ARIZONA DEPARTMENT OF TRANSPORTATION

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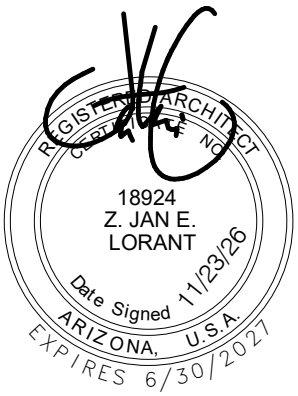
11/23/2026

ADDENDUM

No. 2



TO ALL CONTRACTORS AND OTHERS INTERESTED IN PROJECT

010 CH 383 F0728 01C
010-F(238)T
BENSON-STEINS PASS HIGHWAY (I-10)
SAN SIMON PORT OF ENTRY

SCHEDULED FOR BID OPENING ON
FRIDAY, DECEMBER 4, 2026, AT 11:00 A.M. (M.S.T.)

REVISIONS TO THE SPECIAL PROVISIONS:

Page 105 of 324:

ITEM 4010306 - LOAD TRANSFER DOWEL ASSEMBLY (6-FT):
ITEM 4010308 - LOAD TRANSFER DOWEL ASSEMBLY (8-FT):
ITEM 4010310 - LOAD TRANSFER DOWEL ASSEMBLY (10-FT):
ITEM 4010312 - LOAD TRANSFER DOWEL ASSEMBLY (12-FT):
ITEM 4010314 - LOAD TRANSFER DOWEL ASSEMBLY (14-FT):
ITEM 4010316 - LOAD TRANSFER DOWEL ASSEMBLY (2-FT):
ITEM 4010318 - LOAD TRANSFER DOWEL ASSEMBLY (4-FT): the title is revised to read:

ITEM 4010306 - LOAD TRANSFER DOWEL ASSEMBLY (6-FT):
ITEM 4010308 - LOAD TRANSFER DOWEL ASSEMBLY (8-FT):
ITEM 4010310 - LOAD TRANSFER DOWEL ASSEMBLY (10-FT):
ITEM 4010312 - LOAD TRANSFER DOWEL ASSEMBLY (12-FT):
ITEM 4010314 - LOAD TRANSFER DOWEL ASSEMBLY (14-FT):

REVISIONS AND ADDITIONS TO THE PROPOSAL PAMPHLET:

Appendix F Section 920 – Architectural Specifications is hereby revised. Attached are revised pages 1-6, 232-240, and 349-356 of 608 and new pages 144A-144H, and 356A-356D of Appendix F. Remove pages 1-6, 232-240, and 349-356 of 608 of Appendix F from the Proposal Pamphlet, and replace them with the revised and new pages listed above and be guided accordingly.

REVISIONS AND ADDITIONS TO THE PROJECT PLANS:

Attached are revised plan sheets 24-27, 73, 74, 76, 80-83, 85, 86, 88-92, 94-96, 99, 103, 104, 107, and 110-112 of 200 and new plan sheets 7A and 98A of 200. Remove plan sheets 25-27, 73, 74, 76, 80-83, 85, 86, 88-92, 94-96, 99, 103, 104, 107, and 110-112 of 200 from the project plans, and replace them with the revised and new plan sheets listed above and be guided accordingly.

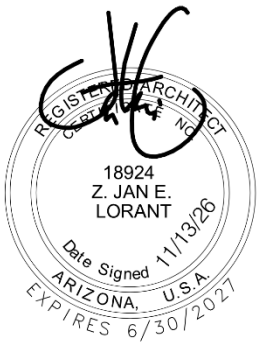
REVISIONS TO THE BID SCHEDULE:

Attached is the revised Bid Schedule. Remove the Bid Schedule from your proposal pamphlet, insert the revised Bid Schedule, and be guided accordingly.

for Brahama Singh, PE,
Group Manager,
Contracts & Specifications

Attachments:

- Revised Appendix F Pages 1-6, 232-240, and 349-356 of 608
- New Appendix F Pages 144A-144H, and 356A-356D
- Revised Plan Sheets 24-27, 73, 74, 76, 80-83, 85, 86, 88-92, 94-96, 99, 103, 104, 107, and 110-112 of 200
- New Plan Sheets 7A and 98A
- Revised Bid Schedule



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APPENDIX F: ARCHITECTURAL PROJECT SPECIFICATIONS

SECTION	CSI NUMBER	CSI TITLE
SECTION 920-1 – ARCHITECTURAL & STRUCTURAL		
	CSI DIVISION 01 – GENERAL REQUIREMENTS	
920-1	01 14 00	WORK RESTRICTIONS
920-1	01 26 13	REQUESTS FOR INFORMATION (AFTER BIDDING)
920-1	01 31 19	PROJECT MEETINGS
920-1	01 50 00	TEMPORARY FACILITIES AND CONTROLS
920-1	01 73 29	CUTTING AND PATCHING
	CSI DIVISION 03 – CONCRETE	
920-1	03 05 14	FLY ASH
920-1	03 10 00	CONCRETE FORMING AND ACCESSORIES
920-1	03 20 00	CONCRETE REINFORCING
920-1	03 30 00	CAST-IN-PLACE CONCRETE
920-1	03 80 00	CONCRETE CUTTING AND CORE DRILLING
	CSI DIVISION 05 – METALS	
920-1	05 10 00	STRUCTURAL METAL FRAMING
920-1	05 31 00	STEEL DECKING
920-1	05 41 00	STRUCTURAL METAL STUD FRAMING
920-1	05 50 00	METAL FABRICATIONS
920-1	05 51 33	METAL LADDERS
920-1	05 52 00	METAL RAILINGS & HANDRAILS
	CSI DIVISION 06 – WOOD, PLASTICS, AND COMPOSITES	
920-1	06 10 53	MISCELLANEOUS ROUGH CARPENTRY
920-1	06 40 00	ARCHITECTURAL WOODWORK
920-1	06 83 16	FIBERGLASS REINFORCED PANELING (FRP)
	CSI DIVISION 07 – THERMAL AND MOISTURE PROTECTION	
920-1	07 10 00	DAMPPROOFING AND WATERPROOFING
920-1	07 19 00	WATER REPELLANTS
920-1	07 21 00	THERMAL INSULATION
920-1	07 25 00	WEATHER BARRIERS
920-1	07 42 13	METAL WALL & CEILING/SOFFIT PANELS
920-1	07 54 23	THERMOPLASTIC-POLYOLEFIN (TPO) ROOFING (ON STEEL DECKING)
920-1	07 54 23.13	THERMOPLASTIC-POLYOLEFIN (TPO) ROOFING (ON WOOD DECKING)
920-1	07 60 00	FLASHING AND SHEET METAL
920-1	07 72 33	ROOF HATCHES & ACCESSORIES
920-1	07 92 00	JOINT SEALANTS

