

September 26, 2019

ADDENDUM #2

NOTICE TO ALL BIDDERS FOR CITY OF WINCHESTER

ITB #201909 – Construction of New Maintenance Facility at City Yards

This Addendum forms a part of the Contract Documents and modifies the original bidding documents for ITB #201909. **Bidders shall acknowledge receipt of the Addendum in the space provided on the Bid Form and return a signed copy with your bid.**

This Addendum consists of 18 total pages. The following information shall modify and clarify the Contract Documents:

1. The bid opening date has been modified. Bids are now due at **2:00 p.m. on Tuesday, October 15.**
2. A specification for “Truck Wash Bay Rolling Doors” has been added and is attached.
3. A specification for “Rolling Service Doors (Other than Truck Wash Bay Doors)” has been added and is attached.
4. A specification for “Green Roof” has been added and is attached.
5. The finish schedule on Drawing A4 of Building #7 has been modified and is attached.

This Addendum must be signed and returned to the Finance Department – Purchasing Division, 4th Floor Rouss City Hall, 15 North Cameron Street, Winchester, VA 22601 by **2:00 p.m. local time on October 15, 2019** with your BID.

Receipt of Addendum #2 to Invitation to Bid #201909 is acknowledged by my signature below:

Company Name: _____

Authorized Representative: _____

Address: _____

Telephone: _____ FAX: _____

SECTION 08 33 00
TRUCK WASH BAY ROLLING SERVICE DOORS

PART 1 GENERAL

1.1 SUMMARY

- A. **Section Includes Electric** operated overhead rolling doors.
- B. **Related Sections:**
 - 1. 05 50 00 Metal Fabrications. Door opening jamb and head members
 - 2. 06 10 00 Rough Carpentry. Door opening jamb and head members
 - 3. 08 31 00 Access Doors and Panels. Access doors
 - 4. 08 70 00 Hardware. Padlocks. Masterkeyed cylinder
 - 5. 09 91 00 Painting. Field painting
 - 6. Division 26. Electrical wiring and conduit, fuses, disconnect switches, connection of operator to power supply, and installation of control station and wiring
- C. **Products That May Be Supplied, But Are Not Installed Under This Section:**
 - 1. Control Station

1.2 SYSTEM DESCRIPTION

- A. **Design Requirements:**
 - 1. **Wind Loading:**
 - a. Doors to withstand up to 115 MPH design wind load
 - b. Supply doors to be operational up to 20 PSF maximum wind load
 - 2. **Cycle Life:**
 - a. Standard construction for normal use of up to 20 cycles per day maximum, and a life cycle expectancy of up to 50,000

1.3 SUBMITTALS

- A. Reference Section 01 33 00 Submittal Procedures; submit the following items:
 - 1. **Product Data**
 - 2. **Shop Drawings and Paint Samples**
 - 3. **Quality Assurance/Control Submittals:**
 - a. Provide proof of manufacturer ISO 9001:2015 registration
 - b. Provide proof of manufacturer and installer qualifications - see 1.4 below
 - c. Provide manufacturer's installation instructions
 - 5. **Closeout Submittals:**
 - a. Operation and Maintenance Manual
 - b. Document stating that installed materials comply with this specification
 - c. Warranty documentation

1.4 QUALITY ASSURANCE

- A. **Qualifications:**
 - 1. **Manufacturer Qualifications:** ISO 9001:2015 registered and a minimum of five years' experience in producing doors of the type specified
 - 2. **Installer Qualifications:** Manufacturer's approval

1.5 DELIVERY STORAGE AND HANDLING

- A. Reference Section 01 66 00 Product Storage and Handling Requirements
- B. Follow manufacturer's instructions

1.6 WARRANTY

- A. **Standard Warranty:** Two years from date of shipment against defects in material and workmanship.

- B. **Maintenance:** Submit for owner's consideration and acceptance of a maintenance service agreement for installed products.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. **Manufacturer:**
Cornell: 24 Elmwood Avenue, Mountain Top, PA 18707 Telephone: (800) 233-8366
- B. **Alternates:**
1. **Cookson**
 2. **Clopay Building Products**

2.2 PRODUCT INFORMATION

- A. **Model:** ESD10

2.3 MATERIALS

A. **Curtain:**

1. **Slats:**
 - a. **Stainless Steel:** No. 5F, 20 gauge (0.035 mm) AISI type 304 series stainless steel.
2. **Finish:**
 - a. **Stainless Steel:** #4 type 304 finish

B. **Endlocks:**

Alternate slats each secured with two ¼" (6.35 mm) rivets. Fabricate interlocking sections with high strength nylon – available to 21'5" width. Provide endlocks/windlocks as required to meet specified wind load.

C. **Bottom Bar**

1. **Configuration:**
 - a. **Stainless Steel Angles** (Standard above 21'4" opening width)
2. **Finish:**
 - e. **Stainless Steel:** Type 304 #4 brushed finish

D. **Guides:**

1. **Fabrication:**
 - a. Stainless steel angles. Provide windlock bars as required, removable bellmouths, and bottom bar stoppers of same material.
2. **Finish:**
 - a. **Stainless Steel:** Type 304 #4 brushed finish provided for openings up to 14'4" width and 10'0" height. Mill finish structural provided for openings wider than 14'-4" (4.27 m) and higher than 10'-0" (3.05 m)

E. **Counterbalance Shaft Assembly:**

1. **Barrel:** Steel pipe capable of supporting curtain load with maximum deflection of 0.03 inches per foot (2.5 mm per meter) of width
2. **Spring Balance:** Oil-tempered, heat-treated steel helical torsion spring assembly designed for proper balance of door to ensure that maximum effort to operate will not exceed 25 lbs. (110 N). Provide wheel for applying and adjusting spring torque

