Request for Bid Proposal	Marshall University Office of Purchasing One John Marshall Drive Huntington, WV 25755-4100 Direct all inquiries regarding this order to: (304) 696-3498	**Bid#** R2501725 **Addendum No. 01**

Vendor:

For information call:
Purchasing Contact: Missy Workman
Phone: (304) 696-3498
Email: workman57@marshall.edu & purchasing@marshall.edu

Sealed requests to bid for furnishing the supplies, equipment or services described below will be received by the Institution. TO RECEIVE CONSIDERATION FOR AWARD, UNLESS OTHERWISE NOTED, THE BID WILL BE SUBMITTED ON THIS FORM AND UPLOADED INTO THE MU BONFIRE PORTAL ON OR BEFORE THE DATE AND TIME SHOWN FOR THE BID OPENING. When applicable, prices will be based on units specified; and Bidders will enter the delivery date or time for items contained herein. The Institution reserves the right to accept or reject bids on each item separately or as a whole, to reject any or all bids, to waive informalities or irregularities and to contract as the best interests of the Institution may require. BIDS ARE SUBJECT TO THE GENERAL TERMS AND CONDITIONS AS SET FORTH HEREIN.

DATE	MANDATORY PRE-BID MEETING HELD: March 27, 2025 @ 10:00AM. Meeting at MU Memorial Student Center Room 2E10 for ALL BIDDERS	DEPARTMENT REQUISITION NO.	BIDS OPEN:	BIDDER MUST ENTER DELIVERY DATE FOR EACH ITEM BID
04/03/2025		R2501725	4/10/2025 at 3:00pm EST Broadcast via Teams: https://tinyurl.com/MU-SnA-Stormwater-R2501725	

Item #	Quantity	Description	Unit Price	Extended Price
		ADDENDUM NO. 01 **Project Name: R2501725 - Shock & Awe Stormwater Improvements Phase I Marshall University Huntington, West Virginia** **Purpose:** **To attach Meeting Minute Notes, Mandatory Pre-Bid Sign-In Sheet, Respond to Vendor's Technical Questions, provide Changes to Specifications, and attach Changes to Drawings.**		
			Total	

To the Office of Purchasing,
In compliance with the above, the undersigned offers and agrees, if this offer is accepted within _____ calendar days (30 calendar days unless a different period is inserted by the purchaser) from the bid open date, specified above, to furnish any or all items upon which prices are offered, at the price set opposite each item, delivered at the designated point(s), within the time specified.

Bidder guarantees shipment from _____ within _____ days

FOB After receipt of order at address shown

Terms _____

Bidder's name Vendor _____

Signed By _____

Typed Name _____

Title _____

Email _____

Street Address _____

City/State/Zip _____

Date _____ Phone _____

Fein _____

BOG 43

SOLICITATION NUMBER: R2501725

Addendum Number: 01

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

Applicable Addendum Category:

- ☐ Modify Bid Opening Date and Time
- ☑ Modify Specifications of Product or Service being sought
- ☑ Attachment of Vendor Questions and Responses
- ☑ Attachment of Pre-Bid Sign-in Sheet
- ☑ Attachment of Pre-Bid Meeting Minute Notes
- ☐ Correction of error
- ☐ Other

Description of Modification to Solicitation:

Addendum issued to publish and distribute the attached documentation to the vendor community.

Pre-Bid Meeting Minute Notes

Mandatory Pre-Bid Sign-in Sheet

Respond to Vendor's Technical Questions

Provide Changes to Specifications

Provide Changes to Drawings

NO OTHER CHANGES

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.

2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

April 3, 2025

ADDENDUM NO. 1

RE: Stormwater Improvements
Shock and Awe
Marshall University
Huntington, West Virginia
Architect's Project No. 24020

TO: Prospective Bidders

FROM: ZMM, Inc. Architects and Engineers

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents.

ATTACH THIS ADDENDUM TO THE FRONT COVER OF THE PROJECT MANUAL AND ACKNOWLEDGE RECEIPT OF THIS ADDENDUM IN THE SPACE PROVIDED ON THE BID FORM.

