numbers shown on Drawings to indicate its intended use.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Comply with Section 01600, Product Requirements: Product storage and handling requirements.

B. Comply with precast concrete manufacturer’s instructions and ASTM C913 for unloading, storing, and moving precast manholes and drainage structures.

C. Store precast concrete manholes and drainage structures to prevent damage to OWNER’s property or other public or private property. Repair property damaged at CONTRACTOR’s expense.

1.8 ENVIRONMENTAL REQUIREMENTS

A. See Section 01600, Product Requirements.

B. Cold Weather Requirements: ACI 530/530.1.

C. In no instance set or construct manhole bases on subgrade containing frost.

D. To improve workability of Preformed Plastic Sealing Compound during cold weather, store such at temperature above 70 degrees Fahrenheit or artificially warm compound in a manner satisfactory to the OWNER.

PART 2 PRODUCTS

2.1 GENERAL

A. Manholes shall consist of precast reinforced concrete riser, top and bases, complete with cast iron frames and covers.

B. Flat slab tops are not to be used unless shown on the Drawings or required and approved by the OWNER.

C. Flat slab tops, if required/approved, shall have a minimum thickness of 6-inches, and shall be reinforced with steel in accordance with the design requirements specified in ASTM C478.

2.2 MANHOLES AND STRUCTURES

A. Manhole and Structure Sections:
   1. Reinforced precast concrete in accordance with ASTM C478 with gaskets in accordance with ASTM C923.
   2. Joints for Precast Manholes and Structures: In accordance with ASTM C913.
      a. Joint Sealant: ASTM C990.
   3. Lift holes may not pass from the inside wall completely through to the outside wall. No more than 2 lift holes may be cast in each section.
   4. Top sections shall have a top width of such design and dimensions as to properly support the required manhole frame and cover.
   5. The barrel sections shall have tongue and groove ends and a minimum wall thickness of 5-inches or shall be 1/12 of the internal diameter of the riser or largest cone section.
   6. The exterior surface of all sanitary and combination sewer precast manhole sections shall be coated at the precast manufacturer's factory with an approved asphalt emulsion coating complying with the requirements of ASTM D1227 for sanitary and combination sewers applied as recommended by the coating Manufacturer.

B. Cast in Place Manhole Bases
   1. Concrete shall have a minimum compressive strength of 4,000 psi at 28 days. Reinforcement shall be in accordance with ASTM A615.
   2. Base shall be poured from PennDOT Class A or Class AA Concrete, as directed by OWNER.
   3. Reinforcing steel shall conform to the requirements of AASHTO M31 (billet steel) or AASHTO M55 (Welded Steel Wire Fabric).
   4. Waterstops shall be used at the horizontal joint of poured-in-place manholes per paragraph 2.6, Waterstops.

C. Precast Manhole and Bases
   1. Bases shall be cast in accordance with ASTM C478.
   2. Base walls shall be cast integral to the base.
   3. Bases shall be suitably shaped by means of accurate bell-ring forms to receive the barrel sections.
   4. A manufacturer installed A-Lok, Z-Lok, or equal shall be provided prior to the precast manhole base being delivered to the Site.

D. Clay Brick Units: Comply with ASTM C32 Sewer and Manhole Brick.

E. Mortar and Grout: see Section 03600, Grout.

2.3 MANHOLE FRAMES AND COVERS

A. Manhole Covers:
1. Castings shall be of good quality, strong, tough, even grained cast iron, smooth, free from scale, lumps, blisters, sandholes, and defects of any nature.
2. Contact surfaces shall be machined at the foundry to prevent rocking of covers in any orientation. All castings shall be thoroughly cleaned and subject to careful hammer inspection.
3. Material shall be Cast Iron Gray, Class 35B, in accordance with ASTM A48.
4. Rated for HS-20 loading in accordance with AASHTO M306.
5. Shall not be dipped or coated.
6. Contain 2-inch-high lettering flush with top surface that clearly identifies the OWNER's name and type of facility, as follows:
   a. Sanitary or Combination Sewer: SEWER.
   b. Storm Sewer: STORM.
   c. Water System: WATER.
7. Cover Diameter: 26 5/8-inches.
8. Cover Thickness: 1 5/8-inch.
9. Lifthole/vent shall be 1 1/4-inch diameter, centered on the cover.
10. Non-letters areas shall be cast with "X" pattern.
11. Manufactures:
    a. Sanitary or Combination Sewer:
       1) Product Number: 00196522 by EJ Group, Inc.
       2) Product Number: NF-16530065 by Neenah Enterprises, Inc.
       3) Or Equal.
    b. Storm Sewer:
       1) Product Number: 00196526 by EJ Group, Inc.
       2) Product Number: NF-16530070 by Neenah Enterprises, Inc.
       3) Or Equal.
    c. Water System
       1) Product Number: 00196542 by EJ Group, Inc.
       2) Product Number: NF-16530072 by Neenah Enterprises, Inc.
       3) Or Equal.

B. Manhole Frames:
1. Castings shall be of good quality, strong, tough, even grained cast iron, smooth, free from scale, lumps, blisters, sandholes, and defects of any nature.
2. Contact surfaces shall be machined at the foundry to prevent rocking of covers in any orientation. All castings shall be thoroughly cleaned and subject to careful hammer inspection.
3. Material shall be Cast Iron Gray, Class 35B, in accordance with ASTM A48.
4. Rated for HS-20 loading in accordance with AASHTO M306.
5. Shall not be dipped or coated.
6. Frame opening diameter shall be 27-inches and clear opening diameter shall be a minimum of 24-inches.

7. Frame opening depth shall ensure the top of the cover is flush with the top of the frame.
8. Frame height:
   a. 6- to 7-inches for sidewalks and unimproved areas.
   b. 9-inches for concrete and asphalt roadways.
   c. 13-inches for brick and blockstone roadways.
      1) Riser rings, in accordance with Section 02281, may be used with 9-inch frames to achieve 13-inch frame height requirement.
9. Base flange shall be of suitable dimensions to mount to the structure.
10. Frames shall have four, 1-inch diameter bolt holes that align with the predrilled bolt hole locations of the rings or risers.
11. Manufactures:
    a. Product Number: 00196511 by EJ Group, Inc.
    b. Product Number: 00196517 by EJ Group, Inc.
    c. Product Number: NF-16530053 by Neenah Enterprises, Inc.
    d. Product Number: NF-16530052 by Neenah Enterprises, Inc.

2.4 ADJUSTMENT RINGS AND RISERS

A. Conform to Section 02281, Manhole and Catch Basin Grade Adjustment.

2.5 COMPONENTS

A. Provide per Contract Documents.

B. Manhole and Structure Steps:
   1. Manhole steps shall be installed by the precast manufacturer and shall be aligned vertically and spaced so as to be on equal centers in the assembled manhole at a maximum uniform distance apart of 12-inches.
   2. Manhole steps in existing manholes shall be installed by drilling into the masonry and securing with grout.
   3. Manhole steps shall be:
      a. Composite Steps (Type II CR. 491408) with a steel core Grade 60 deformed steel bar (comply with ASTM A615), 3/8-inch diameter.
         1) In severe service areas, the OWNER may require 1/2-inch diameter bars and a Co-polymer Polypropylene cover.

C. Mechanical Sleeve Seals
   1. Manufacturers:
      a. Link-Seal by Garlock Pipeline Technologies.
      b. Innerlynx by Advance Products & Systems, Inc.
      c. Or Equal.
   2. Product Description: Modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill annular space between object and sleeve or core-drilled hole, connected with bolts and pressure plates causing rubber sealing elements to expand when tightened, providing watertight seal and electrical insulation.