- F. **Brackets:**
Fabricate from minimum 3/16 inch (5 mm) steel plate with permanently lubricated ball or roller bearings at rotating support points to support counterbalance shaft assembly and form end closures
1. **Finish:**
 - a. **Stainless Steel:** Type 304 #4 brushed finish
- G. **Hood:**
Stainless steel with reinforced top and bottom edges. Provide intermediate support brackets as required.
1. **Finish:**
 - a. **Stainless Steel:** #4 type 304 finish
- H. **Weatherstripping:**
1. **Bottom Bar:** Replaceable, bulb-style, compressible EDPM gasket extending into guides
 2. **Guides:** Vinyl strip sealing against fascia side of curtain
 3. **Hood:** Neoprene/rayon baffle to impede air flow above coil
 4. **Lintel Seal:** Nylon brush seal fitted at door header to impede air flow

2.4 OPERATION

- H. **Motor - Continuous Use - Model SGHN4 (Super Duty Gear Head NEMA 4/12) Operator:**
1. UL Listed NEMA 4/12 rated
 2. The operator must not extend above or below the door coil when mounted front-of-coil.
 3. Totally Enclosed Non-Ventilated gear head operator(s) with powder coated steel mounting plates rated hp as recommended by door manufacture for size and type of door.
 4. Provide complete with electric motor and factory pre-wired motor control terminals, maintenance free solenoid actuated brake, emergency manual chain hoist provided up to 2 hp and control station(s).
 5. Motor shall be high starting torque, industrial type, with overload protection.
 6. Primary speed reduction shall be heavy-duty gears running in grease or oil bath with mechanical braking to hold the door in any position.
 7. When equipped, the emergency manual chain hoist assembly is automatically disengaged when motor is energized. A disconnect chain shall not be required to engage or release the manual chain hoist.
 8. Operator drive and door driven sprockets shall be provided with minimum #50 roller chain.
 9. Operator shall be capable of driving the door at a speed of up to 9" per second or as recommended for door size.
 10. Fully adjustable, driven linear screw type cam limit switch mechanism shall synchronize the operator with the door. The motor shall be removable without affecting the limit switch settings.
 11. The electrical contractor shall mount the control station(s) and supply the appropriate disconnect switch, all conduit and wiring per the overhead door wiring instructions.
- J. **Control Stations:**
1. **Provide operator controls tied to truck wash bay system**
- K. **Control Operation:**
1. **Constant Pressure to Close:**
 - c. **NEMA 4X photo eye sensors** consisting of a transmitter and receiver that are to be mounted within 6" (152.4 mm) of the floor, projecting an IR beam across the entire width of the door. Interruption of beam before door fully closes shall cause door to immediately stop downward travel and reverse direction to the fully opened position. Electrical contractor to provide low voltage wiring from the transmitter and receiver to the door operator.
- L. **Sensing/Weather Edge:**

1. **Electric sensing edge device:** Automatic sensing switch within neoprene or rubber astragal extending full width of door bottom bar. Contact before door fully closes shall cause door to immediately stop downward travel and automatically reverse direction to the fully opened position. Provide a wireless sensing edge connection to motor operator eliminating the need for a physical traveling electric cord connection between bottom bar sensing edge device and motor operator.

2.5 ACCESSORIES

- B. **Vision Panels:** 10 x 1-5/8 inch (254 x 41.28 mm) oval acrylic panes set with double sided foam glazing tape and secured with retaining clips and rivets. Refer to drawings for number and placement.
- F. **Interior Aesthetic Covers:**
 1. **Operator and Bracket Mechanism Cover:** Stainless steel sheet metal cover to enclose exposed operating components at coil area of unit. Finish matching hood.
 2. **Guide Trim Package:** Type 304 #4 finish brushed stainless steel.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates upon which work will be installed and verify conditions are in accordance with approved shop drawings
- B. Coordinate with responsible entity to perform corrective work on unsatisfactory substrates
- C. Commencement of work by installer is acceptance of substrate

3.2 INSTALLATION

- A. Install door and operating equipment with necessary hardware, anchors, inserts, hangers and supports
- B. Follow manufacturer's installation instructions

3.3 ADJUSTING

- A. Following completion of installation, including related work by others, lubricate, test, and adjust doors for ease of operation, free from warp, twist, or distortion

3.4 CLEANING

- A. Clean surfaces soiled by work as recommended by manufacturer
- B. Remove surplus materials and debris from the site

3.5 DEMONSTRATION

- A. Demonstrate proper operation to Owner's Representative
- B. Instruct Owner's Representative in maintenance procedures

END OF SECTION

SECTION 08 33 00
ROLLING SERVICE DOORS FOR ALL DOORS BESIDES TRUCK WASH BAY DOORS

PART 1 GENERAL

1.1 SUMMARY

- A. **Section Includes :** Electric operated overhead rolling doors.
- B. **Related Sections:**
 - 1. 05 50 00 Metal Fabrications. Door opening jamb and head members
 - 2. 06 10 00 Rough Carpentry. Door opening jamb and head members
 - 3. 08 31 00 Access Doors and Panels. Access doors
 - 4. 08 70 00 Hardware. Padlocks. Masterkeyed cylinder
 - 5. 09 91 00 Painting. Field painting
 - 6. Division 26. Electrical wiring and conduit, fuses, disconnect switches, connection of operator to power supply, and installation of control station and wiring
- C. **Products That May Be Supplied, But Are Not Installed Under This Section:**
 - 1. Control Station