PART 1 - INFORMATION FOR BIDDERS

A. Pre-Bid Meeting Sign-In Sheet is attached to this Addendum.

B. A sub-surface investigation/geotechnical report for areas near the construction site is not available.

PART 2 - CLARIFICATIONS

A. Access shall be maintained to building doors during construction.

B. For the SRPE tank, the space required between the outside of the tank and the outside edge of the stone backfill shall be 16.5 inches.

C. Contractor shall supply water for flushing of the sewer lines.

PART 3 - CHANGES TO SPECIFICATIONS

A. REPLACE Liability Insurance and Property Insurance certificates with insurance certificates attached to this Addendum.

B. REPLACE Section 338000 "Site Sanitary Sewerage" with replacement Section as attached to this Addendum.

PART 4 - CHANGES TO DRAWINGS

A. Sheet C200, C201, and C202: Delete key note #4. Add key note #4 "clean out and video inspect 15" pipe. Document routing and notify engineer of findings. Install lining per specifications.

1. Combined sewer system will remain active during construction. Provide temporary pump-around or other method to maintain active system during construction."

B. Sheet C200, C201, and C202: Delete key note #10. Add key note #10 "Owner shall be responsible for relocation of underground communications and power lines as needed for storage tank installation. Contractor shall coordinate with Owner."

END OF ADDENDUM

Attachments:
Pre-Bid Meeting Sign-In Sheet ..... 1 page
Marshall U Liability Insurance Certificate ..... 8 ½" x 11"
Marshall U Property Insurance Certificate ..... 8 ½" x 11"
Section 338000 "Site Sanitary Sewerage" .....11 pages

R2501725

Office of Purchasing

MANDATORY PRE-BID MEETING SIGN-IN SHEET

PROJECT NAME: Shock & Awe Storm Water Improvement Phase I
PROJECT NO: R2501725
MEETING PLACE: Student Center 2W16
DATE: March 27, 2025

Confirmed Email Attendees:

#	NAME	TITLE	REPRESENTING	PHONE	CELL	FAX	EMAIL
1.	Matt Perkins	Sr. Project Manager	Lakecrest Construction LLC	304-657-0141	304 657-0141	—	mperkins@Lakecrest.LLC
2.	Jon Entenmann	PM	C.J. Hughes Con.	304-951-8500			jentenmann@cjhughes.com
3.	Kyle Adams	PM	C.J. Hughes Con.	740-744-9873			kadams@cjhughes.com
4.	Scott Wheeler	PM	Landcore Builders	304-419-1378			dwheeler@landcore builders.com
5.	James Lowry	Mechanical Engr	ZMM	304-342-1154			Lowry Je ZMM.com
6.	Zanch Wanglin	Associate Director Planning + Construction	MU	304-696-6415			wang hol@marshall.edu
7.	Michelle Wheeler	CPO	MU Purchasing	304-696-3757			Michelle.Wheeler@marshall
8.	Missy Workman	Construction Purchasing	MU Purchasing	304-696-3498			Mworkman57@marshall
9.							

Developed by the Office of Purchasing

Revised: 11/2/20

CERTIFICATE OF LIABILITY INSURANCE

DATE
MM/DD/YY

INSURANCE AGENCY ADDRESS CITY, STATE, ZIP CODE	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

CONTRACTOR ADDRESS CITY, STATE, ZIP CODE	INSURER'S AFFORDING COVERAGE		NAIC#
	INSURER A:	INSURANCE COMPANY	
	INSURER B:		
	INSURER C:		