SECTION	CSI NUMBER	CSI TITLE
	CSI DIVISION 08 – OPENINGS	
920-1	08 11 13	HOLLOW METAL DOORS AND FRAMES
920-1	08 31 13	ACCESS DOORS AND FRAMES
920-1	08 33 23	OVERHEAD COILING DOORS
920-1	08 41 13	ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS
920-1	08 56 53	BALLISTIC-RESISTANT WINDOW FRAME ASSEMBLIES
920-1	08 71 00	DOOR HARDWARE
920-1	08 80 00	GLAZING
	CSI DIVISION 09 – FINISHES	
920-1	09 22 16	NON-STRUCTURAL METAL FRAMING
920-1	09 29 00	GYPSUM BOARD
920-1	09 30 00	TILING
920-1	09 51 00	ACOUSTICAL CEILINGS
920-1	09 65 13	RESILIENT BASE AND ACCESSORIES
920-1	09 67 23	RESINOUS FLOORING
920-1	09 81 00	ACOUSTIC INSULATION
920-1	09 91 00	PAINTING
920-1	09 96 00	HIGH-PERFORMANCE COATINGS
	CSI DIVISION 10 – SPECIALTIES	
920-1	10 14 00	SIGNAGE
920-1	10 26 41	BALLISTIC-RESISTANT PANELS
920-1	10 28 00	TOILET & CUSTODIAL ACCESSORIES
920-1	10 43 13	DEFIBRILLATOR (AED) CABINETS
920-1	10 44 00	FIRE PROTECTION SPECIALTIES
920-1	10 75 00	FLAGPOLES
	CSI DIVISION 12 – FURNISHINGS	
920-1	12 24 13	ROLLER WINDOW SHADES
	CSI DIVISION 14 – CONVEYING EQUIPMENT	
920-1	14 95 00	HYDRAULIC SLIDING PIT COVER OPERATORS
	CSI DIVISION 31 – EARTHWORK	
920-1	31 03 00	EARTHWORK FOR BUILDINGS
920-1	31 31 00	SOIL TREATMENT
	CSI DIVISION 41 – MATERIAL PROCESSING AND HANDLING EQUIPMENT	
920-1	41 14 36	TRUCK WEIGH SCALES
SECTION 920-2 – PLUMBING		
	CSI DIVISION 22 – PLUMBING	
920-2	22 05 00	COMMON WORK REQUIREMENTS FOR PLUMBING
920-2	22 05 03	TRENCHING AND BACKFILLING FOR PLUMBING
920-2	22 05 04	PIPE AND PIPE FITTINGS FOR PLUMBING
920-2	22 05 05	PIPING SPECIALTIES FOR PLUMBING
920-2	22 05 23	VALVES FOR PLUMBING
920-2	22 05 48	VIBRATION
920-2	22 05 49	PLUMBING AND ELECTRICAL INSTALLATION COORDINATION
920-2	22 07 00	PLUMBING INSULATION
920-2	22 11 00	FACILITY WATER DISTRIBUTION

SECTION	CSI NUMBER	CSI TITLE
920-2	22 13 00	FACILITY SANITARY SEWAGE
920-2	22 15 00	GENERAL SERVICE COMPRESSED AIR
920-2	22 40 00	PLUMBING FIXTURES AND TRIM

SECTION 920-3 – MECHANICAL

	CSI DIVISION 23 – HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)	
920-3	23 05 00	COMMON WORK REQUIREMENTS FOR HVAC
920-3	23 05 03	TRENCHING AND BACKFILLING
920-3	23 05 04	PIPE AND PIPE FITTINGS
920-3	23 05 49	HVAC & ELECTRICAL INSTALLATION COORDINATION
920-3	23 05 93	TESTING, ADJUSTING AND BALANCING
920-3	23 09 00	FACILITY MANAGEMENT SYSTEM
920-3	23 30 00	HVAC AIR DISTRIBUTION AND EQUIPMENT

SECTION 920-4 – ELECTRICAL

	CSI DIVISION 26 – ELECTRICAL	
920-4	26 05 10	GENERAL PROVISIONS
920-4	26 05 19	LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
920-4	26 05 26	GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
920-4	26 05 29	HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS
920-4	26 05 33	RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS
920-4	26 05 36	CABLE TRAYS FOR ELECTRICAL SYSTEMS
920-4	26 05 44	SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING
920-4	26 05 48	VIBRATION CONTROLS FOR ELECTRICAL SYSTEMS
920-4	26 05 73.16	OVERCURRENT PROTECTIVE DEVICE COORDINATION STUDY
920-4	26 05 73.19	OVERCURRENT PROTECTIVE DEVICE ARC-FLASH STUDY
920-4	26 09 36	LIGHTING CONTROLS
920-4	26 24 13	SWITCHBOARDS
920-4	26 24 16	PANELBOARDS
920-4	26 27 26	WIRING DEVICES
920-4	26 28 13	FUSES
920-4	26 28 16	ENCLOSED SWITCHES AND CIRCUIT BREAKERS
920-4	26 43 13	SURGE PROTECTION FOR LOW-VOLTAGE ELECTRICAL POWER CIRCUITS
920-4	26 51 00	LIGHTING

END OF TABLE OF CONTENTS

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SECTION 920-1 – ARCHITECTURAL & STRUCTURAL

CSI NUMBER 01 14 00

WORK RESTRICTIONS

PART 1 - GENERAL

1.01 SCHEDULE, COORDINATION & ACCESSIBILITY

A. Contractor shall schedule and coordinate Work that is determined by the Owner to be disruptive to adjacent existing facilities to mitigate disruptions. Disruptions include Work that causes loud noise, vibrations, and physical obstructions that cause the Owner to be unable to operate normally as if there was no construction present. Contractor shall provide advance written notice of at least seventy-two (72) hours prior to the start of a disruption to the Owner and Architect. Confirmation that the Owner has approved the disruption and notified the building occupants must be made by the Contractor prior to the Contractor proceeding with disruptive Work.
   1. All electrical connections and testing shall be conducted on weekends, holidays, or other hours compatible with the Owner's operations and approved by the Owner, at no additional cost to the Owner.
   2. All fire alarm system testing and inspections, especially involving loud audible alerts, alarms, and chirping sounds from the fire alarm system devices, shall be coordinated with the Owner to minimize disruptions. This may require these events to occur on weekends, holidays, or other hours compatible with the Owner's operations and approved by the Owner, at no additional cost to the Owner.