1.2 SYSTEM DESCRIPTION

- A. **Design Requirements:**
 - 1. **Wind Loading:**
 - a. Doors to withstand up to 115 MPH design wind load
 - b. Supply doors to be operational up to 20 PSF maximum wind load
 - 2. **Cycle Life:**
 - a. Standard construction for normal use of up to 20 cycles per day maximum, and a life cycle expectancy of up to 50,000

1.3 SUBMITTALS

- A. Reference Section 01 33 00 Submittal Procedures; submit the following items:
 - 1. **Product Data**
 - 2. **Shop Drawings and Sample Finish**
 - 3. **Quality Assurance/Control Submittals:**
 - a. Provide proof of manufacturer ISO 9001:2015 registration
 - b. Provide proof of manufacturer and installer qualifications - see 1.4 below
 - c. Provide manufacturer's installation instructions
 - 4. **Closeout Submittals:**
 - a. Operation and Maintenance Manual
 - b. Document stating that installed materials comply with this specification
 - c. Warranty documentation

1.4 QUALITY ASSURANCE

- A. **Qualifications:**
 - 1. **Manufacturer Qualifications:** ISO 9001:2015 registered and a minimum of five years' experience in producing doors of the type specified
 - 2. **Installer Qualifications:** Manufacturer's approval

1.5 DELIVERY STORAGE AND HANDLING

- A. Reference Section 01 66 00 Product Storage and Handling Requirements
- B. Follow manufacturer's instructions

1.6 WARRANTY

- A. **Standard Warranty:** Two years from date of shipment against defects in material and workmanship.

- B. **Maintenance:** Submit for owner's consideration and acceptance of a maintenance service agreement for installed products.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. **Manufacturer:**
Cornell: 24 Elmwood Avenue, Mountain Top, PA 18707 Telephone: (800) 233-8366
- B. **Alternates:**
1. **Cookson**
 2. **Clopay Building Products**

2.2 PRODUCT INFORMATION

- A. **Model:** ESD10

2.3 MATERIALS

- A. **Curtain:**
1. **Slats:**
 - a. **Galvanized Steel:** No. 5F (prefinished with GalvaNex™ Coating System), Grade 40 steel, ASTM A 653 galvanized steel zinc coating. Gauge as required to meet performance requirements.
 2. **Finish:**
 - a. **GalvaNex™ Coating System (Stock Color):**
 - 1) ASTM A 653 galvanized base coating treated with dual process rinsing agents in preparation for chemical bonding baked-on base coat and baked-on polyester enamel finish coat.
- B. **Endlocks:**
Alternate slats each secured with two ¼" (6.35 mm) rivets. Fabricate interlocking sections with high strength nylon – available to 21'5" width. Provide endlocks/windlocks as required to meet specified wind load.
- C. **Bottom Bar**
1. **Configuration:**
 - a. **Extruded Aluminum** (Standard to 21'4" opening width): Extruded aluminum alloy 6063-T5
 2. **Finish:**
 - a. **Aluminum:** Clear Anodized
 - b. **Powder Coat:**
 - 1) Zirconium pre-treatment followed by baked-on polyester powder coat. minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.
 - a) Stock color to match curtain
- D. **Guides:**
1. **Fabrication:**
 - a. Structural steel angles. Provide windlock bars as required, removable bellmouths, and bottom bar stoppers of same material.
 2. **Finish:**
 - a. **Powder Coat:**
 - 1) Zirconium pre-treatment followed by baked-on polyester powder coat. minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.
 - a) **Stock color** to match curtain
- E. **Counterbalance Shaft Assembly:**

1. **Barrel:** Steel pipe capable of supporting curtain load with maximum deflection of 0.03 inches per foot (2.5 mm per meter) of width
 2. **Spring Balance:** Oil-tempered, heat-treated steel helical torsion spring assembly designed for proper balance of door to ensure that maximum effort to operate will not exceed 25 lbs. (110 N). Provide wheel for applying and adjusting spring torque
- F. **Brackets:**
Fabricate from minimum 3/16 inch (5 mm) steel plate with permanently lubricated ball or roller bearings at rotating support points to support counterbalance shaft assembly and form end closures
1. **Finish:**
 - a. **Powder Coat:**
 - 1) Zirconium pre-treatment followed by baked-on polyester powder coat. minimum 2.5 mils (0.065 mm) cured film thickness; ASTM D-3363 pencil hardness: H or better.
 - a) **Stock color** to match curtain
- G. **Hood:**
Galvanized steel with reinforced top and bottom edges. Provide intermediate support brackets as required.
1. **Finish:**
 - a. **GalvaNex™** Coating System (Stock Color):
 - 1) ASTM A 653 galvanized base coating treated with dual process rinsing agents in preparation for chemical bonding baked-on base coat and baked-on polyester enamel finish coat
- H. **Weatherstripping:**
1. **Bottom Bar:** Replaceable, bulb-style, compressible EDPM gasket extending into guides
 2. **Guides:** Vinyl strip sealing against fascia side of curtain
 3. **Hood:** Neoprene/rayon baffle to impede air flow above coil
 4. **Lintel Seal:** Nylon brush seal fitted at door header to impede air flow