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM, OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS, AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INS LTR	ADD'L INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE	POLICY EXPIRATION DATE	LIMITS	
A		GENERAL LIABILITY	12345678	MM/DD/YY	MM/DD/YY	EACH OCCURRENCE	$1,000,000.00
		[X] COMMERCIAL GENERAL LIABILITY				DAMAGE TO RENTED PREMISES	
		[ ] CLAIMS MADE [X] OCCURRENCE				MEDICAL EXPENSE	
		[X] XCU INCLUDED				PERSONAL & ADV INJURY	Included
		[X] NO DEDUCTIBLE				GENERAL AGGREGATE	$3,000,000.00
		GENERAL AGGREGATE LIMIT APPLIES TO				PRODUCTS - COMP/OP AGG	None
		[X] POLICY [ ] PROJECT [ ] LOC					
A		AUTOMOBILE LIABILITY	123456789	MM/DD/YY	MM/DD/YY	COMBINED SINGLE LIMIT (EACH ACCIDENT)	$1,000,000.00
		[ ] ANY AUTO					
		[X] ALL OWNED AUTOS				BODILY INJURY (PER PERSON)	
		[X] SCHEDULED AUTOS					
		[X] HIRED AUTOS				BODILY INJURY (PER ACCIDENT)	
		[X] NON-OWNED AUTOS					
		[ ] NO DEDUCTIBLE				PROPERTY DAMAGE (PER ACCIDENT)	$3,000,000.00
		GARAGE LIABILITY				AUTO ONLY - EACH ACCIDENT	
		[ ] ANY AUTO				OTHER THAN AUTO ONLY: EACH. ACC.	
						AGGREGATE	
A		EXCESS UMBRELLA LIABILITY	123456789	MM/DD/YY	MM/DD/YY	EACH OCCURRENCE	$1,000,000.00
		[X] OCCURRENCE [ ] CLAIMS MADE				AGGREGATE	$5,000,000.00
		[ ] DEDUCTIBLE					
		[ ] RETENTION $					
A		EMPLOYER'S LIABILITY	123456789	MM/DD/YY	MM/DD/YY	[ ] WC STATUTORY LIMITS	
						[ ] OTHER	
						E.L. EACH ACCIDENT	$1,000,000.00
						E.L. DISEASE - EACH EMPLOYEE	$1,000,000.00
						E.L. DISEASE - POLICY LIMIT	$1,000,000.00
		OTHER					

Certificate Holder, its Officers, Employees, Agents, and ZMM, Inc. are included as additional insured with a Waiver Of Subrogation as respects to project:
(Description)

CERTIFICATE HOLDER	X	CANCELLATION
MARSHALL UNIVERSITY ONE JOHN MARSHALL DRIVE HUNTINGTON, WEST VIRGINIA		SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 60 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS, OR REPRESENTATIVES. AUTHORIZED REPRESENTATIVE:

R2501725

CERTIFICATE OF PROPERTY INSURANCE

DATE
MM/DD/YY

INSURANCE AGENCY ADDRESS CITY, STATE, ZIP CODE	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

CONTRACTOR ADDRESS CITY, STATE, ZIP CODE	INSURER'S AFFORDING COVERAGE		NAIC#
	INSURER A:		
	INSURER B:		
	INSURER C:		

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM, OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS, AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR		TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE	POLICY EXPIRATION DATE		Covered Property	Limits
				MM/DD/YY	MM/DD/YY		Building	
		☐ PROPERTY					Personal Property	
		Causes of Loss					Business income	
		☐ Basic					Extra Expense	
		☐ Broad					Blanket Building	
		☐ Special					Blanket Personal Property	
		☐ Earthquake					Blanket Building & PP	
		☐ Flood						
		X Inland Marine				X	Building	Contract Amount
		Type of Policy				X	Transit	20%
A		Builder's Risk	CMM000013	8/20/2024	8/20/2025	X	Off-Site Storage	20%
		Causes of Loss						$1,000,000.00
		X Named Perils						
		☐ Other						
		X Crime						
		Type of Policy						
		Special w/Theft	CMM000014	8/20/2024	8/20/2025			$1,000,000.00
		☐ Boiler and Machinery						
		☐ Other						

Location of Premises/Description of Property

Project Name and Address

Special Conditions/Other Coverages

Marshall University is to be named as additional insured

CERTIFICATE HOLDER X	CANCELLATION
Marshall University One John Marshall Drive Huntington, WV 25755	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 60 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS, OR REPRESENTATIVES. AUTHORIZED REPRESENTATIVE:

SECTION 338000 – SITE SANITARY SEWERAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Pipe and fittings.
2. Nonpressure and pressure couplings.
3. Cured-in-place pipe (CIPP) lining.
4. Cleanouts.
5. Manholes.
6. Flap gates.
7. Underground storage tanks.

1.3 ACTION SUBMITTALS

A. Product Data: For the following:

1. Pipe and fittings.
2. Nonpressure and pressure couplings.
3. Cured-in-place pipe (CIPP) lining.
4. Cleanouts.
5. Manholes.
6. Flap gates.
7. Underground storage tanks.