D. Anchor Bolts
   1. Stainless steel in conformance with ASTM F593.

2.6 WATERSTOPS

A. Waterstop gaskets shall be composed of virgin Polyvinyl Chloride (PVC) sized for the respective pipe and secured by approved stainless steel clamp.

2.7 INVERT CHANNELS

A. Conform with Contract Documents.

PART 3 EXECUTION

3.1 EXAMINATION

A. See Section 01300, Administrative Requirements: Verification of existing conditions before starting Work.

B. Verify items provided by other sections of Work are properly sized and located.

C. Verify built-in items are in proper location, and ready for roughing into Work.

D. Verify correct size of manhole and structure excavation.

3.2 PREPARATION

A. A waterstop gasket and approved clamp assembly shall be installed around the pipe when entering and leaving a manhole wall.

B. Do not install manholes and structures where site conditions induce loads exceeding structural capacity of manholes or structures.

C. Inspect precast concrete manholes and structures immediately prior to placement in excavation to verify manholes and structures are internally clean and free from damage. Remove and replace damaged units.

D. The excavation shall be properly dewatered while placing bedding material and pouring the concrete.

3.3 INSTALLATION - GENERAL

A. Excavation and Backfill:
   1. Excavate for manholes and structures in accordance with Section 02324, Trenching, Backfilling, and Compaction. Provide clearance around sidewalls of manhole or structure for construction operations, granular backfill and when in the presence of saturated soils, geotextile filter fabric.
   2. When groundwater is encountered, prevent accumulation of water in excavations. Place manholes or structures in dry trench. CONTRACTOR shall dewater all excavations in accordance with Section 02241, Dewatering.

B. Place foundation slab, trowel top surface level.

C. Form or place sections plumb and level, trim to correct elevations, anchor to foundation slab as applicable.

D. Install manholes and structures, bearing firmly and fully on 12-inches of Type A1 crushed stone bedding at proper grade and alignment, consolidated in accordance with provisions of Section 02324, Trenching, Backfilling, and Compaction.

E. Backfill excavations for manholes and structures in accordance with Section 02324, Trenching, Backfilling, and Compaction.

F. Set cover frames and covers level without tipping, to correct elevations.

3.4 MASONRY MANHOLE AND STRUCTURE INSTALLATION

A. Mortar shall be composed of Portland cement, hydrated lime, and sand in the preparation of one part cement to 1/2-part lime, to 4-112 parts sand (by volume) or as approved by the OWNER.

B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

C. Lay masonry units in running bond. Course one unit and one mortar joint to equal 8-inches.

D. Joints shall be painted with mortar and joints thoroughly tooled so as to be slightly concave with a hard polished surface free from drying cracks.

E. Lay masonry units in full bed of mortar, with full head joints, uniformly jointed with other Work.

F. Install joint reinforcement 16-inches on center.

G. Place joint reinforcement in first and second horizontal joints above base pad and below cover frame opening.

H. Install fabricated metal items as Work progresses.

I. Cut and fit for pipe, conduit, sleeves, etc.

J. Paint exterior with 2 coats of bituminous interior coating at rate of 120 square feet per gallon for each coat.
   1. Manufacturers:
      a. Carboline Bitumastic 300M by Somay Products.
      b. Sonoshield HLM 500 by Sonneborn.
      c. Or Equal.

K. Set cover frames on joint sealant and covers shall be level without tipping, to correct elevations.

L. Grout base of shaft sections to achieve slope to exit piping. Trowel smooth. Contour to form continuous drainage channel.

3.5 PRECAST CONCRETE MANHOLE AND STRUCTURE INSTALLATION

A. Lift precast manholes and structures at lifting points designated by Manufacturer.

B. When lowering manholes and structures into excavations and joining pipe to units, take precautions to ensure interior of pipeline and manhole or structure remains clean.

C. Set precast manholes bases and structures bearing firmly and fully on 12-inches of Type A1 crushed stone bedding, consolidated in accordance with provisions of Section 02324, Trenching, Backfilling, and Compaction.

D. Assemble multi-section manholes and structures by lowering each section into excavation. Install joint gaskets between precast sections in accordance with manufacturer's recommendations and per paragraph 2.5, Components. Set level and firmly position base section before placing additional sections.

E. Remove foreign materials from joint surfaces and verify sealing materials are placed properly. Maintain alignment between sections by using guide devices affixed to lower section.

F. Verify manholes and structures installed satisfy required alignment and grade.

G. Remove knockouts without creating openings larger than required to receive pipe. Fill annular space per Section 03600, Grout.

H. Cut pipe to finish flush with interior of manhole or structure.

I. Grout base of shaft sections to achieve slope to exit piping. Trowel smooth. Contour to form continuous drainage channel.

3.6 CAST-IN-PLACE CONCRETE MANHOLE AND STRUCTURE INSTALLATION

A. Prepare crushed stone bedding or other support system shown on Contract Documents, to receive foundation slab as specified for precast manholes and structures.

B. Erect and brace forms against movement in accordance with Section 03300, Cast-In-Place Concrete.

C. Install reinforcing steel as indicated on Contract Documents and in accordance with Section 03300, Cast-In-Place Concrete.

D. Place and cure concrete in accordance with Section 03300, Cast-In-Place Concrete.

3.7 CASTINGS INSTALLATION

A. Frames and covers shall be set into two, 1/2-inch bead rings of elastomeric sealant and secured with a minimum of two, 3/4-inch stainless steel anchor bolts.

B. Where required, final adjustment of frame to elevation shall conform to Section 02281, Manhole and Catch Basin Grade Adjustment.

C. Where grade rings are used, anchor bolts shall extend from the top of the frame through the grade rings and into the top precast section of the manhole.

D. Any casting set more than 3/16-inch above or below the finished surface of the adjoining concrete, brick, block, stone, or bituminous surface, as determined by a 10-foot straight edge, shall be reset by the CONTRACTOR at his own expense.

E. Final rim elevation for manholes and other structures with covers located within unpaved areas shall be approved by the OWNER prior to installation.

3.8 FIELD QUALITY CONTROL

A. See Section 01400, Quality Requirements.

B. See Section 01700, Execution Requirements.

C. Test cast-in-place concrete in accordance with Section 03300, Cast In-Place Concrete.

D. Test concrete manhole and structure sections in accordance with Section 02952, Sewer and Manhole Testing.

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SECTION 02085

WATER UTILITY DISTRIBUTION VALVES

Revision Log

Revision Date	Part	Revision
10/18/2023	Full	Addition of Line Stops.

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Valves.
2. Valve boxes.
3. Line Stops.

B. Related Sections:
1. Section 02060 – Aggregates for Earthwork
2. Section 02082 – Public Manholes and Structures
3. Section 02086 – Water Utility Fire Hydrants
4. Section 02324 – Trenching, Backfilling and Compaction
5. Section 02513 – Public Water Distribution Piping
6. Section 02515 – Water Service Connections
7. Section 02516 – Flushing, Disinfection, and Dechlorination of Water Pipelines
8. Section 03300 – Cast-In-Place Concrete

1.2 MEASUREMENT AND PAYMENT

A. See Section 01200 – Price and Payment Procedures.

1.3 REFERENCES

A. ASTM International (ASTM):
1. ASTM A276 – Standard Specification for Stainless Steel Bars and Shapes.
2. ASTM A307 – Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60000 PSI Tensile Strength.
3. ASTM B584 – Standard Specification for Copper Alloy Sand Castings for General Applications.
4. ASTM B763 – Copper Alloy Sand Castings for Valve Applications.
5. ASTM F593 – Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.

B. American Water Works Association (AWWA):
1. AWWA C111 – Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
2. AWWA C500 – Metal-Seated Gate Valves for Water Supply Service.