2.4 OPERATION

- A. **Manual Push-Up:** Provide lift handles on bottom bar and pole with hook
- B. **Manual Crank Hoist:** Provide crank hoist operator including crank gear box, steel crank drive shaft and geared reduction unit. Fabricate gear box to completely enclose operating mechanism and be oil-tight.
- C. **Manual ControlGard Chain Hoist:** Provide chain hoist operator with endless steel chain, chain pocket wheel and guard, geared reduction unit, and chain keeper secured to guide. Chain hoist to include integral brake mechanism that will immediately stop upward or downward travel and maintain the door in a stationary position when the hand chain is released by the user.
- D. **Motor for all doors other than truck wash bay doors – Standard Use – Model MG (Industrial Duty Gear Head) Operator:**
 1. The operator must not extend above or below the door coil when mounted front-of-coil.
 2. Rated for a maximum of 20 cycles per hour (not to be used for consecutive hours) cULus listed (to comply with UL requirements in The United States and Canada)
 3. Totally Enclosed Non Ventilated gear head operator(s) rated 3/4 hp as recommended by door manufacturer for size and type of door.
 4. Provide complete with electric motor and factory pre-wired motor control terminals, maintenance-free solenoid actuated brake, and control station(s).
 5. Motor shall be high starting torque, industrial type, protected against overload with an auto-reset thermal sensing device.
 6. Primary speed reduction shall be heavy-duty, lubricated gears with mechanical braking to hold the door in any position.
 7. Operator shall be equipped with an emergency manual chain hoist assembly that safely cuts operator power when engaged. A disconnect chain shall not be required to engage or release the manual chain hoist.

8. Operator drive and door-driven sprockets shall be sized for #50 roller chain.
9. Provide an integral motor mounted interlock system to prevent damage to door and operator when mechanical door locking devices are provided.
10. Operator shall be capable of driving the door at a speed of up to 9" per second or as recommended for door size.
11. Fully adjustable, driven linear screw-type cam limit switch mechanism shall synchronize the operator with the door.
12. The electrical contractor shall mount the control station(s) and supply the appropriate disconnect switch, all conduit and wiring per the motor operator wiring instructions.

J. **Control Stations:**

1. **Provide radio controlled receiver and eight transmitters per opener.**

K. **Control Operation:**

1. **Momentary Contact to Close:**

Fail-safe, UL325-2010 Compliant Entrapment Protection for Motor Operation.

- c. **NEMA 4X photo eye sensors** consisting of a transmitter and receiver that are to be mounted within 6" (152.4 mm) of the floor, projecting an IR beam across the entire width of the door. Interruption of beam before door fully closes shall cause door to immediately stop downward travel and reverse direction to the fully opened position. Electrical contractor to provide low voltage wiring from the transmitter and receiver to the door operator.

2.5 ACCESSORIES

- A. **Vision Panels:** 10 x 1-5/8 inch (254 x 41.28 mm) oval acrylic panes set with double sided foam glazing tape and secured with retaining clips and rivets. Refer to drawings for number and placement.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine substrates upon which work will be installed and verify conditions are in accordance with approved shop drawings
- B. Coordinate with responsible entity to perform corrective work on unsatisfactory substrates
- C. Commencement of work by installer is acceptance of substrate

3.2 INSTALLATION

- A. Install door and operating equipment with necessary hardware, anchors, inserts, hangers and supports
- B. Follow manufacturer's installation instructions

3.3 ADJUSTING

- A. Following completion of installation, including related work by others, lubricate, test, and adjust doors for ease of operation, free from warp, twist, or distortion

3.4 CLEANING

- A. Clean surfaces soiled by work as recommended by manufacturer
- B. Remove surplus materials and debris from the site

3.5 DEMONSTRATION

- A. Demonstrate proper operation to Owner's Representative
- B. Instruct Owner's Representative in maintenance procedures

END OF SECTION

**SECTION 329500
GREEN ROOF ASSEMBLY**

PART 1 - GENERAL

1.1 SUMMARY

This section specifies all labor, materials, equipment, and services required to provide a green roof system that protects the integrity of the underlying waterproofing, provides optimal drainage, and creates a sustainable environment for plant life.

1.2 RELATED SECTIONS

- A. Section 07 53 10 – Single Membrane Roofing
- B. Section 07 22 00 – Roof and Deck Insulation
- C. Section 07 60 00 – Flashing & Sheet Metal

1.3 REFERENCES

- A. Conservation Technology (www.conservationtechnology.com): typical green roof design details
- B. ASTM - American Society of Testing and Materials (www.ASTM.org): standards for green roof components such as geotextiles and drainage products
- C. ISO - International Organization for Standardization (<http://www.iso.org>): international standards for green roof components such as geotextiles and drainage products

1.4 DEFINITIONS

- A. *Extensive Green Roof System*: A lightweight green roof system, typically less than six inches thickness, capable of supporting moss, sedum, and herbs
- B. *Semi-Intensive Green Roof System*: A lightweight green roof system, typically six inches to ten inches in thickness, capable of supporting herbs, perennials, and grasses.
- C. *Intensive Green Roof System*: A lightweight green roof system, typically greater than ten inches in thickness, capable of supporting grasses, shrubs, and trees
- D. *Waterproofing*: A sheet membrane or coating applied over a roof structure that prevents water entry into the structure.
- E. *Root Barrier*: A sheet membrane or coating applied over waterproofing to prevent plant roots from penetrating the waterproofing.
- F. *Inverted Roof Insulation*: A dense, waterproof insulation suitable for use above waterproofing or a root barrier.
- G. *Protection Mat*: A non-woven, puncture-resistant geotextile applied over a root barrier or root-resistant waterproofing to protect the root barrier or waterproofing from mechanical damage. Some protection mat can also enhance water storage or provide capillary water distribution.