B. Shop Drawings: For manholes and underground storage tanks. Include plans, elevations, sections, details, and frames and covers.

C. Calculations: CIPP liner thickness calculations per Annex A1 of ASTM F1216.

D. Reports:

1. CCTV inspection reports of pipes.
2. Testing reports for new pipes and linings.

1.4 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Show pipe sizes, locations, and elevations. Show other piping in same trench and clearances from sewer system piping. Indicate interface and spatial relationship between manholes, piping, and proximate structures.

B. Profile Drawings: Show system piping in elevation. Draw profiles to horizontal scale of not less than 1 inch equals 50 feet and to vertical scale of not less than 1 inch equals 5 feet. Indicate manholes and piping. Show types, sizes, materials, and elevations of other utilities crossing system piping.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Do not store plastic pipe and fittings in direct sunlight.

B. Protect pipe, pipe fittings, and seals from dirt and damage.

1.6 PROJECT CONDITIONS

A. Interruption of Existing Sanitary Sewerage Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:

1. Notify Owner no fewer than two days in advance of proposed interruption of service.
2. Do not proceed with interruption of service without Owner's written permission.

PART 2 - PRODUCTS

2.1 PVC PIPE AND FITTINGS

A. PVC Type PSM Sewer Piping:

1. Pipe: ASTM D 3034, SDR 35, PVC Type PSM sewer pipe with bell-and-spigot ends for gasketed joints.
2. Fittings: ASTM D 3034, PVC with bell ends.
3. Gaskets: ASTM F 477, elastomeric seals.

B. PVC Water-Service Piping:

1. Pipe: ASTM D 1785, Schedule 40 PVC, with plain ends for solvent-cemented joints.
2. Fittings: ASTM D 2466, Schedule 4 PVC, socket type.

2.2 NONPRESSURE-TYPE TRANSITION COUPLINGS

A. Comply with ASTM C 1173, elastomeric, sleeve-type, reducing or transition coupling, for joining underground nonpressure piping. Include ends of same sizes as piping to be joined and corrosion-resistant-metal tension band and tightening mechanism on each end.

B. Sleeve Materials:

1. For Plastic Pipes: ASTM F 477, elastomeric seal or ASTM D 5926, PVC.
2. For Dissimilar Pipes: ASTM D 5926, PVC or other material compatible with pipe materials being joined.

C. Unshielded, Flexible Couplings:

1. Description: Elastomeric sleeve with corrosion-resistant-metal tension band and tightening mechanism on each end.

D. Shielded, Flexible Couplings:

1. Description: ASTM C 1460, elastomeric or rubber sleeve with full-length, corrosion-resistant outer shield and corrosion-resistant-metal tension band and tightening mechanism on each end.

E. Ring-Type, Flexible Couplings:

1. Description: Elastomeric compression seal with dimensions to fit inside bell of larger pipe and for spigot of smaller pipe to fit inside ring.

F. Nonpressure-Type, Rigid Couplings:

1. Description: ASTM C 1461, sleeve-type, reducing- or transition-type mechanical coupling, molded from ASTM C 1440, TPE material; with corrosion-resistant-metal tension band and tightening mechanism on each end.

2.3 CURED-IN-PLACE PIPE (CIPP) LINING

A. Cured-in-place pipe (CIPP) lining: ASTM F1216, 50-year design life.

1. Installed via inversion using water or air pressure, and cured with hot water or steam.
2. Liner Material: Polyester or vinyl ester resin with a felt tube (non-wover polyester or equivalent). Liner shall meet ASTM D5813 for cured resin properties.
3. CIPP thickness: 9mm. Provide calculations per ASTM F1216, Annex A1.
4. Ling shall be watertight and free of leaks, verified by post-lining CCTV inspection.

2.4 CLEANOUTS

A. Cast-Iron Cleanouts:

1. Description: ASME A112.36.2M, round, gray-iron housing with clamping device and round, secured, scoriated, gray-iron cover. Include gray-iron ferrule with inside calk or spigot connection and countersunk, tapered-thread, brass closure plug.
2. Top-Loading Classification(s): Heavy Duty.
3. Sewer Pipe Fitting and Riser to Cleanout: ASTM A 74, Service class, cast-iron soil pipe and fittings.