3. AWWA C509 – Resilient-Seated Gate Valves for Water-Supply Service.
4. AWWA C515 – Reduced-Wall, Resilient Seated Gate Valves for Water Supply Service.
5. AWWA C550 – Protecting Epoxy Interior Coating for Valves and Hydrants.
6. AWWA C600 – Installation of Ductile-Iron Water Mains and Their Appurtenances.

C. National Sanitation Foundation/American National Standard Institute (NSF/ANSI):
1. NSF/ANSI 61 – Drinking Water System Components.

1.4 SUBMITTALS

A. See Section 01330, Submittal Procedures: Requirements for submittals.

B. Shop Drawing:
1. Submit manufacturer’s shop drawings showing valves, operators, gear ratios, design flows and pressure differential, performance charts, and parts list for all valves 16-inch and larger.
2. Installation Plan: Submit description of proposed installation.

C. Design Data: Submit manufacturer's latest published literature including illustrations, installation instructions, maintenance instructions, and parts lists.

D. Manufacturer’s Certificates: Submit Statement of Compliance, supporting data, from material suppliers attesting that valves and accessories provided meet or exceed AWWA Standards and specification requirements.
1. Submit Certified test reports for tests specified in the referenced standards for valves 16-inches and larger.
2. Submit Certified test reports for tests performed on valves and valve operators for valves 16-inches and larger.

E. Submit vendor cut sheets, procedures, and detailed plan for all Line Stops.

1.5 CLOSEOUT SUBMITTALS

A. See Section 01700, Execution Requirements: Requirements for submittals.

B. Project Record Documents: Record actual locations of valves.

C. Provide Operation and Maintenance Data for valves.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with referenced standards and OWNER standards.

B. Temporary Line Stops shall only be installed by vendor personnel or CONTRACTOR personnel trained and certified by the Line Stop vendor.

1.7 QUALIFICATIONS

A. Manufacturer: company specializing in manufacturing Products specified in this section with minimum 3 years documented experience.

B. Installer: Company specializing in performing Work of this Section with minimum 3 years documented experience.

1.8 DELIVERY, STORAGE, AND HANDLING

A. See Section 01600, Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Prepare valves and accessories for shipment according to AWWA Standards and seal valve and ends to prevent entry of foreign matter into product body.

C. Deliver and store valves in shipping containers with labeling in place.

D. Store products in areas protected from weather, moisture, or possible damage; do not store products directly on ground; handle products to prevent damage to interior or exterior surfaces.

1.9 ENVIRONMENTAL REQUIREMENTS

A. See Section 01600, Product Requirements: Environmental conditions affecting products on Site.

B. Conduct operations not to interfere with, interrupt, damage, destroy, or endanger integrity of surface or subsurface structures or utilities, and landscape in immediate or adjacent areas.

1.10 COORDINATION

A. See Section 01300, Administrative Requirements: Requirements for coordination.

B. Coordinate Work with City of Pittsburgh, Allegheny County, Pennsylvania Department of Transportation (PennDOT), and OWNER.

1.11 MAINTENANCE MATERIALS

A. See Section 01700, Execution Requirements: Requirements for maintenance materials.

PART 2 PRODUCTS

2.1 GATE VALVES LARGER THAN 12-INCH DIAMETER

A. Resilient Wedge Gate Valves: AWWA C509 or AWWA C515; iron body, bronze, or ductile iron; including the manufacturer's name, pressure rating, and year of fabrication cast into valve body.
   1. Resilient seats.
   2. Stem.
      a. Non-rising stem.
      b. Minimum tensile strength: 60,000 pounds per square inch.
      c. Manganese bronze per ASTM B584/ASTM B763 or Type 304 or 316 Stainless Steel per ASTM A276.
   3. Seals: O-ring stem seals.

4. Operator:
   a. Direct Bury: Operating Nut: 2-inch square; open clockwise unless in treatment plant or pump station.
   b. Valve Vault or above grade: Handwheel: Open clockwise unless in treatment plant or pump station.
5. Ends:
   a. Direct Bury: Restrained Joints
      1) MEGALUG Series 1100 with Grade 304 Stainless Steel Bolts/Nuts and Fusion Bonded Epoxy Coating.
      2) Flex-Ring Joint by American or boltless positive joint restraint equal to the Flex-Ring Joint by American.
      3) Or Equal.
   b. Valve Vault or above grade: Flanged with Type 306 Stainless Steel nuts and bolts.
6. Coating: AWWA C550; interior/exterior epoxy.
7. Sizes 16-inch diameter and larger: 150 pounds per square inch gauge.
   a. Valve must have built-in bypass in areas expected to reach working pressures in excess of 100 pounds per square inch.
   b. Valves 16-inch diameter and greater shall be installed horizontally with bevel gearing or vertically without gearing.
8. Bolts, Hex Cap Screws, and Studs: Stainless Steel per ASTM F593.

B. Manufacturers:
1. Mueller Company.
2. Clow Eddy – Iowa.
3. American Flow Control.
4. Or Equal.

2.2 GATE VALVES 3-INCH THROUGH 12-INCH DIAMETER

A. Resilient Wedge Gate Valves: AWWA C509 or AWWA C515; iron body, bronze, or ductile iron; including the manufacturer's name, pressure rating, and year of fabrication cast into valve body.
1. Resilient seats.
2. Stem:
   a. Non-rising stem.
   b. Minimum tensile strength: 60,000 pounds per square inch.
   c. Manganese bronze per ASTM B584/ASTM B763 or Type 304 or 316 Stainless Steel per ASTM A276.
3. Seals: O-ring stem seals.
4. Operator:
   a. Direct Bury: Operating Nut: 2-inch square; open clockwise unless in treatment plant or pump station.
   b. Valve Vault or above grade: Handwheel: Open clockwise unless in treatment plant or pump station.
5. Ends:
   a. Direct Bury: Mechanical Joint with gaskets per AWWA C111 and low alloy steel bolts per ASTM A307.
      1) Restrain end to pipe with Mechanical Joint Restraint Gland conforming to Section 02513, Public Water Distribution Piping.

b. Valve Vault or above grade: Flanged with Type 306 Stainless Steel nuts and bolts.
6. Coating: AWWA C550; interior/exterior epoxy.
7. Sizes 12-inch diameter and smaller: 250 pounds per square inch gauge.
8. Bolts, Hex Cap Screws, and Studs: Stainless Steel per ASTM F593.

B. Manufacturers:
1. Mueller Company.
2. Clow Eddy - Iowa.
3. American Flow Control.
4. Or Equal.

2.3 MEDIUM EXTENSION GATE VALVE BOXES

A. Underground valves installed at a depth of 6 feet or less to the operating nut shall be equipped with an MEG. MEGs shall be made of cast iron and have an internal diameter of 5 1/4-inches. The base, top and lid shall be round, and shall have "WATER" cast on the lid.

B. 12-inch diameter Valves and smaller: Domestic cast iron, three-piece, screw type; round base. Internal Diameter of 5 1/4-inches, with Cast iron lid marked "WATER."

2.4 MANHOLES

A. See Section 02082, Public Manholes and Structures.

B. Valves 16-inches in diameter and greater shall be installed horizontally with bevel gearing. Operating mechanism shall be centered in manhole per Contract Documents, unless otherwise noted.

C. If field conditions do not allow the installation of the horizontal valve with manhole, based on underground utility conflicts at the valve location, valve may be installed vertically without gearing at OWNER'S discretion. Operating mechanism shall be centered in manhole per Contract Documents.

D. Prior to procuring valve assembly, CONTRACTOR shall perform exploratory excavations necessary to determine clearances required for valve and manhole installation.

E. If field conditions do not allow the installation of the manhole on a horizontal nor vertical valve, based on underground utility conflicts at the valve location, OWNER shall determine if an MEG can be placed upon the valve at the particular location in lieu of the manhole structure.