B. All utility and infrastructure Work shall proceed without disruption to existing facilities. If the following systems are to be impacted by the Work, advance written notice of at least seventy-two (72) hours prior to the start of a disruption shall be provided to the Owner and Architect by the Contractor. Confirmation that the Owner has approved the disruption and notified the building occupants must be made by the Contractor prior to the Contractor proceeding with the disruptive Work.
   1. HVAC systems.
   2. Electrical systems.
   3. Telecommunications systems, including fiberoptic, data/internet, and telephone systems.
   4. Fire systems.
   5. Plumbing systems.
   6. Irrigation systems.
   7. Accessibility.
   8. Traffic control.
   9. Any other system deemed critical by the Owner.

C. Public and Owner access to the existing facilities is required at all times. Temporary closures may be permitted with coordination and sufficient advance preparation with the Owner. Advance written notice of at least two (2) weeks prior to the start of a closure shall be provided to the Owner by the Contractor. Confirmation that the Owner has approved the temporary closure and notified the building occupants must be made by the Contractor prior to the Contractor proceeding with the closure.

D. All temporary street, building, and sidewalk closures shall be coordinated with the Owner. Advance written notice of at least seventy-two (72) hours prior to the start of a disruption shall be provided to the Owner by the Contractor. Confirmation that the Owner has approved the temporary closure and notified the building occupants must be made by the Contractor prior to the Contractor proceeding with the closure.

END OF CSI NUMBER

SECTION 920-1 – ARCHITECTURAL & STRUCTURAL

CSI NUMBER 07 54 23.13

THERMOPLASTIC-POLYOLEFIN (TPO) ROOFING (ON WOOD DECKING)

PART 1 - GENERAL

1.01 CSI NUMBER INCLUDES

A. Thermoplastic Polyolefin (TPO) Roofing Membrane.
B. Cover boards.
C. Thermoplastic Polyolefin Flashings.
D. Thermoplastic Polyolefin Accessories.

1.02 RELATED CSI NUMBERS

A. CSI Number 06 10 53 – Miscellaneous Rough Carpentry.
B. CSI Number 07 60 00 – Flashing and Sheet Metal.
C. CSI Division 22 – Plumbing.
D. CSI Division 23 – Heating, Ventilating, and Air Conditioning (HVAC).
E. CSI Division 26 – Electrical.

1.03 REFERENCES

A. American Society of Civil Engineers (ASCE)/SEI 7 – Minimum Design Loads and Associated Criteria for Buildings and Other Structures.
B. ASTM C67 – Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile.
C. ASTM C140/C140M – Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units.
D. ASTM C208 – Standard Specification for Cellulosic Fiber Insulating Board.
E. ASTM C1177/C1177M – Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
F. ASTM C1278/C1278M – Standard Specification for Fiber-Reinforced Gypsum Panel.
G. ASTM C1289 – Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
H. ASTM D41/D41M – Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing.
I. ASTM D1079 – Standard Terminology Relating to Roofing and Waterproofing.
J. ASTM D1970/D1970M – Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
K. ASTM D2178/D2178M – Standard Specification for Asphalt Glass Felt Used in Roofing and Waterproofing.
L. ASTM D3273 – Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
M. ASTM D4601 – Standard Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing.
N. ASTM D4897/D4897M – Standard Specification for Asphalt-Coated Glass-Fiber Venting Base Sheet Used in Roofing.
O. ASTM D6878/D6878M – Standard Specification for Thermoplastic Polyolefin-Based Sheet Roofing.

P. ASTM D7877 – Standard Guide for Electronic Methods for Detecting and Locating Leaks in Waterproof Membranes.
Q. ASTM D8231 – Standard Practice for the Use of a Low Voltage Electronic Scanning System for Detecting and Locating Breaches in Roofing and Waterproofing Membranes.
R. ASTM E96/E96M – Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials.
S. ASTM E1980 – Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces.
T. ASTM G155 – Standard Practice for Operating Xenon Arc Lamp Apparatus for Exposure of Materials.
U. Factory Mutual (FM) – Approval Guide.
V. FM 4470 – Examination Standard for Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for Use in Class 1 and Noncombustible Roof Deck Construction.
W. FM 4474 – American National Standard for Evaluating the Simulated Wind Uplift Resistance of Roof Assemblies Using Static Positive and/or Negative Differential Pressures.
X. FM DS 1-28 – Wind Design.
Y. National Roofing Contractors Association (NRCA) – The NRCA Roofing Manual.
Z. NRCA – The NRCA Waterproofing Manual.
AA. Sheet Metal and Air Conditioning Contractor's National Association (SMACNA) – Architectural Sheet Metal Manual.
BB. Single Ply Roofing Industry (SPRI) RP-4 – Wind Design Standard for Ballasted Single-Ply Roofing Systems.
CC. Underwriters Laboratories (UL) – Online Certifications Directory.
DD. UL – Fire Resistance Directory.
EE. UL 580 – Safety Testing for Uplift Resistance of Roof Assemblies.
FF. UL 1897 – Standard for Safety, Uplift Tests for Roof Covering Systems.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene at least one (1) week before starting work of this CSI Number.
   1. Attendees: Owner, Contractor, Architect, Roofing Installer, Roofing Manufacturer's technical representative, and installers whose work interfaces with or affects the work of this CSI Number.
   2. Review project requirements, including the following:
      a. Preparation and acceptance of substrates.
      b. Sequencing and coordination between trades and acceptance of substrates for roofing installation.
      c. Approved materials, details and sequencing for transitions, tie-ins, flashings, drainage, penetrations, and curbs.
      d. Protection of installed materials.
      e. Repair procedures.
B. Roofing Terminology: Refer to ASTM D1079 and the glossary of The NRCA Roofing Manual for definitions of roofing terms related to this CSI Number.