B. Plastic Cleanouts with Cast Iron Inspection Frame and Lid:

1. Description: PVC body with PVC threaded plug. Include PVC sewer pipe fitting and riser to cleanout of same material as sewer piping.
2. Cast iron inspection frame and lid shall be Neenah R-1974-A or approved equal.

C. Cleanouts:

1. Basis of Design: Zurn ZN1400-HD Cleanout
2. Standard: ASME A112.36.2M, for heavy-duty, adjustable housing cleanouts.
3. Size: Same as connected branch, unless otherwise indicated.
4. Type: Heavy-duty, adjustable housing.
5. Body or Ferrule Material: Cast iron.
6. Clamping Device: Required.
7. Outlet Connection: Threaded.
8. Closure: Brass plug with straight threads and gasket.
9. Adjustable Housing Material: Cast iron with threads.
10. Frame and Cover Material and Finish: Nickel-bronze, copper alloy.
11. Frame and Cover Shape: Round.
12. Top-Loading Classification: Heavy Duty.
13. Riser: ASTM A 74, Service class, cast-iron drainage pipe fitting and riser to cleanout.

2.5 MANHOLES

A. Standard Precast Concrete Manholes:

1. Description: ASTM C 478 precast, reinforced concrete, of depth indicated, with provision for sealant joints.
2. Diameter: 48 inches minimum unless otherwise indicated.
3. Ballast: Increase thickness of precast concrete sections or add concrete to base section as required to prevent flotation.
4. Base Section: 6-inch minimum thickness for floor slab and 5-inch minimum thickness for walls and base riser section, and separate base slab or base section with integral floor.
5. Riser Sections: 5-inch minimum thickness, and lengths to provide depth indicated.
6. Top Section: Eccentric-cone type unless concentric-cone or flat-slab-top type is indicated, and top of cone of size that matches grade rings.
7. Joint Sealant: ASTM C 990 bitumen or butyl rubber.
8. Resilient Pipe Connectors: ASTM C 923 cast or fitted into manhole walls, for each pipe connection.
9. Steps: ASTM A 615/A 615M, deformed, 1/2-inch (13-mm) steel reinforcing rods encased in ASTM D 4101, PP, wide enough to allow worker to place both feet on one step and designed to prevent lateral slippage off step. Cast or anchor steps into sidewalls at 12- to 16-inch intervals. Omit steps if total depth from floor of manhole to finished grade is less than 60 inches.
10. Adjusting Rings: Interlocking HDPE rings with level or sloped edge in thickness and diameter matching manhole frame and cover, and of height required to adjust manhole frame and cover to indicated elevation and slope. Include sealant recommended by ring manufacturer.
11. Grade Rings: Reinforced-concrete rings, 6- to 9-inch total thickness, to match diameter of manhole frame and cover, and height as required to adjust manhole frame and cover to indicated elevation and slope.

B. Designed Precast Concrete Manholes:

1. Description: ASTM C 913; designed according to ASTM C 890 for A-16 (AASHTO HS20-44), heavy-traffic, structural loading; of depth, shape, and dimensions indicated, with provision for sealant joints.
2. Ballast: Increase thickness of one or more precast concrete sections or add concrete to manhole as required to prevent flotation.
3. Joint Sealant: ASTM C 990 bitumen or butyl rubber.
4. Resilient Pipe Connectors: ASTM C 923, cast or fitted into manhole walls, for each pipe connection.
5. Steps: ASTM A 615/A 615M, deformed, 1/2-inch (13-mm) steel reinforcing rods encased in ASTM D 4101, PP wide enough to allow worker to place both feet on one step and designed to prevent lateral slippage off step. Cast or anchor steps into sidewalls at 12- to 16-inch intervals. Omit steps if total depth from floor of manhole to finished grade is less than 60 inches.
6. Adjusting Rings: Interlocking HDPE rings with level or sloped edge in thickness and diameter matching manhole frame and cover, and of height required to adjust manhole frame and cover to indicated elevation and slope. Include sealant recommended by ring manufacturer.
7. Grade Rings: Reinforced-concrete rings, 6- to 9-inch total thickness, to match diameter of manhole frame and cover, and of height required to adjust manhole frame and cover to indicated elevation and slope.