2.5 ACCESSORIES

A. Concrete for Thrust Restraints: Concrete type specified in Section 03300, Cast-In-Place Concrete.

B. Valve Box Aligner: High-strength, plastic device designed to automatically center valve box base and prevent valve box base from shifting off center during backfilling.

C. Polyethylene wrap specified in Section 02513, Public Water Distribution Piping.

2.6 LINE STOPS

A. Line stops are to be used where specified to temporarily stop water line water flow without depressurizing the entire line. The line stop parts and installation equipment are to be rated at a minimum of 150 pounds per square gauge working pressure unless otherwise specified.

B. Materials and Construction:
   1. Tapping saddles shall have 360 degrees clamping on the main.
   2. Main sizes 4-inch to 8-inch to be fabricated of Grade 304 Stainless Steel.
   3. Main sizes 10-inch and greater to be fabricated Carbon Steel with 2556.11 5/99 epoxy coating.
   4. All bolts and fasteners are to be Grade 304 Stainless Steel and the saddle shall be installed with Buna-N or neoprene rubber full facing gasket.
   5. The stopping device attaching nozzle to be manufacturer's standard with connecting threads or flange face, and the nozzle internal diameter to be machine with a shelf to provide a position stop for the closure plug.
   6. The closure plug is to be fabricated carbon steel, ductile iron, or malleable iron with at least one Buna-N or neoprene O-Ring seal on the outside diameter.
   7. Corrosion Resistant Coatings:
      a. Non-Stainless Steel permanently installed parts to have manufacturer's standard red or black water base epoxy coating.
   8. Connection Tapping saddle shall be fabricated with dimensions to fit on concrete, steel, polyvinyl chloride pipe, cast iron, and ductile iron main as specified.
   9. Manufacturers:
      a. Hydra-Stop, Inc.
      b. International Piping Services Co. (IPSCO).
      c. JCM 440.
      d. Or Equal.

PART 3 EXECUTION

3.1 EXAMINATION

A. See Section 01300, Administrative Requirements: Verify existing conditions before starting Work.

B. Determine exact location and size of valves from Contract Documents; obtain clarification and directions from OWNER prior to execution of Work.

C. Verify invert elevations of Work prior to excavation and installation of valves.

3.2 PREPARATION

A. Identify required lines, levels, contours, and datum locations.

B. Locate, identify, and protect utilities to remain from damage.

C. Do not interrupt existing utilities without permission and without making arrangements to provide temporary utility services.
   1. OWNER not less than 3 days in advance of proposed utility interruption.
   2. Do not proceed without written permission from the OWNER.

D. Perform trench excavation, backfilling, and compaction in accordance with Section 02324, Trenching, Backfilling and Compaction.

3.3 INSTALLATION

A. Valves 16-inches and larger shall be installed per Contract Documents.

B. Install valves in conjunction with pipe laying; set valves plumb.

C. Provide buried valves with valve boxes installed flush with finished grade.

D. Wrap valves with polyethylene wrap in accordance Section 02513, Public Water Distribution Piping.

3.4 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

A. Flush and disinfect system in accordance with Section 02516, Flushing, Disinfection, and Dechlorination of Water Pipelines.

3.5 LINE STOP INSTALLATION

A. Temporary Line Stops shall only be installed by vendor personnel or CONTRACTOR personnel trained and certified by the Line Stop vendor.

3.6 FIELD QUALITY CONTROL

A. See Section 01400, Quality Requirements: Field inspecting, testing, adjusting, and balancing.

B. Pressure test system in accordance with AWWA C600 and the following:
   1. Test Pressure: Not less than 150 pounds per square inch or 50 pounds per square inch in excess of maximum working pressure, whichever is greater.
   2. Conduct hydrostatic test for at least a 2-hour duration.
   3. Fill section to be tested with water slowly, expel air from piping at high points. Install corporation cocks at high points. Close air vents and corporation cocks after air is expelled. Raise pressure to specified test pressure.
   4. Observe joints, fittings, and valves under test. Remove and renew cracked pipe, joints, fittings, and valves showing visible leakage. Retest.
   5. Correct visible deficiencies and continue testing at same test pressure for additional 2-hours to determine leakage rate. Maintain pressure within plus or minus 5 pounds per square inch gauge of test pressure. Leakage is defined as quantity of water supplied to piping necessary to maintain test pressure during period of test.
   6. Compute maximum allowable leakage by the following formula:

$$L = (SDP^{0.5})/C$$

L = testing allowance, in gallons per hour
S = length of pipe tested, in feet
D = nominal diameter of pipe, in inches
P = average test pressure during hydrostatic test, in psig
C = 148,000
When pipe under test contains sections of various diameters, calculate allowable leakage from sum of computed leakage for each size.

7. When test of pipe indicates leakage greater than allowed, locate source of leakage, make corrections and retest until leakage is within allowable limits. Correct visible leaks regardless of quantity of leakage.

END OF SECTION

SECTION 02086

WATER UTILITY FIRE HYDRANTS

Revision Log

Revision Date	Part	Revision

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Fire hydrants.
2. 2-inch blowoffs.

B. Related Sections:
1. Section 02060 – Aggregates for Earthwork
2. Section 02324 – Trenching, Backfilling, and Compaction
3. Section 02085 – Water Utility Distribution Valves
4. Section 02513 – Public Water Distribution Piping
5. Section 02515 – Water Service Connections
6. Section 02516 – Flushing, Disinfection, and Dechlorination of Water Pipelines
7. Section 03300 – Cast-In-Place Concrete

1.2 MEASUREMENT AND PAYMENT

A. See Section 01200 – Price and Payment Procedures.

1.3 REFERENCES

A. American Water Works Association (AWWA):
1. AWWA C502 – Dry-Barrel Fire Hydrants.
2. AWWA C550 – Protecting Epoxy Interior Coating for Valves and Hydrants.
3. AWWA C600 – Installation of Ductile-Iron Water Mains and Their Appurtenances.

B. National Fire Protection Association:
1. NFPA 281 – Recommended Practice for Fire Flow Testing and Marking of Hydrants.

C. National Sanitation Foundation/American National Standard Institute (NSF/ANSI):
1. NSF/ANSI 61 – Drinking Water System Components.

1.4 SUBMITTALS

A. See Section 01330, Submittal Procedures: Requirements for submittals.

B. Shop Drawing:
   1. Installation Plan: Submit description of proposed installation.

C. Design Data: Submit manufacturer's latest published literature; include illustrations, installation instructions, maintenance instructions and parts lists.

D. Manufacturer’s Certificates: Submit Statement of Compliance, supporting data, from material suppliers attesting that hydrants and accessories provided meet or exceed AWWA Standards and specification requirements.

1.5 CLOSEOUT SUBMITTALS

A. See Section 01700, Execution Requirements: Requirements for submittals.

B. Project Record Documents: Record actual locations of fire hydrants.

C. Provide Operation and Maintenance Data for fire hydrants.

1.6 QUALITY ASSURANCE

A. Provide uniform color scheme for fire hydrants in accordance with this Section.

B. Perform Work in accordance with City of Pittsburgh, Allegheny County, and Pennsylvania Department of Transportation (PENNDOT), and OWNER standards.

1.7 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing Products specified in this Section with minimum 3 years documented experience.

B. Installer: Company specializing in performing Work of this Section with minimum 3 years documented experience.

1.8 DELIVERY, STORAGE, AND HANDLING

A. See Section 01600, Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Prepare hydrants and accessories for shipment according to AWWA Standards and seal hydrant and ends to prevent entry of foreign matter into product body.

C. Store products in areas protected from weather, moisture, or possible damage; do not store products directly on ground; handle products to prevent damage to interior or exterior surfaces.