1.05 SUBMITTALS

A. Product Data: Provide manufacturer's data for all roofing system materials, components, and accessories indicated in this CSI Number.
B. Shop Drawings: Include roof plans and details showing terminations, flashings, penetrations, attachment methods, tie-ins, and interface with adjacent work.
   1. Indicate insulation thicknesses and slopes.
   2. Include project-specific tapered insulation layout prepared by roofing manufacturer.

3. Roof plan indicating orientation of steel roof deck (if applicable) and orientation of roof membrane, fastening spacings, and patterns for mechanically fastened roofing system.

C. Samples: Submit (1) sample 6” x 6” in size of roof membrane materials, insulation, fasteners (if applicable), and accessories for verification of quality by Architect.
D. Manufacturer’s Letter: Certify products meet or exceed specified requirements.
E. Wind Uplift Resistance Submittal: Indicate compliance with wind uplift performance requirements.
F. Field Quality Control Submittals: Field testing and inspection reports.
G. Manufacturer's qualification statement.
H. Installer's qualification statement.
I. Testing firm's qualification statement.
J. Sample/Specimen Warranty: For approval.
K. Closeout Documents: Executed Warranty.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this CSI Number with minimum five (5) years of documented experience.
B. Installer Qualifications: Company specializing in performing work of this CSI Number with at least five (5) years of documented experience and approved by manufacturer for specified warranty.
C. Testing Firm Qualifications: Company specializing in performing work of the type specified and approved by manufacturer.
D. Source Limitations: All components listed in this CSI Number shall be provided by a single manufacturer or approved by the primary roofing manufacturer.
E. Final Inspection: Manufacturer’s representative shall provide a comprehensive final inspection after completion of the roof system. All application errors must be addressed and final punch list completed.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's original containers, dry and undamaged, with seals unbroken and labels intact.
B. Store materials in their original undamaged containers in weather protected environment, clear of ground and moisture, and within temperature range required by manufacturer.
C. Do not expose materials to moisture in any form before, during, or after delivery to the site. Reject delivery of materials that show evidence of contact with moisture.
D. Ensure storage and staging of materials does not exceed static and dynamic load-bearing capacities of roof structure.
E. Materials shall be stored above 55°F (12.6°C) a minimum of 24 hours prior to application.
F. Protect liquids and foam insulation from direct exposure to sunlight.

1.08 FIELD CONDITIONS

A. Contact roofing manufacturer to confirm acceptable assemblies for special applications. Conform with manufacturer's instructions.
B. Do not apply roofing membrane during unsuitable weather. Proceed with roofing only when existing and forecasted weather conditions are suitable.
C. Do not apply roofing materials when ambient temperature is below 45 degrees Fahrenheit, unless otherwise permitted by manufacturer in writing.
D. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.
E. Do not expose materials vulnerable to water or sun damage in quantities greater than can be covered the same day.

F. Schedule applications so no partially completed sections of roof are left exposed at end of workday.

1.09 WARRANTY

A. System Guarantee: Provide manufacturer's system guarantee.
   1. Guarantee: GAF EverGuard® Diamond Pledge NDL Roof Guarantee.
   2. Term: 20 years.
   3. Liability Limit: No dollar limit on covered repairs.
   4. Scope of Coverage:
      a. Repair of covered leaks resulting from manufacturing defects, ordinary wear and tear, or workmanship in applying the covering materials, subject to certain exclusions.
      b. Leaks due to winds up to 100 mph, excluding hurricanes and tornados.
      c. Hail up to 2 inches in diameter.
      d. Provide GAF Well Roof Extension for a term up to 25 percent of the original guarantee duration (up to maximum duration of 35 years) when roofing system is inspected and maintained in accordance with manufacturer’s terms and conditions.
B. Extended Correction Period: Correct defective work within 2-year period commencing on date of Substantial Completion.
C. Existing Roofing Alterations: Submit statement from existing roof membrane manufacturer that existing roof warranty has not been affected by work performed under this CSI Number.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Subject to compliance with the requirements of the Contract Documents**,** provide products from one of the following manufacturers:
   1. **Basis of Design Manufacturer: GAF, www.GAF.com.**
   2. Carlisle SynTec Systems, www.carlislesyntec.com.
   3. Elevate; Holcim Group, www.holcimelevate.com.
   4. Johns-Manville, www.jm.com.
   5. As approved by Architect and in compliance with substitution requirements.

B. Source Limitations: Obtain components for roofing system from roof membrane manufacturer or manufacturers approved by roof membrane manufacturer.

2.02 ROOFING SYSTEM

A. Roofing System Description: Listed from top of roof down.
   1. Single Ply Membrane: Mechanically attached.
   2. Cover Board: High density polyisocyanurate board; mechanically fastened.
   3. Insulation: Not used.
      a. System Minimum R-value (RSI-value): 2.5.
      b. Total Thickness: As shown on Drawings.
      c. Slope: Provide minimum slope as shown on Drawings.
   4. Vapor Retarder: Not used.
   5. Deck Sheathing: Wood sheathing as shown on Drawings.
B. Performance Requirements:
   1. General: Roofing system to withstand specified uplift pressures, thermally induced movement, and exposure to ordinary weather conditions.
   2. All work shall be performed in a safe, professional manner, conforming to all federal, state and local codes, and any other requirements of the Authority Having Jurisdiction (AHJ).

3. Material Compatibility: Provide roofing materials and accessories compatible with one another under conditions of service and application, as demonstrated by roof membrane manufacturer based on testing and field experience
4. Wind Uplift Resistance: Design to withstand wind uplift forces in accordance with applicable local building code requirements as demonstrated by roofing manufacturer's independent testing.
    a. Roofing System: Tested in accordance with FM 4474, UL 580, or UL 1897.
    b. Design Pressures: As indicated in Drawings.
5. Solar Reflectance Index (SRI): Three-year-aged SRI not less than 80, when calculated in accordance with ASTM E1980.
6. Roof Covering External Fire Resistance Classification: Class A when tested per UL 790.
7. Factory Mutual Classification: Provide roofing system listed in FM Approvals RoofNav, and having membrane, base flashings, and component materials complying with FM 4450.
    a. Fire and Windstorm Classification: Class 1A and windstorm resistance of 1-90, in accordance with FM DS 1-28.
    b. Hail Resistance Rating: FM Global Property Loss Prevention Data Sheet 1-34 SH.