C. Manhole Frames and Covers:

1. Description: Ferrous; 24-inch ID by 7- to 9-inch riser with 4-inch- minimum width flange and 26-inch- diameter cover. Include indented top design with lettering cast into cover, using wording equivalent to "STORM SEWER."
2. Material: ASTM A 48/A 48M, Class 35 gray iron unless otherwise indicated.

2.6 CONCRETE

A. General: Cast-in-place concrete complying with ACI 318, ACI 350/350R and the following:

1. Cement: ASTM C 150, Type II.
2. Fine Aggregate: ASTM C 33, sand.
3. Coarse Aggregate: ASTM C 33, crushed gravel.
4. Water: Potable.

B. Portland Cement Design Mix: 4000 psi minimum, with 0.45 maximum water/cementitious materials ratio.

1. Reinforcing Fabric: ASTM A 185/A 185M, steel, welded wire fabric, plain.
2. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (420 MPa) deformed steel.

C. Manhole Channels and Benches: Factory or field formed from concrete. Portland cement design mix, 4000 psi minimum, with 0.45 maximum water/cementitious materials ratio. Include channels and benches in manholes.

1. Channels: Concrete invert, formed to same width as connected piping, with height of vertical sides to three-fourths of pipe diameter. Form curved channels with smooth, uniform radius and slope.

    a. Invert Slope: 2 percent through manhole.

2. Benches: Concrete, sloped to drain into channel.

    a. Slope: 8 percent.

2.7 FLAP GATES

A. Flap gates shall be heavy-duty with the features listed below.

1. Made of cast iron or ductile iron.
2. Flat-back seat is partially drilled to match a 125 lb. ASME bolt circle for attaching to concrete wall or pipe flange.
3. Open/close automatically based on differing water levels to prevent backflow into upstream end of device.
4. Seat/frame is a one-piece casting. The seating face is cast and machined at an angle off vertical so that the hinged cover has a horizontal force component to completely seat the gate by gravity.
5. Flaps are iron castings of reinforced flat plate design. Reinforcing ribs (both horizontal and vertical) are cast integrally along with bosses for the hinges.
6. Seats and flaps shall have corrosion-resistant seating faces.
7. Hinges shall be “double-hinge action” for proper seating of flap gate. The main hinge action shall be at the upper pivot point with limited hinge action at the lower pivot point and with bushings at each pivot point.
8. Pivot Lug for gates shall be adjustable.
9. Anti-sway bar creates a uniform and rigid hinging operation of the gate.

B. Flap gates shall be sized for opening called out in plans.

C. Basis of Design: Hydro Gate as manufactured by Mueller.

2.8 UNDERGROUND STORAGE TANKS

A. Underground storage tanks shall be manufactured of steel-reinforced polyethylene (SRPE) and include the following features:

1. Two access risers with mounted fiberglass ladders.
2. Custom sloped floor and low-flow channel.
3. Inlet and outlet stubs.
4. Watertight welded joints.
5. Diameter and capacity as shown on plans.

B. Basis of Design: DuroMaxx Overflow Storage System as manufactured by Contech.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Excavating, trenching, and backfilling are specified in Section 312000 "Earth Moving."

3.2 PIPING INSTALLATION

A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground sanitary sewer piping. Location and arrangement of piping layout take into account design considerations. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.

B. Verify bedding material elevations (check with level) and provide continuous, positive drainage slopes as indicated on plans without dips, low spots, or abrupt changes.

C. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for using lubricants, cements, and other installation requirements.

D. Use fittings for branch connections unless direct tap into existing sewer is indicated.

E. Install proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.

F. When installing pipe under streets or other obstructions that cannot be disturbed, use pipe-jacking process of microtunneling.

G. Install gravity-flow, nonpressure, drainage piping according to the following:

1. Install piping pitched down in direction of flow, at minimum slope of 1 percent unless otherwise indicated.
2. Install piping with 36-inch minimum cover.
3. Install PVC gravity sewer piping according to ASTM D 2321 and ASTM F 1668.

H. Install force-main, pressure piping according to the following:

1. Install piping with restrained joints at tee fittings and at horizontal and vertical changes in direction. Use corrosion-resistant rods, pipe or fitting manufacturer's proprietary restraint system, or cast-in-place-concrete supports or anchors.
2. Install piping with 36-inch minimum cover.
3. Install PVC pressure piping according to AWWA M23 or to ASTM D 2774 and ASTM F 1668.
4. Install PVC water-service piping according to ASTM D 2774 and ASTM F 1668.