1.9 ENVIRONMENTAL REQUIREMENTS

A. See Section 01600, Product Requirements: Environmental conditions affecting products on Site.

B. Conduct operations not to interfere with, interrupt, damage, destroy, or endanger integrity of surface or subsurface structures or utilities, and landscape in immediate or adjacent areas.

1.10 COORDINATION

A. See Section 01300, Administrative Requirements: Requirements for coordination.

PART 2 PRODUCTS

2.1 FIRE HYDRANTS

A. Manufacturers:
   1. Kennedy Valve – Guardian Type K81.
   2. American Flow Control – American Darling Type B-84-B-5.
   3. Mueller Co. – Super Centurion - 250 Type A-423.
   4. No substitutions.

B. Dry-barrel Break-away Type: AWWA C502; cast-iron body, compression type valve.
   1. Bury Depth: Minimum 4-feet.
   2. Inlet Connection: 6-inches.
   3. Valve Opening: 5 1/4-inches diameter.
   4. Ends: Mechanical Joint.
      a. Restrain end to pipe with Mechanical Joint Restraint Gland conforming to Section 02513, Public Water Distribution Piping.
   5. Bolts and Nuts: Galvanized steel Stainless steel Bronze.
   6. Coating: AWWA C550; interior.
   7. Direction of Opening: Clockwise unless otherwise indicated.
   8. Operating Stem Nut: 1 1/2-inch pentagonal.

C. One steamer (pumper), two hose nozzles.
   1. Hose: 2 1/2-inch with thread design per Contract Documents.
   2. Steamer (Pumper): 4 1/2-inch threaded to meet NFPA No. 194.
   3. Attach nozzle caps by separate chains.

D. Finish
   1. Below Grade: 2 coats approved asphaltum paint.
   2. Above Grade: Primer and two coats of enamel.
   3. Color: Safety Red No. 97-601.

2.2 2-INCH BLOW-OFFS

A. 2-inch Blow-Off Hydrant shall be 3-feet bury, with 2-inch vertical FIP inlet.

B. 2-inch Blow-Off Hydrant shall be non-freezing and self-draining.

C. 2-inch Blow-Off Hydrant shall be operated by turning a top-mounted 9/16-inch square operating nut counterclockwise to open, clockwise to close.

D. 2-inch Blow-Off Hydrant must seal the drain outlet in all positions from 1/4 open to fully open. All internal working parts, the inlet and outlet shall be low-lead brass.

E. All working parts shall be serviceable from above with no digging required.

F. All wear parts (O-rings and valve seat) shall be of commonly available dimensions and materials, and none may be of vendor-unique design.

G. Manufacturers:
   1. Kupferle Foundry Company, TF500 Truflo Blow-Off Hydrant.
   2. Water Plus Corporation, Valve Box Flushing Hydrant VB2000B.
   3. Or Equal.

2.3 ACCESSORIES

A. Concrete for Thrust Restraints: Concrete type specified in Section 03300, Cast-In-Place Concrete.

B. Aggregate: Type A3 for hydrant drainage as specified in Section 02060, Aggregates for Earthwork.

PART 3 EXECUTION

3.1 EXAMINATION

A. See Section 01300, Administrative Requirements: Verification of existing conditions before starting Work.

B. Determine exact location and size of hydrants from Contract Documents. Obtain clarification and directions from OWNER prior to execution of Work.

C. Verify invert elevations of existing work prior to excavation and installation of fire hydrants.

3.2 PREPARATION

A. Identify required lines, levels, contours, and datum locations.

B. Locate, identify, and protect utilities to remain from damage.

C. Do not interrupt existing utilities without permission and without making arrangements to provide temporary utility services.
   1. Notify OWNER not less than 3 days in advance of proposed utility interruption.
   2. Do not proceed without written permission from the OWNER.

D. Perform trench excavation, backfilling, and compaction in accordance with Section 02324, Trenching, Backfilling, and Compaction.

3.3 INSTALLATION

A. Refer to Contract Documents.

B. Install fire hydrants; provide support blocking and drainage gravel; do not block drain hole.

C. Set hydrants plumb with pumper nozzle facing roadway; set hydrants with centerline of pumper nozzle 18-inches above finished grade and safety flange not more than 6-inches nor less than 2-inches above grade.

D. After hydrostatic testing, flush hydrants, and check for proper drainage.

3.4 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

A. Flush and disinfect system in accordance with Section 02516, Flushing, Disinfection, and Dechlorination of Water Pipelines.

3.5 FIELD QUALITY CONTROL

A. See Section 01400, Quality Requirements and 01700, Execution Requirements: Field inspecting, testing, adjusting, and balancing.

B. See Section 02513, Public Water Distribution Piping.

END OF SECTION

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SECTION 02281

MANHOLE AND CATCH BASIN GRADE ADJUSTMENT

Revision Log

Revision Date	Part	Revision

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Raising manhole frames and covers.
2. Replacing manhole frames and covers.

B. Related Sections:
1. Section 02082 – Public Manholes and Structures
2. Section 02539 – Public Sanitary and Storm Sewer Piping
3. Section 02740 – Asphalt Pavement
4. Section 02750 – Concrete Pavement
5. Section 03300 – Cast-In-Place Concrete

1.2 MEASUREMENT AND PAYMENT

A. See Section 01200 – Price and Payment Procedures.

1.3 REFERENCES

A. ASTM International (ASTM):
1. ASTM C478 – Standard Specification for Circular Precast Reinforced Concrete Manhole Sections.
2. ASTM C990 – Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.
3. ASTM F593 – Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.

1.4 SUBMITTALS

A. See Section 01330, Submittal Procedures: Requirements for submittals.

B. Product Data: Submit manhole covers and riser rings construction, features, configuration, and dimensions.

C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

D. Qualifications listed in paragraph 1.7, Qualifications.

1.5 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual grade adjustment elevation of manhole.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with City of Pittsburgh, Allegheny County, and Pennsylvania Department of Transportation (PENNDOT), and OWNER standards.

1.7 QUALIFICATIONS

A. Installer: Company specializing in performing work of this section with minimum 3 years documented experience.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Accept materials on site in undamaged, unopened containers, bearing Manufacturer's original labels. Inspect for damage.

B. Protect materials from damage by storage in secure location.

1.9 FIELD MEASUREMENTS

A. Verify field measurements prior to fabrication.

PART 2 PRODUCTS

2.1 MANHOLE FRAMES AND COVERS

A. Conform to Section 02082, Public Manholes and Structures.

2.2 GRADE ADJUSTMENT RISERS

A. Rubber Adjustment Riser (Adjustment of 3-inch total thickness and less):
   1. Flat or tapered.
   2. Circular or rectangular.
   3. Manufacturer:
      a. Infra Riser by East Jordan.
      b. Pro-ring by Cretex.
      c. Or Equal.

B. Reinforced Concrete Grade Adjustment Ring (Adjustment from 3-inch to 12-inch total thickness):
   1. Non-tapered ring only.
   2. Design meets the requirements of ASTM C478.
   3. Minimum concrete compressive strength: 4,000 psi at 28 days.

4. Free from cracks, voids, and other defects.
5. Width to accommodate manhole frame and allow frame to fastened to the grade ring with a minimum of 2 bolts.
6. Provide bolt holes to accommodate frame anchor bolts. No field drilling of holes shall be permitted.
7. Inside diameter: To match manhole frame and cover.
8. To minimize the number of joints, grade adjustment shall be made using the minimum number of grade adjustment rings possible.

C. Adjustment by brick and mortar is prohibited.

D. Accessories:
1. Joint Sealant: Polyurethane Joint Sealant/Adhesive conforming to ASTM C990.
2. Bolts:
a. Stainless Steel, ASTM F593.
b. 3/4-inch Diameter.
c. Embedded Depth: 2-inch minimum.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify and locate manholes requiring grade adjustment.