2.03 MATERIALS – MEMBRANE

A. Membrane:
    1. TPO Membrane: Thermoplastic polyolefin sheet complying with ASTM D6878/D6878M with internally reinforced scrim.
        a. Smooth Membrane: 60 mil, 0.060 inch (1.5 mm) nominal TPO thickness.
    2. Impact Resistance: Membrane to resist impact damage when tested in accordance with the "Resistance to Foot Traffic Test" in FM 4470.
    3. Color: White.
    4. Products:
        a. GAF EverGuard® TPO Membrane, www.gaf.com.
        b. As approved by Architect and in compliance with substitution requirements.
B. Membrane Attachment: Mechanically attached in accordance with roofing manufacturer's requirements.
C. Membrane Fasteners: Membrane manufacturer's recommended type.
D. Flexible Flashing: Manufacturer's standard TPO sheet flashing matching primary membrane in type and color, minimum 55 mil, 0.055 inch (1.4 mm) thickness.
E. Protection Sheet: None – not used.
F. Separation Mat: None – not used.

2.04 MATERIALS – COVER BOARDS

A. Cover Board: High-density polyisocyanurate (ISO) insulation board, complying with ASTM C1289, and the following characteristics:
    1. Classification: Type II, Class 4 - faced with coated glass-fiber-mat facers on both major surfaces of core foam.
    2. Compressive Strength: Grade 1, 80 psi (Grade 1, 550 kPa).
    3. Thickness: 1/2 inch (12.7 mm).
    4. Insulation Thermal Resistance, R-value (RSI-value): 2.5 (0.44), nominal.
    5. Products:
        a. GAF EnergyGuard® HD Polyiso Cover Board, www.gaf.com.
        b. As approved by roofing Manufacturer and Architect, and in compliance with substitution requirements.
B. Mechanical Attachment: Mechanically attached in accordance with roofing manufacturer's requirements.
C. Fasteners: Approved and in accordance with roofing manufacturer's requirements.

2.05 MATERIALS – INSULATION

A. Not used.

2.06 MATERIALS – VAPOR RETARDER

A. Not used.

2.07 DECK SHEATHING

A. Wood sheathing as shown on Drawings.

2.08 MATERIALS – ACCESSORIES

A. Miscellaneous Accessories: Provide pourable sealers, primers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories as necessary for a complete roofing system installation.
B. Prefabricated Flashing Accessories: Same material as membrane in manufacturer's standard thicknesses, including:
   1. Inside corners, outside corners, universal corners, and fluted corners.
   2. Square tube wraps.
   3. Conical pipe boots and split pipe boots.
   4. Pourable sealer pockets.
   5. T-Joint cover patches.
C. Wood Nailers, Curbs, and Blocking: See Miscellaneous Carpentry specification.
D. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM 4470, designed for fastening roofing components to substrate, and acceptable to roofing system manufacturer.
E. Termination Bars: Aluminum bars with integral caulk ledge; 1.3 inches (33 mm) wide by 0.1 inch (2.5 mm) thick.
F. Sealants: As recommended by membrane manufacturer.
G. Thinners and Cleaners: As recommended by adhesive manufacturer, compatible with membrane.
H. Welded Flexible Walkways: Not used.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify surfaces and site conditions are ready to receive work.
B. Verify deck is supported and secure.
C. Verify deck is clean and smooth, flat, free of depressions, waves, or projections, properly sloped (if applicable) and suitable for installation of roof system.
D. Verify deck surfaces are dry and free of moisture, snow or ice.
E. Verify roof openings, curbs, and penetrations through roof are solidly set, and nailing strips are in place.
F. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PROTECTION DURING WORK

A. Protect building surfaces against damage and contamination from roofing work.
B. Where work must continue over or adjacent to completed roof areas, protect the finished roofing systems from damage as necessary.

3.03 PREPARATION – WOOD DECK

A. Verify wood deck conforms with manufacturer's minimum requirements and Structural Drawings.
B. Verify surface plane flatness and fastening of wood deck complies with requirements of the Structural Drawings.
C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.04 INSTALLATION – GENERAL

A. Perform work in accordance with manufacturer's instructions and FM Approvals RoofNav.
B. Do not apply roofing components during cold or wet weather conditions outside of manufacturer’s approved conditions.
C. Do not apply roofing membrane when ambient temperature is outside of manufacturer’s required temperature range.
D. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.
E. Do not expose materials vulnerable to water or sun damage in quantities greater than can be covered the same day.
F. Coordinate this work with installation of associated counterflashings as work of this CSI Number proceeds.
G. Install roof membrane and auxiliary materials to tie in to existing roofing to maintain weathertightness of transition and to not void warranty or guarantee for existing roofing system.
H. Coordinate installation and transition of roofing system component serving as an air barrier with specified air barrier.
I. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
J. Install night seal at end of each workday or when rain is forecast. Provide temporary seals to prevent water from entering completed sections of roofing system. Ensure stagger and offset of underlying insulation to prevent thermal breaks. Remove and discard temporary seals before beginning work on adjoining roofing.

3.05 INSTALLATION – DECK SHEATHING

A. In accordance with Drawings.

3.06 INSTALLATION – VAPOR RETARDER

A. Not used.

3.07 INSTALLATION – INSULATION

A. Not used.

3.08 INSTALLATION – COVER BOARD

A. Install cover board over wood sheathing with joints staggered from joints of wood decking in accordance with manufacturer's instructions.
B. Trim cover board neatly to fit around penetrations and projections as directed by cover board manufacturer.
C. Mechanical Attachment: Fasten cover board in accordance with manufacturer's instructions and FM (AG) Factory Mutual requirements.

3.09 INSTALLATION – MEMBRANE

A. Install membrane and flashings in accordance with roofing system manufacturer's instructions.
B. Roll out membrane, free from wrinkles or tears.
C. Accurately align roof membrane and maintain uniform side and end laps of minimum dimensions required by manufacturer. Shingle joints on sloped substrates in direction of drainage where possible.
D. Mechanical Attachment:
   1. Install membrane and mechanical attachment devices in accordance with manufacturer's instructions. Attach securely at terminations, penetrations, and perimeter of roofing.
E. Seams: Clean seam areas, overlap roof membrane, and hot-air weld side and end laps of roof membrane and sheet flashings. Test lap edges with probe to verify seam weld continuity in accordance with manufacturer’s technical bulletins.
F. At intersections with vertical surfaces terminate and seal top of sheet flashings with termination bars secured to nailing strips or structural backing or in conformance with roofing manufacturer's approved details.
   1. Insert flashing into reglets and secure.
G. Extend membrane under copings and secure to outside face of wall.
H. Around roof penetrations, seal flanges and flashings with flexible flashing.
I. Install roofing expansion joints where shown on Drawings. Make joints watertight.
J. Coordinate installation of roof drains and related flashings. Terminate membranes according to manufacturer’s approved details. Spread sealant bed over deck-drain flange at roof drains, and securely seal roof membrane in place with clamping ring.
K. Walkways: Install walkways in accordance with roofing system manufacturer's instructions at locations shown on Drawings. Provide manufacturer's minimum clearance between units.