I. Clear interior of piping of dirt and superfluous material as work progresses. Maintain swab or drag in piping, and pull past each joint as it is completed. Place plug in end of incomplete piping at end of day and when work stops.

3.3 PIPE JOINT CONSTRUCTION

A. Join gravity-flow, nonpressure, drainage piping according to the following:

1. Join PVC gravity sewer piping according to ASTM D 2321 and ASTM D 3034 for elastomeric-seal joints or ASTM D 3034 for elastomeric-gasket joints.
2. Join dissimilar pipe materials with nonpressure-type, flexible or rigid couplings.

B. Join force-main, pressure piping according to the following:

1. Join PVC pressure piping according to AWWA M23 for gasketed joints.
2. Join PVC water-service piping according to ASTM D 2855.
3. Join dissimilar pipe materials with pressure-type couplings.

C. Pipe couplings, expansion joints, and deflection fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.

1. Use nonpressure flexible couplings where required to join gravity-flow, nonpressure sewer piping unless otherwise indicated.

a. Shielded flexible couplings for pipes of same or slightly different OD.
b. Unshielded, increaser/reducer-pattern, flexible couplings for pipes with different OD.
c. Ring-type flexible couplings for piping of different sizes where annular space between smaller piping's OD and larger piping's ID permits installation.

2. Use pressure pipe couplings for force-main joints.

3.4 CURED-IN-PLACE PIPE (CIPP) LINING

A. Prior to pipe lining installation, existing pipes shall be cleaned and roots and debris removed.
B. Perform CCTV inspection post-cleaning and before lining installation. Provide copy of CCTV inspection and report to Owner.
C. Install CIPP lining per ASTM F1216. Also refer to NASSCO’s “Guideline for the Use and Installation of CIPP” for best practices.
D. After installation, perform CCTV inspection of completed lining and provide copy of inspection and report to Owner.
E. The following tests shall be performed per ASTM F1216 and results provided to Owner. Replace any portions of installed piping not meeting results stated in ASTM F1216.

1. Short-Term Flexural (Bending) Properties per ASTM D790.
2. Tensile Properties per ASTM D638
3. Gravity Pipe Leakage Testing.
4. Delamination Test.
5. CIPP Wall Thickness per ASTM D5813 or Ultrasonic Testing of Wall Thickness per ASTM E797.

3.5 CONCRETE PLACEMENT

A. Place cast-in-place concrete according to ACI 318.

3.6 CLEANOUT INSTALLATION

A. Install cleanouts and riser extensions from sewer pipes to cleanouts at grade. Use cast-iron soil pipe fittings in sewer pipes at branches for cleanouts, and use cast-iron soil pipe for riser extensions to cleanouts. Install piping so cleanouts open in direction of flow in sewer pipe.
   1. Use Heavy-Duty, top-loading classification cleanouts in all areas.

B. Set cleanout frames and covers in earth in cast-in-place-concrete block, 18 by 18 by 12 inches deep. Set with tops flush with pavement surface.

3.7 FLAP GATES

A. Install per manufacturer’s recommendations.

B. Ensure frames are mounted securely to a wall or pipe flange and there is no leakage around the connection.

C. Ensure flap seats properly against the frame.

D. Test flap gate for leakage and make any adjustments as needed to minimize leakage.

3.8 UNDERGROUND STORAGE TANKS

A. Install per manufacturer’s recommendations.

3.9 CONNECTIONS

A. Connect nonpressure, gravity-flow drainage piping to building's sanitary building drains specified in Section 221316 "Sanitary Waste and Vent Piping."