- H. *Protection Mesh*: A woven, puncture-resistant geotextile applied over a root barrier or root-resistant waterproofing to protect the root barrier or waterproofing from mechanical damage. Unlike Protection Mat, Protection Mesh does not hold any water so it will not reduce the thermal performance of inverted-roof insulation.
- I. *Drainage Plate*: A semi-rigid waffled plastic sheet with an upper side designed to store water and a lower side that serves as a high-volume drainage passageway. An air gap between the high water level of the drainage plate and the growth media layer above carries excess water during heavy rainfall and prevents root decay.
- J. *Drainage Media*: A blend of lightweight inorganic components carefully selected for density, water retention, particle size, and pH to provide an optimal growing environment for green roof vegetation with minimal long-term compaction or stratification while simultaneously serving as a high-rate drainage system under a layer of growth media.
- K. *Separation Fabric*: A water-permeable geotextile that retains planting media above the drainage layer but allows water and plant roots to penetrate freely.
- L. *Growth Media*: A blend of lightweight inorganic and organic components carefully selected for density, water retention, particle size, and pH to provide an optimal growing environment for green roof vegetation with minimal long-term compaction or stratification.
- M. *Reinforcing Mesh*: A structural plastic mesh with large openings used to strengthen media exposed to foot traffic, prevent wind uplift, and provide anchorage for irrigation tubing.
- N. *Drain Access Box*: An enclosure that prevents growth media from entering a roof drain but allows water to flow freely. A removable lid provides access for drain maintenance.
- O. *Retaining Edge*: A stiff barrier formed in an L-shape used to retain growth media at roof edges or to separate growth media from gravel boundaries or pavers. Typically holes or slots are provided on the vertical leg to provide water drainage.
- P. *Irrigation System*: A system which delivers water to a green roof either manually or as determined by evapotranspiration rates or soil moisture content.
- Q. *Plant Plugs*: Individual green roof plants such as Sedum that are supplied as cubes of growing media within compartmentalized trays.
- R. *Plant Cuttings*: Pieces of green roof plants such as Sedum that are supplied in bags or cartons without growing media.
- S. *Plant Mats*: Established green roof plant communities such as mixed Sedum that are supplied as flat or rolled sheets.
- T. *Green Roof System Provider*: A company supplying materials required for installation of a green roof system, including training, inspection, and warranty protection.
- U. *Green Roof Contractor*: A company installing materials required for green roofs, including maintenance until the vegetation is substantially established.
- V. *Waterproofing System Provider*: A company supplying materials required for installation of a roof waterproofing system, including training, inspection, and warranty protection.
- W. *Waterproofing Contractor*: A company installing materials required for roof waterproofing, including flashings and drains.

1.5 SYSTEM REQUIREMENTS

The green roof system shall:

- A. Support the desired green roof plant community.
- B. Provide sufficient drainage capacity to rapidly drain water not stored within the green roof system.
- C. Have a fully saturated dead weight of less than 22 pounds per square foot according to (ASTM E-2397).
- D. Include provision for manual or automatic irrigation during extended periods of dry weather
- E. Protect underlying roof waterproofing materials from damage.

1.6 SUBMITTALS

- A. Product data sheets showing compliance with all specifications and suitability for the proposed use.
- B. Samples for verification:
 - 1. geotextiles, sheet drains - minimum 4" x 4"
 - 2. metal edging - minimum 6" long
- C. Drawings for verification:
 - 1. Drawing showing existing conditions, including roof slopes and drain locations.
 - 2. Plan view showing layout of green roof areas, including vegetation-free zones at edges and around drains and penetrations.
 - 3. Section through each different green roof area.
 - 4. Sections and plan views of penetrations, edges, and transitions
 - 5. Design for a permanent irrigation system.
- D. Statement from the Green Roof System Provider certifying that it has reviewed and approved the drawings, the products are used for their intended purposes, the quantities quoted are sufficient for the area to be covered, and the Green Roof Contractor is qualified to install the system.
- E. Statement from the Green Roof Contractor of qualifications to perform the work of this section including examples of projects of similar scope and complexity.
- F. Statement from the Waterproofing System Provider certifying the compatibility of the waterproofing system with the submitted green roof system.

1.7 QUALITY ASSURANCE

- A. Waterproofing Contractor shall provide documentation of leak testing either by flood testing or by electric field vector mapping.
- B. Green Roof Contractor shall provide digital photographs of the entire green roof installation process clearly showing:
 - 1. The condition of the waterproofing system before green roof installation begins, including drains, and waterproofing flashings
 - 2. Proper installation of each specified component of the green roof system
 - 3. The completed green roof system
- C. Green Roof System Provider shall provide certification that the green roof system has been installed properly and is eligible for specified warranties.

1.8 DELIVERY, STORAGE, HANDLING, AND DISPOSAL

- A. Store materials in sealed and labeled packaging protected from sun, wind, and rain in a location with adequate structural capacity.
- B. Store planting media in sealed and labeled packaging protected from sun, wind, and rain in a location with adequate structural capacity.
- C. Follow all additional specific handling instructions provided by the Green Roof System Provider.

1.9 WARRANTY

The Green Roof System Provider shall warrant the functional properties of green roof components for five years. The Green Roof Contractor shall warrant plant health and coverage for two years.