3.2 EXISTING WORK

A. Saw cut existing paving.

B. Excavate.

C. Clean manholes.

D. Remove existing manhole frames and covers.

E. Repair waterproofing.

3.3 RAISING MANHOLE FRAMES AND COVERS

A. Locate and raise manholes to grade as indicated on Contract Documents.
1. Adjustment 12-inch or less:
a. Use materials listed in paragraph 2.2, Grade Adjustment Risers.
2. Adjustment greater than 12-inch:
a. For Pre-Cast Concrete Manholes:
1) Remove top cone section of manhole.
2) Install new pre-cast concrete manhole barrel section of appropriate length, conforming to Section 02082, Public Manholes and Structures.
3) Reinstall or replace top cone section.
4) Perform final (small) adjustment as necessary.

b. For Brick Manholes:
   1) See Contract Documents.
   2) Adjustments greater than 4-foot in depth shall be approved by the OWNER and conform to Contract Documents.

B. Use flat or tapered rubber manhole rings to achieve elevation indicated for frame and cover.

C. Do not adjust elevation more than 3-inches with rubber manhole rings.

D. Apply two, 1/2-inch continuous beads of sealant between manhole, grade rings, and frame.

E. Reinstall removed manhole frame and cover.

3.4 REPLACING MANHOLE FRAMES AND COVERS

A. Remove existing manhole frames and covers to enable reuse.

B. Deliver removed manhole frames and covers to OWNER as maintenance materials.

C. Install new frames and covers for manholes as indicated on Contract Documents. Adjust to match finished grade as indicated on Contract Documents. Seal joints between manholes and manhole frames. Apply two, 1/2-inch continuous beads of sealant between manhole, grade rings, and frame.

3.5 PAVING RESTORATION

A. Restore paving areas in accordance Section 02740, Asphalt Pavement and Section 02750, Concrete Pavement and applicable Contract Documents.

END OF SECTION

SECTION 02630

STORM DRAINAGE

Revision Log

Revision Date	Part	Revision
5/1/2024	Part 2	Revised manufacturer product and model numbers.

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Cleanouts.
2. Inlets.
3. Catch Basins.
4. Water Quality Inserts.

B. Related Sections:
1. Section 02060 – Aggregates for Earthwork
2. Section 02230 – Site Clearing
3. Section 02281 – Manhole and Catch Basin Grade Adjustment
4. Section 02324 – Trenching, Backfilling, and Compaction
5. Section 02539 – Public Sanitary and Storm Sewer Piping
6. Section 02952 – Sewer and Manhole Testing
7. Section 02750 – Concrete Pavement
8. Section 03300 – Cast-In-Place Concrete
9. Section 03600 – Grout

1.2 MEASUREMENT AND PAYMENT

A. See Section 01200 – Price and Payment Procedures.

1.3 REFERENCES

A. American Association of State Highway Transportation Officials (AASHTO):
1. AASHTO M306 – Drainage Structure Castings.

B. American Concrete Institute (ACI):
1. ACI 530/530.1 – Building Code Requirements and Specification for Masonry Structures and Companion Commentaries.

C. ASTM International (ASTM):
1. ASTM A48/A48M – Standard Specification for Gray Iron Castings.
2. ASTM A123/A123M – Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

3. ASTM C76 – Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
4. ASTM C361 – Standard Specification for Reinforced Concrete Low-Head Pressure Pipe.
5. ASTM C443 – Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
6. ASTM C478 – Standard Specification for Precast Reinforced Concrete Manhole Sections.
7. ASTM C497 – Standard Test Methods for Concrete Pipe, Manhole Sections, or Tile.
8. ASTM C913 – Standard Specification for Precast Concrete Water and Wastewater Structures.
9. ASTM C923 – Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals.

1.4 SUBMITTALS

A. Section 01330, Submittal Procedures: Requirements for submittals.

B. Shop Drawings: Indicate structure locations.

C. Product Data: Submit frames and grates, component construction, features, configuration, dimensions.

D. Qualifications listed in paragraph 1.6.

E. Manufacturer’s installation instructions and certificate for water quality inserts.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with the more stringent requirements of the City of Pittsburgh, Allegheny County, Pennsylvania Department of Transportation (PennDOT), and the OWNER.

B. Shop Inspection:
1. All materials furnished by the CONTRACTOR shall be certified by the supplier for compliance with the pertinent specifications. Shop inspections and testing may be required. The cost of shop testing shall be borne by the supplier or the CONTRACTOR.

C. Field Inspection:
1. All materials furnished shall be tested for defects in material and/or workmanship in the manner specified and in the presence of and as approved by the OWNER.
2. Verify that received water quality inserts will fit the catch basin and inlets.

D. Source Quality Control:
1. Maintain uniform quality of products and component compatibility by using the products of one manufacturer in the case of precast reinforced concrete catch basins and inlets.
2. Obtain certificate of construction compliance with ASTM C478 from the precast reinforced concrete catch basin and inlet manufacturer.
3. Obtain sworn certification from manufacturer that structures were constructed using Type II Portland cement. No payment for catch basins or inlets will be approved until such certificate has been submitted.

4. Obtain certificate of material compliance with ASTM A48, Class 30 tensile strength from the frame, grate, and casting manufacturer. Furnish certification that tensile test bars were from same pour as castings.
5. Obtain certification from manufacturer that all components meet or exceed AASHTO HS-20 highway loading requirements.
6. Sections shall be steam cured and shall not be shipped until at least five days after having been cast.
7. Mark inside of each precast structure by indentation or waterproof paint showing date of manufacture, manufacturer, and identifying symbols and numbers shown on Contract Documents to indicate its intended use.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum 3 years documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Comply with Section 01600, Product Requirements: Product storage and handling requirements.

B. Comply with precast concrete manufacturer's instructions and ASTM C913 for unloading, storing, and moving precast structures.

C. Store precast concrete catch basins and inlets to prevent damage to OWNER's property or other public or private property. Repair property damaged at CONTRACTOR's expense.

D. Store water quality inserts in a cool, dry location out of direct sunlight and not in contact with petroleum products.

1.8 ENVIRONMENTAL REQUIREMENTS

A. See Section 01600, Product Requirements.

B. Cold Weather Requirements: ACI 530/530.1.

C. In no instance set or construct catch basin or inlet bases on subgrade containing frost.

D. To improve workability of Preformed Plastic Sealing Compound during cold weather, store such at temperature above 70 degrees Fahrenheit or artificially warm compound in a manner satisfactory to the OWNER.

PART 2 PRODUCTS

2.1 GENERAL

A. Catch Basins and inlets shall consist either of precast or poured in-place concrete box, cast iron frame and bicycle safe grate, all necessary risers, and cast iron curb inlet casting (Type 13 Modified only).

2.2 MANHOLE FRAMES AND COVERS

A. Conform to Section 02082, Public Manholes and Structures.

2.3 STORMWATER INLET AND CATCH BASIN STRUCTURES

A. Catch Basin and Inlet Structure Sections:
   1. Concrete shall be minimum 4,000 psi at 28-days.
      a. Class AA.
      b. Or Equal.
   2. H-20 Live Load Rating
   3. Reinforced precast concrete shall be in accordance with ASTM C478 with gaskets in accordance with ASTM C923.
   4. Wall Thickness: 8-inch (Reinforced Concrete), 12-inch (Non-Reinforced Concrete)
      a. Vertical Rebar - #6 Rebar, 6-inch center to center.
      b. Horizontal Rebar - #4 Rebar, 12-inch center to center.
   5. Base Thickness: 8-inch (Reinforced Concrete), 12-inch (Non-Reinforced Concrete)
      a. Rebar - #4 Rebar, 12-inch center to center.
   6. Aggregate Base: For precast only, compacted, 12-inch thick.
   7. Dimensions per Contract Documents.
   8. Invert: 20-inch above the bottom of the structure.