3.10 FIELD QUALITY CONTROL

A. Provide on-site attendance of roofing manufacturer's representative as necessary during installation of this work.
   1. Probe heat welded seams and test seams in accordance with manufacturer’s recommendations.
B. Repair or remove and replace components of roofing system where tests or inspections indicate they do not comply with specified requirements. Perform repairs using manufacturer’s approved repair procedures.
C. Perform additional testing and inspecting at Contractor's expense to determine if repaired or additional work complies with specified requirements.

3.11 CLEANING AND PROTECTION

A. Properly dispose of all product wrappers, pallets, cardboard, scrap, waste and debris in a legal manner. Replace damaged material with new materials.
B. Clean adjacent construction where soiled by work of this CSI Number. Comply with manufacturer of adjacent construction's instructions and procedures.
C. Protect installed roofing system from construction operations.
D. Correct deficiencies in work in accordance with warranty/guarantee requirements. Repair or replace defaced or damaged finishes caused by work of this CSI Number.

END OF CSI NUMBER

A. Newly installed fenestration product(s) shall be field tested in accordance with AAMA 502, ASTM E1105, and E783.

B. Test a minimum of three of the fenestration products after they have been installed.

C. Water penetration resistance tests shall be conducted at a static test pressure equal to 20 percent of the positive design wind load times 0.667.

3.10 CLEANING AND PROTECTION

A. Immediately after installation, remove nonpermanent labels and clean surfaces.

B. Clean excess sealant or compound from glass and framing members immediately after application using solvents or cleaners recommended by manufacturers.

C. During the course of the Work and on completion, remove and dispose of excess materials, equipment, and debris away from premises in a legal fashion. Leave Work in clean condition.

D. Remove and replace glass which is broken, chipped, cracked, abraded or damaged in any other way during the construction period, including natural causes, accidents and vandalism.

E. Wash and clean all exterior building glazing, new and existing, on both exposed surfaces not more than four (4) days before the date scheduled for observations that establish the date of Substantial Completion. Wash and clean new and existing glazing as recommended in writing by glazing manufacturer.

F. Do not apply markers of any type to surfaces of glass.

END OF CSI NUMBER

SECTION 920-1 – ARCHITECTURAL & STRUCTURAL

CSI NUMBER 09 22 16

NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.01 SUMMARY

A. CSI Number Includes:
   1. Non-load-bearing steel framing systems for interior partitions.
   2. Suspension systems for interior ceilings and soffits.
   3. Grid suspension systems for gypsum board ceilings.

1.02 SUBMITTALS

A. Product Data: Submit data describing standard framing member materials and finish, product criteria, load charts, limitations, and installation instructions.

B. Certificates: Mill Certification shall be provided with shipment to verify chemical composition, yield strength, tensile strength, elongation, and coating thickness. Include listing of applicable ASTM standards specified in this CSI Number and comparison of ASTM requirements to actual materials provided to jobsite.

C. Manufacturer's letter: Manufacturer shall provide letter stating that the material supplied to the specific project meets or exceed the performance standards listed in these specifications.

1.03 QUALITY ASSURANCE

A. Code-Compliance Certification of Studs and Tracks: Provide documentation that framing members are certified according to the product-certification program of the Certified Steel Stud Association, the Steel Framing Industry Association, or the Steel Stud Manufacturers Association.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E119 by an independent testing agency.

B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated on Drawings, according to ASTM E90 and classified according to ASTM E4 13 by and independent testing agency.

C. Horizontal Deflection: For composite wall assemblies, limited to 1/360 of the wall height based on horizontal loading of 5 lb./sq.ft.

2.02 FRAMING SYSTEMS

A. Studs, Runners, and Furring Channels:
   1. ASTM C 645, electro-galvanized to meet ASTM A 591, manufactured from steel supplied in accordance with ASTM A 653, Structural Quality Grade 33; G60 designation galvanized sheet steel.
   2. Thickness: In accordance with stud schedule provided herein.
   3. Deflection Track:
      a. Slotted Top Track (non-fire rated and fire-rated, as applicable): SLP- TRK® as manufactured by Sliptrack Systems (888) 475-7875 www.BradyInnovations.com, as distributed by Cemco *800) 775-2362 (western U.S) and Unimast Inc. (800) 654-7883 (eastern U.S.), gauge as per ICBO ER-5344, Table 2. Provide fire rated assemblies in accordance with manufacturer's literature, where applicable.

      b. Non-Fire Rated Slotted Top Track - Single Track Slip System for Interior Partitions: As manufactured by Metal Lite, Inc., 3070 E. Miraloma Avenue, Anaheim, CA 92806 (800) 886-6824. Provide for partitions that are not required to be fire rated.

B. Studs: C-shaped, non-load bearing rolled steel, punched for utility access, of size shown on Drawings.

C. Ceiling Runners: Cold or hot-rolled steel, meet ASTM C 754.

D. Hanger and Tie Wire: Meet ASTM C 754.

E. Furring and Bracing Members: Of same gauge, material and finish as studs, thickness to suit purpose.

F. Clips, Brackets: Galvanized wire or sheet metal designed for attachment of framing, furring, and bridging members.
   1. Deflection Clips: If acceptable to Building Official, VertiClip™ as manufactured by Signature Industries, LLC, P.O. Box 68005, Raleigh, NC 27613 (919) 844- 0789 may be provided for attachment of framing to roof and floor construction at head and slide conditions. Provide sizes as required for stud depth(s). Clips shall be manufactured of steel conforming to ASTM A 653 Prime Certified G60 galvanized material or better, 50 ksi yield strength and 65 ksi ultimate strength. Deflection clips to have positive attachment to structure and stud material while allowing for frictionless movement.
   2. Bridging Clips: If acceptable to Building Official, BridgeClip™ as manufactured by Signature Industries, LLC, P.O. Box 68005, Raleigh, NC 27613 (919) 844- 0789 may be provided for attachment of bridging to studs.