PART 2 – PRODUCTS

2.1 ROOT BARRIER

Material: virgin linear low density polyethylene
Thickness: 0.030”
Static Puncture: 45 lb (ASTM D4833, MARV)
Oxidation (OIT): 100 min (ASTM D3895-A)
Product: CT Root Barrier
Supplier: Conservation Technology (410-366-1146)

2.2 INVERTED ROOF INSULATION

Material: extruded polystyrene
Thickness: 2”
Product: Roofmate
Supplier: Dow Chemical Company

2.3 PROTECTION MAT

Material: recycled non-woven polyester, scanned for metal
Dry weight: 16 oz per square yard (ASTM D5261)
Static Puncture: 590 lb (ASTM D6241)
Water Storage: 0.08 gal/ft² (ASTM E2398)
Capillary Rise: 2.5 in (conductivity probe)
Product: CT Protection Mat
Supplier: Conservation Technology (410-366-1146)

2.4 DRAINAGE PLATE

Material: recycled semi-rigid polyethylene
Water Storage: 0.12 gal/ft² (5 l/m²)
Air Gap: 3/8" between high water level and growth media
Hydraulic Flow: 6.6 gal/min/ft (1.41 l/s/m) at i = 0.02
Dry weight: 0.33 lb/ft² (1.6 kg/m²)
Film thickness: 0.060" (1.5mm)
Height: 1" (25mm)
Dimensions: 39" x 79" (1m x 2m)
Product: DrainPlate-25HS
Supplier: Conservation Technology (410-366-1146)

2.5 DRAINAGE MEDIA

~~Material: mineral components complying with FLL granular drainage media
physical and chemical guidelines
Density: 55 lbs/ft³ saturated (varies based on blending location)
Thickness: 2-1/2", fill to top of pockets in DrainagePlate-60HV)
Product: CT Granular Drainage Media
Supplier: Conservation Technology (410-366-1146)~~

2.6 SEPARATION FABRIC

Material: non-woven polyester, scanned for metal,
mechanically consolidated without heat or chemical treatment
Mean Pore Size: 100 μ (ASTM F316)
Bubble Point: 220 μ (ASTM D6767)
O90: 110 μ (ISO 12956)
Flow Rate: 200 gpm/ft² (ASTM D4491)
Dry weight: 6 oz per square yard (200 g/m²)
Product: CT Separation Fabric - HD
Supplier: Conservation Technology (410-366-1146)

2.7 DRAIN ACCESS CHAMBER

Material: recycled ABS, black
Slots: 1/8" wide with approximately 20% open area in bottom two inches
Base Size: 14 1/2" x 14 1/2" with 12" diameter hole

Height: 4" to 32", site assembled in 4" increments
Product: Optigreen Drain Box (*specify 4", 8", 12", 16", 20", 24", 28", or 32"*)
Supplier: Conservation Technology (410-366-1146)

2.8 METAL EDGING

Material: high-strength, corrosion-resistant aluminum alloy, 0.063" thick
Slots: 3/16" wide with approximately 25% open area in bottom inch
Proportions: base at least one-third longer than height for stability; top edge formed into an inverted stiffening channel
Connectors: designed to slide into lineals and corners and completely seal joint, locking tabs to prevent joints from opening
Attachment: large holes punched in base permit attachment to waterproofing, root barriers, or protection mats without penetrating fasteners
Corners: with interior or exterior flanges as appropriate, same profile and perforations as lineals
Braces: fabricated triangular reinforcing device designed to slide into the aluminum edging to eliminate bending under load
Products: CT Aluminum Edge, Locking Connectors, Internal-Flange Corners, External-Flange Corners, and Braces (*specify 3", 4", 6", 8" or 12"*)
Supplier: Conservation Technology (410-366-1146)

2.9 PLANTING MEDIA

Material: mixture of mineral and organic components complying with FLL extensive roof physical and chemical guidelines
Density: 75 lbs/ft³ saturated
Thickness: (*4"*), allow 15% extra for compaction
Product: CT Extensive Planting Media
Supplier: Conservation Technology (410-366-1146)

2.12 VEGETATION

Type: Sedum plugs
Diversity: blend of at least six varieties appropriate to the climate
Coverage: (*3*) plugs per square foot
Supplier: Conservation Technology (410-366-1146)

PART 3 - EXECUTION

3.1 ROOF INSPECTION

- A. Verify waterproofing and leak detection have been completed.
- B. Conduct a visual inspection of the waterproofing surface and document with digital photographs as provided in 1.7

3.2 PREPARATION

- A. Remove all dirt and debris from surfaces by vacuuming, sweeping, or blowing. If water is used for cleaning, allow sufficient time for drying.

- B. Protect all waterproofing from damage cause by foot traffic or temporary storage by laying a thick protection mat with adequate wind ballast.
- C. Provide a temporary watering hose on the roof.
- D. Do not begin installation when frozen precipitation or high winds are possible.