B. Hook and Trap for Catch Basins:
   1. Hook:
      a. East Jordan EJIW 593479.
      b. Neenah Foundry 3711-0003 and 3711-400
      c. Or Equal.
   2. Trap:
      a. East Jordan EJIW 595475.
      b. Neenah Foundry R-3701
      c. Or Equal.
   3. Bottom of Hook and Trap to be 16-inch above the bottom of the structure.

2.4 CATCH BASIN FRAME AND GRATE

A. Cast Iron, conforming to ASTM A48.
   1. Class 30 Minimum Strength.
   2. Cast Iron or Gray Iron.

B. Manufacturers:
   1. Frame:
      a. East Jordan Iron Works:
         1) EJIW 535713 (3-Flange) – Type 13 & Type 13 Modified.
         2) EJIW 535711 (4-Flange) – Type 9.
         3) EJIW 535711 – Type 10
         4) EJIQ 649611 – Type 5
      b. Neenah Foundry:
         1) NF –3572-2304 (3-Flange) – Type 13 & Type 13 Modified.
         2) NF - 3572-2303 (4-Flange) – Type 9.

c. Or Equal.
2. Grate:
   a. East Jordan:
      1) EJIW 535571.
      2) EJIW 535571 – Type 10 Grate
      3) EJIW 649631 – Type 5 Grate
      4) EJIW 535571 – High Flow Grate
   b. Neenah Foundry:
      1) NF – 3574-3000.
      2) NF 9994-6003 – Type 5 Grate
      3) NF 3573-3000 – High Flow Grate
   c. Or Equal.

2.5 WATER QUALITY INSERTS

A. Bag Type Inlet Filter Inserts
   1. Corrosion resistant frame and replicable bag designed to fit standard inlet and/or catch basin castings. Specified type shall be per Contract Documents,
      a. Manufacturers:
         1) Flexstorm Pure with PC or PC+ bag by Advance Drainage Systems.
         2) Stormsack by Fabco Industries Inc.
         3) Or Equal.

B. Cartridge Type Inlet Filter Inserts
   1. Corrosion resistant frame and replicable bag designed to fit standard inlet and/or catch basin castings. Specified type and cartridge type(s) shall be per Contract Documents,
      a. Manufacturers:
         1) Stormbasin by Fabco Industries Inc.
         2) Or Equal.

2.6 BEDDING AND BACKFILL MATERIALS

A. Bedding and Backfill Materials shall conform to Section 02324, Trenching, Backfilling, and Compaction.

PART 3 EXECUTION

3.1 EXAMINATION

A. See Section 01300, Administrative Requirements: Verification of existing conditions before starting Work.

B. Verify items provided by other sections of Work are properly sized and located.

C. Verify built-in items are in proper location and ready for roughing into Work.

D. Verify correct size of excavation.

3.2 PREPARATION

A. Perform bypass pumping in accordance with Section 01510, Bypass Pumping.

B. Coordinate placement of inlet and outlet pipe or duct sleeves required by other sections.

C. A waterstop gasket and approved clamp assembly shall be installed around the pipe when entering and leaving a catch basin or inlet wall.

D. Do not install catch basins or inlets where site conditions induce loads exceeding structural capacity of structures.

E. Inspect precast structures immediately prior to placement in excavation to verify manholes and structures are internally clean and free from damage. Remove and replace damaged units.

F. The excavation shall be properly dewatered while placing bedding material and pouring the concrete.

3.3 INSTALLATION - GENERAL

A. Excavation and Backfill:
   1. Excavate for catch basins and inlets in accordance with Section 02324, Trenching, Backfilling, and Compaction. Provide clearance around sidewalls of catch basin and inlet for construction operations, granular backfill, and, if required, placement of geotextile filter fabric.
   2. When groundwater is encountered, prevent accumulation of water in excavations. Place structure in dry trench.

B. Set catch basins and inlets in the proper location at the invert elevations indicated on the Contract Documents with rim at the proper elevation. Set structure plumb and true on aggregate base (compacted aggregate for pre-cast structures only). Under no condition remove a portion of the structure for adjustment purposes.

C. Install catch basins and inlets in a manner to ensure watertight construction.

D. Install catch basins and inlets to preclude sediment from any tributary areas from entering the structure until such areas have been stabilized.

E. Place sections plumb and level, trim to correct elevations, and anchor to foundation slab, as applicable.

F. Backfill excavations for structures in accordance with Section 02324, Trenching, Backfilling and Compaction.

3.4 PRECAST CONCRETE INLET AND CATCH BASIN INSTALLATION

A. Lift precast inlet or catch basin at lifting points designated by Manufacturer.

B. When lowering inlet or catch basin into excavations and joining pipe to units, take precautions to ensure interior of pipeline and structure remains clean.

C. Set precast inlet or catch basin firmly and fully on 12-inches of compacted Type A1 crushed stone bedding, consolidated in accordance with provisions of Section 02324, Trenching, Backfilling, and Compaction.

D. Remove foreign materials from joint surfaces and verify sealing materials are placed properly.

E. Verify inlet or catch basin structures installed satisfy required alignment and grade.

F. Remove knockouts without creating openings larger than required to receive pipe. Fill annular space in accordance with Section 03600, Grout.

G. Cut pipe to finish flush with interior wall.

H. Damaged curb shall be sawcut in accordance with Section 02230, Site Clearing.

I. Form and replace damaged curb in accordance with Section 02750, Concrete Pavement.

3.5 CAST-IN-PLACE CONCRETE INLET AND CATCH BASIN INSTALLATION

A. Prepare crushed stone bedding or other support system shown on Standard Details, to receive foundation slab as specified for precast manholes and structures.

B. Erect and brace forms against movement in accordance with Section 03300, Cast-In-Place Concrete.

C. If CONTRACTOR elects to install an 8-inch wall thickness, install reinforcing steel as indicated on Contract Documents and in accordance with Section 03300, Cast-In-Place Concrete.

D. Place and cure concrete in accordance with Section 03300, Cast-In-Place Concrete.

E. Damaged curb shall be sawcut in accordance with Section 02230, Site Clearing.

F. Form and replace damaged curb in accordance with Section 02750, Concrete Pavement.

3.6 CAST-IN-PLACE CONCRETE INLET AND CATCH BASIN WITH PRECAST CONCRETE BASE INSTALLATION

A. Set precast base firmly and fully on 12-inches of compacted Type A1 crushed stone bedding, consolidated in accordance with provisions of Section 02324, Trenching, Backfilling, and Compaction.

B. Erect and brace forms against movement in accordance with Section 03300, Cast-In-Place Concrete.

C. If CONTRACTOR elects to install an 8-inch wall thickness, install reinforcing steel as indicated on Contract Documents and in accordance with Section 03300, Cast-In-Place Concrete.

D. Install joint gaskets between precast base and cast-in-place sections in accordance with manufacturer's recommendations and Contract Documents. Lower, set level, and firmly position base section before placing or casting additional sections.

E. Place and cure concrete in accordance with Section 03300, Cast-In-Place Concrete.

F. Damaged curb shall be sawcut in accordance with Section 02230, Site Clearing.

G. Form and replace damaged curb in accordance with Section 02750, Concrete Pavement.

3.7 FRAME, GRATE, AND CASTING INSTALLATION

A. Frames shall be set into 2 rings of elastomeric sealant and secured with a minimum of 2, 3/4-inch Stainless Steel anchor bolts.

B. Any casting set more than 3/16-inch above or below the finished surface of the adjoining concrete, brick, block, stone, or bituminous surface, as determined by a 10-foot straight edge, shall be reset by the CONTRACTOR and at the CONTRACTOR's expense.