G. Fasteners: GA 203, self-drilling, self-tapping screws.

H. Anchorage Devices: Power driven, powder actuated, drilled expansion bolts or screws with sleeves as required for positive anchorage.

I. Partition Gap Closure System: Gordon Mullion Mate or equal.
   1. Finish: Match Window System
   2. STC: 35, minimum.

2.03 SUSPENSION SYSTEMS

A. Tie Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.062-inch-diameter wire, or double strand of 0.048-inch-diameter wire.

B. Power-Actuated Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

C. Wire Hangers: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.062-inch in diameter.

D. Flat Hangers: Steel sheet 1 by 3/16 inch.

E. Carrying Channels (Main Runners): Cold-rolled, commercial-steel sheet with a bas steel thickness of 0.0538 inch and minimum ½ inch wide flanges.
   1. Depth: 2 inches or as indicated on Drawings.

F. Furring Channels (Furring Members):
   1. Cold-Rolled Channels: 0.0538-inch uncoated-steel thickness, with minimum ½ inch wide flanges, ¾ inch deep.
   2. Steel Studs and Tracks: ASTM C645
   3. Hat-Shaped, Rigid Furring Channels: ASTM C645, 7/8 inch deep.
   4. Resilient Furring Channels: ½ inch deep members designed to reduce sound transmission.
      a. Configuration: Asymmetrical or hat shaped.

G. Grid Suspension System for gypsum board ceilings: ASTM C645, direct-hung system composed of main beams and cross-furring members that interlock.

2.04 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards.
   1. Fasteners for Steel Framing; Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

B. Isolation Strip at Exterior Walls: Provide [one of] the following:
   1. Asphalt-Saturated Organic Felt: ASTM D226/D226/M, Type I (No. 15 asphalt felt), nonperforated.
   2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size.

C. Acoustic Sealant: As specified in CSI Number 09 29 00. ACOUSTICAL SEALANT IS REQUIRED ON ALL INTERIOR PARTITIONS.

D. Primer: FS TT-P-645, for touch-up of galvanized surfaces.

E. Backing: "Notch-Tite" and "Flush Mount" as manufactured by Metal Lite, Inc., 3070 E. Miraloma Avenue, Anaheim, CA 92806 (800) 886-6824.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine areas and substrates, with installer present, and including welded hollow metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.

B. Verify field measurements are as shown on Drawings.

C. Verify that rough-in utilities are in proper location.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.
   1. Furnish inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.

B. Coordination with Fire-Resistive Materials:
   1. Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling tracks to surfaces indicated to receive sprayed fire-resistive materials. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than 24 inches o.c.
   2. After sprayed fire-resistive materials are applied, remove them only to extent necessary for installation of non-load-bearing steel framing. Do not reduce thickness of fire-resistive materials below that are required for fire-resistance rating indicated. Protect adjacent fire-resistive materials from damage.

3.03 INSTALLATION, GENERAL

A. Installation Standard: ASTM C754.
   1. Gypsum Board Assemblies: Also comply with requirements in ASTM C840 that apply to framing installation.
   2. Portland Cement Plaster Assemblies: Also comply with requirements in ASTM C 1063 that apply to framing installation.

B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.

C. Install supplementary framing and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.

D. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

E. Install bracing at terminations in assemblies.

3.04 INSTALLING FRAMED ASSEMBLIES

A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

C. Install studs so flanges within framing system point in same direction.

D. Install tracks at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts that penetrate partitions above ceiling.
   1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
   2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install track section (for cripple studs) at head and secure to jamb studs.
      a. Install two studs at each jamb unless otherwise indicated.
      b. Install cripple studs at head adjacent to each jamb stud, with a minimum ½ inch clearance from jamb stud to allow for installation of control joint in finished assembly.
      c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.
   3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
   4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
   5. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
   6. Curved Partitions:
      a. Bend track to uniform curve and locate straight lengths so they are tangent to arcs.
      b. Begin and end each arc with a stud, and space intermediate studs equally along arcs. On straight lengths of no fewer than two studs at ends of arcs, place studs 6 inches o.c.

E. Direct Furring:
   1. Screw to wood framing.
   2. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.

F. Z-Shaped Furring Members:
   1. Erect insulation specified in CSI Number 920-07 21 00 “Thermal Insulation” vertically and hold in place with Z-shaped furring members.

2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.

G. Installation tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

H. Align and secure top and bottom runners at spacing indicated on Drawings. Place two beads of acoustic sealant between runners and substrate.

I. Backing and Blocking: Provide backing and blocking attached to studs. Bolt or screw steel channels to studs. Install backing and blocking for support of plumbing fixtures, toilet partitions, wall cabinets, toilet accessories, and hardware. If proprietary system is used, install in accordance with manufacturer's printed instructions.

J. Construct corners using minimum three studs.

K. Coordinate erection of studs with requirements of door and window frame supports and attachments.

L. Refer to Drawings for indication of partitions extending to ceiling only and for partitions extending through ceiling to structure above. Maintain clearance under structural building members to avoid deflection transfer to studs. Provide nested extended leg ceiling runners, deflection clips or proprietary slip track.

M. Coordinate placement of insulation in multiple stud spaces made inaccessible after stud framing erection.

3.05 INSTALLING CEILING SUSPENSION SYSTEMS

A. Install suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.

C. Suspend hangers from building structure as follows:
   1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.
      a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
   2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.
      a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.

   3. Wire Hangers: Secure by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.

4. Flat Hangers: Secure to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices and fasteners that are secure and appropriate for structure and hangers to deteriorate or otherwise fail.

5. Do not attach hangers to steel roof deck.

6. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.

7. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.

8. Do not connect or suspend steel framing from ducts, pipes, or conduit.

D. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.

E. Laterally brace entire suspension system.

F. At steel beams, joists or other steel construction wrap hangers around, inset through, or clip or bolt to the supports, so as to develop the full strength of the hangers.

G. At lights or other openings that interrupt the main runner or furring channels reinforce grillage with 3/4 inch cold-rolled channels, wire tied atop and parallel to the main runner channels.

H. Do not bridge control and expansion joints with metal furring. Provide separate supports on each side of joint.

I. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

3.06 STUD SCHEDULE

A. The design thickness (gauge) as listed in the following Stud Table are the minimum thicknesses required. See the Drawings for the stud thicknesses required in most applications, which may be thicker than what is listed in the following Stud Table. If more than one thickness is indicated for a stud, the thicker specification, whether on the Drawings or within this Specification shall govern, and shall be approved by the Architect.