3.3 INSTALLATION OF GREEN ROOF SYSTEM

- A. Install Root Barrier: Unroll and allow folds to relax in the sun. Cut to size using heavy-duty shears, not knives. Where multiple sheets are required, weld the seams with a hot-air or wedge welder. If welding is not possible, overlap the top sheet at least three feet; fold back the top sheet without moving the bottom sheet; apply butyl seaming tape along the edge of the top sheet, unfold the top sheet, reach under and peel off the tape release paper, and bond with a 2" steel roller.
- B. Install Insulation: Lay insulation board, tightly butting joints. When cutting to size, cut over insulation board, not over the underlying root barrier or waterproofing. Where multiple layers are required, rotate each layer 90°.
- C. Install Protection Mat: Unroll the mat, overlapping adjacent sheets at least six inches. Extend mat up parapets and roof protrusions to finished grade level. Wet with a hose to prevent wind uplift. Cut to size using heavy-duty shears, not knives.
- D. Install Drain Access Boxes: Position over roof drains, using the appropriate-height sidewall elements required to match the system thickness.
- E. Install Retaining Edge: Install at perimeter and around penetrations per drawings. Use connectors and pre-fabricated corners. When cutting to size, measure the required lengths and cut in a location off of the roof where metal chips will not blow.
- F. Install Drainage Plates: Lay drainage plates in an approximate half-staggered pattern, overlapping sides and ends by two cups. Wet with a hose to prevent wind uplift and thermal expansion. When cutting to size, measure the required lengths and cut in a location off of the roof where plastic chips will not blow.
- G. Install Separation Fabric: Unroll, overlapping adjacent sheets at least six inches. Wet with a hose to prevent wind uplift. Do not apply separation fabric up the sides of drain boxes or retaining edges! Cut to size using heavy-duty shears, not knives.
- H. Install Growing Media: Uniformly place growing media, taking care not to displace drainage components and retaining edges or to create concentrated roof loads. Place material at least 15% higher than the desired grade and compact using a four foot wide landscape roller weighing 200 to 300 lbs when filled. The compacted height should be approximately 10% over the desired grade. Saturate with a lawn sprinkler and add more media if necessary to fill low spots.
- I. Install sedum at the recommended coverage rate; install other plants according to the planting plan.

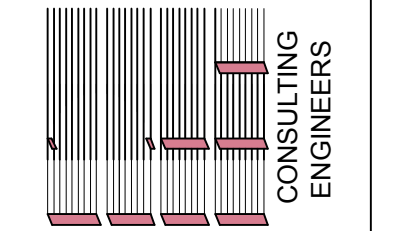
END OF SECTION



ARCHITECT:
Grove & Dall'olio Architects PLLC
18 West Bosacawen Street
Winchester, VA 22604
540 773-2328

Seal
COMMONWEALTH OF VIRGINIA
Lisa Dallolio
Lic. No. 014691
ARCHITECT

PAINTER-LEWIS, P.L.C.
817 CEDAR CREEK GRADE, SUITE 120
WINCHESTER, VIRGINIA 22601
Telephone: (540) 662-5782
Facsimile: (540) 662-5783
Email: office@painterlewis.com



TIMOTHY G. PAINTER
Lic. No. 018260

M.E.P. ENGINEERS
CDi
Comfort Designs Inc.
620 Pennsylvania Avenue
Winchester, VA 22604
540 665-2846

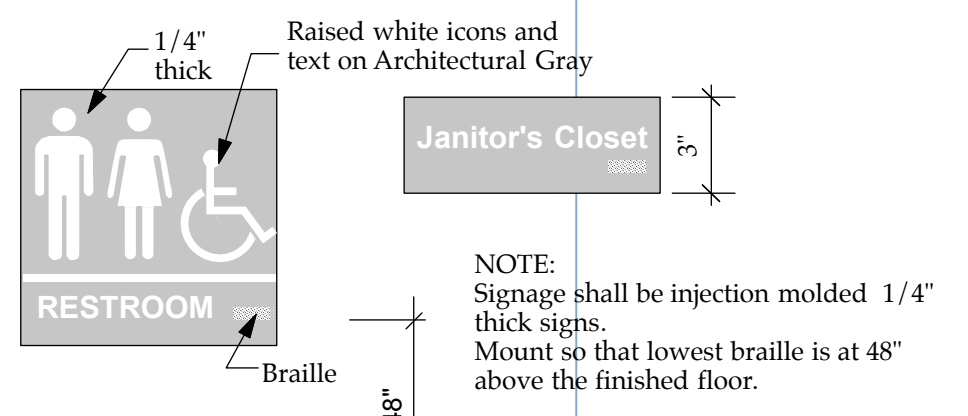
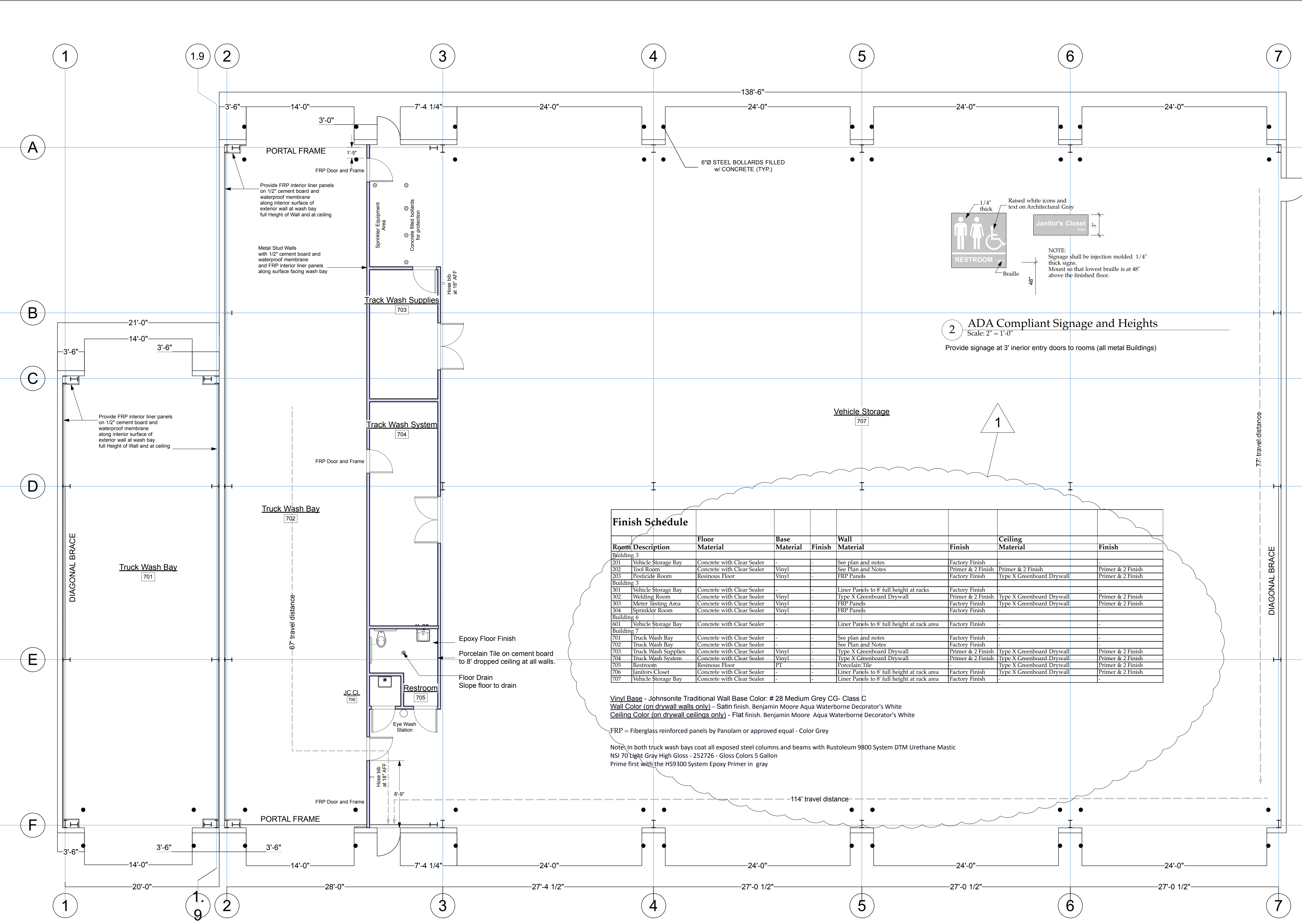
Seal