B. Make connections to existing piping and underground manholes.

   1. Use commercially manufactured wye fittings for piping branch connections. Remove section of existing pipe, install wye fitting into existing piping, and encase entire wye fitting plus 6-inch overlap with not less than 6 inches of concrete with 28-day compressive strength of 3000 psi.
   2. Make branch connections from side into existing piping, NPS 4 to NPS 20. Remove section of existing pipe, install wye fitting into existing piping, and encase entire wye with not less than 6 inches of concrete with 28-day compressive strength of 3000 psi.
   3. Make branch connections from side into existing piping, NPS 21 or larger, or to underground manholes by cutting opening into existing unit large enough to allow 3 inches of concrete to be packed around entering connection. Cut end of connection pipe passing through pipe or structure wall to conform to shape of and be flush with inside wall unless otherwise indicated. On outside of pipe or manhole wall, encase entering

connection in 6 inches of concrete for minimum length of 12 inches to provide additional support of collar from connection to undisturbed ground.

a. Use concrete that will attain a minimum 28-day compressive strength of 3000 psi unless otherwise indicated.
b. Use epoxy-bonding compound as interface between new and existing concrete and piping materials.

4. Protect existing piping and manholes to prevent concrete or debris from entering while making tap connections. Remove debris or other extraneous material that may accumulate.

3.10 CLOSING ABANDONED SANITARY SEWER SYSTEMS

A. Abandoned Piping: Close open ends of abandoned underground piping indicated to remain in place. Include closures strong enough to withstand hydrostatic and earth pressures that may result after ends of abandoned piping have been closed. Use either procedure below:

1. Close open ends of piping with threaded metal caps, plastic plugs, or other acceptable methods suitable for size and type of material being closed. Do not use wood plugs.

B. Backfill to grade according to Section 312000 "Earth Moving."

3.11 IDENTIFICATION

A. Comply with requirements in Section 31200 "Earth Moving" for underground utility identification devices. Arrange for installation of green warning tapes directly over piping and at outside edges of underground manholes.

1. Use detectable warning tape over ferrous piping.
2. Use detectable warning tape over nonferrous piping.

3.12 FIELD QUALITY CONTROL

A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.

1. Submit separate report for each system inspection.
2. Defects requiring correction include the following:

a. Alignment: Less than full diameter of inside of pipe is visible between structures.
b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
c. Damage: Crushed, broken, cracked, or otherwise damaged piping.
d. Infiltration: Water leakage into piping.
e. Exfiltration: Water leakage from or around piping.

3. Replace defective piping using new materials and repeat inspections until defects are within allowances specified.

4. Reinspect and repeat procedure until results are satisfactory.

B. Test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects.

1. Do not enclose, cover, or put into service before inspection and approval.
2. Test completed piping systems according to requirements of authorities having jurisdiction.
3. Schedule tests and inspections by authorities having jurisdiction with at least 24 hours' advance notice.
4. Submit separate report for each test.
5. Hydrostatic Tests: Test sanitary sewerage according to requirements of authorities having jurisdiction and the following:

    a. Fill sewer piping with water. Test with pressure of at least 10-foot head of water, and maintain such pressure without leakage for at least 15 minutes.
    b. Close openings in system and fill with water.
    c. Purge air and refill with water.
    d. Disconnect water supply.
    e. Test and inspect joints for leaks.

6. Air Tests: Test sanitary sewerage according to requirements of authorities having jurisdiction, UNI-B-6, and the following:

    a. Option: Test plastic gravity sewer piping according to ASTM F 1417.

7. Force Main: Perform hydrostatic test after thrust blocks, supports, and anchors have hardened. Test at pressure not less than 1-1/2 times the maximum system operating pressure, but not less than 150 psig.

    a. PVC Piping: Test according to AWWA M23, "Testing and Maintenance" Chapter.

C. Leaks and loss in test pressure constitute defects that must be repaired.

D. Replace leaking piping using new materials and repeat testing until leakage is within allowances specified.

3.13 CLEANING

A. Clean dirt and superfluous material from interior of piping. Flush with potable water.

END OF SECTION

ADDENDUM ACKNOWLEDGEMENT
FORM SOLICITATION NO.: R2501725 Addendum No.01

Shock & Awe Stormwater Improvements Phase I Marshall University - Huntington, WV

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specifications, etc.

Addendum Numbers Received:

(Check the box next to each addendum received)

☑ Addendum No. 1	☐ Addendum No. 6
☐ Addendum No. 2	☐ Addendum No. 7
☐ Addendum No. 3	☐ Addendum No. 8
☐ Addendum No. 4	☐ Addendum No. 9
☐ Addendum No. 5	☐ Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any University personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

_____
Company

_____
Authorized Signature

_____
Date

NOTE: This addendum acknowledgment should be submitted with the bid to expedite document processing.