C. Provide for adjustment of frames using solid rubber composite or adjustable risers conforming to Section 02281, Manhole and Catch Basin Grade Adjustment, with a cement mortar or non-shrink grout to close the opening between the frame and structure.

D. Set top of frame flush with the ordained (original) street grade. Provide for adjustment of grates to finished street grade using precast steel leveling rings.

3.8 WATER QUALITY INSERT INSTALLATION

A. Remove the grate from the casting or drainage structures. Clean the ledge (lip) of the casting or drainage structure to ensure it is free of dirt and stone. Drop in the water quality filter insert through the clear opening and rest the suspension hangers firmly on the inside ledge (lip) of the casting or drainage structure. Replace the grate and confirm it is not elevated more than an 1/8-inch.

B. For curb box inlet filters refer to the Manufacture's installation instructions.

3.9 FIELD QUALITY CONTROL

A. See Section 01400, Quality Requirements.

B. See Section 01700, Execution Requirements.

C. Test cast-in-place concrete in accordance with Section 03300, Cast In-Place Concrete.

END OF SECTION

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EXHIBIT C

Construction Cost Estimate

PWSA COST ESTIMATE
FOR
SMITHFIELD ST RECONSTRUCTION PROJECT PHASE 1
FORBES AVENUE TO SIXTH AVENUE

November 26, 2025

QTY	ITEM NUMBER	UNIT	DESCRIPTION	UNIT COST	COST
19	9000-0701	EACH	PWSA GRADE ADJUSTMENT OF EXISTING VALVE	$600.00	$11,400.00
11	9000-0702	EACH	PWSA REPLACE EXISTING VALVE BOXES	$900.00	$9,900.00
4	9000-0703	EACH	PWSA GRADE ADJUSTMENT OF EXISTING PWSA MANHOLE	$1,200.00	$4,800.00
4	9000-0704	EACH	PWSA FIRE HYDRANT ASSEMBLY W/ CONCRETE THRUST BLOCK	$18,000.00	$72,000.00
			-FIRE HYDRANT ASSEMBLY: $8,000		
			-CONCRETE THRUST BLOCK: $2,500		
			-6" 45º FITTINGS WITH CONCRETE THRUST BLOCK: $2,500		
			-6" DUCTILE IRON WATERLINE: $500		
			-2' SPOOL PIECE WITH INSULATED COUPLING: $1,500		
			-EXCAVATION: $1,500		
			-BACKFILL: $1,500		
4	9000-0705	EACH	PWSA FIRE HYDRANT ASSEMBLY REMOVAL	$1,300.00	$5,200.00
1	9000-0707	EACH	PWSA TEE AND VALVE INSTALLATION, 12"X12"X6" TEE	$3,300.00	$3,300.00
3	9000-0708	EACH	PWSA 6" GATE VALVE	$3,200.00	$9,600.00

SUB TOTAL			$116,200.00
CONTINGENCY	**5%**		$5,810.00
SUB TOTAL			$122,010.00
TOTAL COST			$122,010.00
CALL			$123,000.00

Certificate Of Completion

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Source Envelope:
Document Pages: 60
Signatures: 5
Certificate Pages: 6
Initials: 0
AutoNav: Enabled
EnvelopeId Stamping: Enabled
Time Zone: (UTC-05:00) Eastern Time (US & Canada)

Envelope Originator:
Stacey Roach
414 Grant Street
Room 502
Pittsburgh, PA 15219
stacey.roach@pittsburghpa.gov
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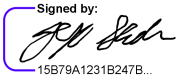
Jeff Skalican Jeff.skalican@pittsburghpa.gov Security Level: Email, Account Authentication (Optional), Logged in **Electronic Record and Signature Disclosure:** Accepted: 12/18/2025 11:40:19 AM ID: b13b9b24-4bf7-42e2-9dcd-82489b345f29	Signed by:  15B79A1231B247B... Signature Adoption: Drawn on Device Using IP Address: 205.141.129.43	Sent: 1/21/2026 1:58:15 PM Viewed: 1/21/2026 1:59:20 PM Signed: 1/21/2026 1:59:31 PM
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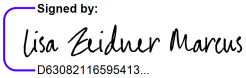
Lisa Zeidner Marcus Lisa.Marcus@pittsburghpa.gov Security Level: Email, Account Authentication (Optional), Logged in **Electronic Record and Signature Disclosure:** Not Offered via Docusign	Signed by:  D63082116595413... Signature Adoption: Pre-selected Style Using IP Address: 205.141.129.43	Sent: 1/23/2026 11:48:24 AM Viewed: 1/23/2026 12:46:03 PM Signed: 1/23/2026 12:49:22 PM

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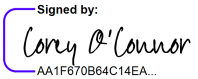
Corey O'Connor Mayor@pittsburghpa.gov Mayor City of Pittsburgh Security Level: Email, Account Authentication (Optional) **Electronic Record and Signature Disclosure:** Not Offered via Docusign	Signed by:  AA1F670B64C14EA... Signature Adoption: Pre-selected Style Using IP Address: 73.236.187.60	Sent: 1/23/2026 12:49:24 PM Viewed: 1/27/2026 3:21:56 PM Signed: 1/27/2026 4:06:09 PM
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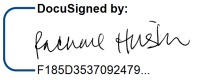
Rachael Heisler rachael.heisler@pittsburghpa.gov Deputy Controller City of Pittsburgh Security Level: Email, Account Authentication (Optional) **Electronic Record and Signature Disclosure:** Not Offered via Docusign	DocuSigned by:  F185D3537092479... Signature Adoption: Pre-selected Style Using IP Address: 205.141.129.43	Sent: 1/30/2026 12:21:04 PM Viewed: 1/30/2026 12:44:22 PM Signed: 1/30/2026 12:44:33 PM
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Notary Events	Signature	Timestamp

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Completed	Security Checked	1/30/2026 2:16:45 PM

Payment Events	Status	Timestamps

Electronic Record and Signature Disclosure

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You may contact us to let us know of your changes as to how we may contact you electronically, to request paper copies of certain information from us, and to withdraw your prior consent to receive notices and disclosures electronically as follows:
To contact us by email send messages to: riley.stewart@pittsburghpa.gov

To advise Carahsoft OBO City of Pittsburgh of your new email address

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ii. send us an email to riley.stewart@pittsburghpa.gov and in the body of such request you must state your email, full name, mailing address, and telephone number. We do not need any other information from you to withdraw consent.. The consequences of your withdrawing consent for online documents will be that transactions may take a longer time to process..

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- Until or unless you notify Carahsoft OBO City of Pittsburgh as described above, you consent to receive exclusively through electronic means all notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to you by Carahsoft OBO City of Pittsburgh during the course of your relationship with Carahsoft OBO City of Pittsburgh.

CERTIFICATE OF SERVICE

I hereby certify that I served a copy of the foregoing Public Utility Municipal Contract – Reimbursement Agreement between The City of Pittsburgh and The Pittsburgh Water and Sewer Authority d/b/a Pittsburgh Water - upon the persons listed below in the manner indicated in accordance with the requirements of 52 Pa. Code Section 1.54.

Via Email Only (due to the current pandemic emergency)

Darryl Lawrence
Office of Consumer Advocate
ra-oca@paoca.org

NazAarah Sabree
Office of Small Business Advocate
nsabree@pa.gov
ra-sba@pa.gov

Allison Kaster
Bureau of Investigation and Enforcement
akaster@pa.gov

Dated: February 2, 2026

/s/ Monica Walaan
Monica Walaan, Esq.
Chief Legal Officer
The Pittsburgh Water and Sewer Authority
d/b/a Pittsburgh Water