ISSUE/REVISIONS:

DRAWING TITLE:
**CITY YARDS
BUILDING #7**
SHEET TITLE:
**INTERIOR FINISHES,
FIXTURE &
EGRESS PLAN**

DATE: AUGUST 5, 2019
PROJECT NO.: 1801014
SCALE: AS NOTED

SHEET: **A-4**



2 ADA Compliant Signage and Heights
Scale: 2" = 1'-0"
Provide signage at 3' interior entry doors to rooms (all metal Buildings)

Room Description	Floor Material	Base Material	Wall Finish	Wall Material	Ceiling Finish	Ceiling Material
Building 3						
201 Vehicle Storage Bay	Concrete with Clear Sealer	-	-	See plan and notes	Factory Finish	-
202 Tool Room	Concrete with Clear Sealer	Vinyl	-	See Plan and Notes	Primer & 2 Finish	Primer & 2 Finish
203 Pesticide Room	Resinous Floor	Vinyl	-	FRP Panels	Factory Finish	Type X Greenboard Drywall
Building 3						
301 Vehicle Storage Bay	Concrete with Clear Sealer	-	-	Liner Panels to 8' full height at racks	Factory Finish	-
302 Welding Room	Concrete with Clear Sealer	Vinyl	-	Type X Greenboard Drywall	Primer & 2 Finish	Type X Greenboard Drywall
303 Meter Testing Area	Concrete with Clear Sealer	Vinyl	-	FRP Panels	Factory Finish	Type X Greenboard Drywall
304 Sprinkler Room	Concrete with Clear Sealer	Vinyl	-	FRP Panels	Factory Finish	-
Building 6						
601 Vehicle Storage Bay	Concrete with Clear Sealer	-	-	Liner Panels to 8' full height at rack area	Factory Finish	-
Building 7						
701 Truck Wash Bay	Concrete with Clear Sealer	-	-	See plan and notes	Factory Finish	-
702 Truck Wash Bay	Concrete with Clear Sealer	-	-	See Plan and Notes	Factory Finish	-
703 Truck Wash Supplies	Concrete with Clear Sealer	Vinyl	-	Type X Greenboard Drywall	Primer & 2 Finish	Type X Greenboard Drywall
704 Truck Wash System	Concrete with Clear Sealer	Vinyl	-	Type X Greenboard Drywall	Primer & 2 Finish	Type X Greenboard Drywall
705 Restroom	Resinous Floor	PT	-	Porcelain Tile	Factory Finish	Type X Greenboard Drywall
706 Janitors Closet	Concrete with Clear Sealer	-	-	Liner Panels to 8' full height at rack area	Factory Finish	Type X Greenboard Drywall
707 Vehicle Storage Bay	Concrete with Clear Sealer	-	-	Liner Panels to 8' full height at rack area	Factory Finish	-

Vinyl Base - Johnsonite Traditional Wall Base Color: # 28 Medium Grey CG- Class C
Wall Color (on drywall walls only) - Satin finish. Benjamin Moore Aqua Waterborne Decorator's White
Ceiling Color (on drywall ceilings only) - Flat finish. Benjamin Moore Aqua Waterborne Decorator's White

FRP = Fiberglass reinforced panels by Panolam or approved equal - Color Grey

Notes: In both truck wash bays coat all exposed steel columns and beams with Rustoleum 9800 System DTM Urethane Mastic
NSI 70 Light Gray High Gloss - 252726 - Gloss Colors 5 Gallon
Prime first with the HS9300 System Epoxy Primer in gray