B. Stud Table: Maximum limits based upon 5 psf deflection limit, 33 ksi yield stress, and composite wall sheathed both sides full height with 1/2 inch thick gypsum wallboard attached with No. 6 screws at 12 inches on center minimum, from the SSMA "Product Technical Information" - "Wall Height Tables for Composite Allowable Wall Heights." Maximum allowable deflection as follows:
   1. Walls receiving gypsum wallboard finishes: L/240.
   2. Walls receiving plaster and brittle finishes, including stucco, stone masonry, and mirrors: L/360.
   3. Walls receiving ceramic and stone tile finishes: L/360.

STUD WIDTH	DESIGN THICKNESS (Gauge)	STUD SPACING	PARTITION HEIGHT		BRACING SPACING WHERE OCCURS
			L/240	L/360	

1 5/8”	18 mils .0188 in. (25)	16	8’ – 4”	---	4’ – 0” O.C.
		24	7’ – 11”	---	4’ – 0” O.C.
	33 mils .0346 in. (20)	16	9' – 8"	8’-5”	4’ – 0” O.C.
		24	8' – 9"	7’-8”	4’ – 0” O.C.
2-1/2”	18 mils .0188 in. (25)	16	11’ – 3”	9’-10”	6’ – 0” O.C
		24	10’ – 7”	9’-3”	6’ – 0” O.C
	33 mils .0346 in. (20)	16	12’ – 10”	11’-2”	6’ – 0” O.C
		24	11’ – 7”	10’-0”	6’ – 0” O.C
3-1/2”	18 mils .0188 in. (25)	16	14’ – 4”	12’-4”	8’ – 0” O.C
		24	13’ – 5”	11’-7”	8’ – 0” O.C
	33 mils .0346 in. (20)	16	16’ – 5”	14’-3”	8’ – 0” O.C
		24	14’ – 9”	12’-9”	8’ – 0” O.C
4”	18 mils .0188 in. (25)	16	15’ – 4”	13’-4”	8’ – 0” O.C
		24	14’ – 2”	12’-4”	8’ – 0” O.C
	33 mils .0346 in. (20)	16	18’ – 4”	15’-11”	8’ – 0” O.C
		24	16’ – 5”	14’-3”	8’ – 0” O.C
6”	18 mils .0188 in. (25)	16	19’ – 9”	17’-11”	10’ – 0” O.C
		24	16’ – 9”	16’-9”	10’ – 0” O.C
	33 mils .0346 in. (20)	16	24’ – 6”	21’-4”	10’ – 0” O.C
		24	21’ – 7”	18’-10”	10’ – 0” O.C

3.07 FIELD QUALITY CONTROL

A. Testing: At Owner's request, Contractor shall provide spot testing of actual properties of steel framing to verify compliance with specifications.

3.08 CLEANING

A. During the course of the Work and on completion, remove and dispose of excess materials, equipment, and debris away from premises in a legal manner. Leave Work in clean condition.

END OF CSI NUMBER

SECTION 920-1 – ARCHITECTURAL & STRUCTURAL

CSI NUMBER 31 31 00

SOIL TREATMENT

PART 1 - GENERAL

1.01 CSI NUMBER INCLUDES

A. Pretreatment to provide a chemical barrier to protect buildings and building contents against attack by subterranean termites.

1.02 RELATED CSI NUMBERS

A. CSI Number 03 30 00 – CAST-IN-PLACE CONCRETE.

1.03 REFERENCES

A. Environmental Protection Agency (EPA) registration.
B. State registration.

1.04 SUBMITTALS

A. Product Data:
   1. Prior to application, submit label indicating manufacturer’s chemical analysis of treatment materials.
   2. Submit evidence of EPA approval and applicable State registration.
B. Regulatory Requirements: Chemicals shall be approved for use and registered by the Environmental Protection Agency (EPA) and the applicable agency in the State where the project is located.

1.05 QUALITY ASSURANCE

A. An approved applicator shall perform the Work of this CSI Number and shall have not less than three (3) years of successful experience in the application of the products of this CSI Number for similar projects.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Conform to manufacturer's instructions and Governmental Agencies' requirements.
B. Deliver materials in original sealed and labeled manufacturer’s packaging.
C. Store materials in accordance with the manufacturer’s storage instructions.

1.07 FIELD CONDITIONS

A. Do not apply chemicals in inclement weather or when there is a possibility of rain.

1.08 WARRANTY

A. Upon completion of soil treatment, and as a condition of final acceptance, provide Owner with written unlimited warranty including:
   1. Statement that application was made at concentration, rate, and method in compliance with the Specifications contained herein.

2. Warrant effectiveness of the soil treatment against subterranean termite infestation for a period of not less than five (5) years from the date of Substantial Completion.

B. Upon evidence of subterranean termite activity within warranty period, re-treat area to stop infestation of affected areas and repair termite caused damage to building at no cost to Owner.
   1. Re-treatment under warranty sufficient to prevent termites from attacking building or its contents during remainder of initial warranty period, plus one additional year for each time re-treatment under warranty is required.
   2. Complete re-treatment of the building shall be as specified herein and shall be rendered upon the third recurrence of subterranean termites in the same structure within 5-year period from the date of project acceptance.
   3. Damage caused by infestations and by re-treatment shall be repaired at no cost to the Owner.

C. Draft warranty in favor of Owner, successors or assigns.
   1. Pre-printed FHA or VA guarantee forms shall NOT be accepted.
   2. The Owner and the applicator reserve the option to renew termite protection on an annual basis after the expiration of the warranty.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Subject to compliance with the requirements of the Contract Documents, provide one of the following chemical products as a water emulsion (no oil solutions permitted) from one of the following manufacturers:
   1. Dragnet FSR (Permethrin); FMC Corporation, www.fmc.com.
   2. Biflex TC (3rd generation synthetic pyrethroid); FMC Corporation, www.fmc.com.
   3. Prevail FT (Cypermethrin); FMC Corporation, www.fmc.com.
   4. Talstar (Bifenthrin); FMC Corporation, www.fmc.com.
   5. Termidor (Fipronil); Termidor Termite Control, www.termidorhome.com.
   6. Torpedo (Permethrin); ICI Americas, Inc.
   7. Prelude (Permethrin); AMGUARD Environmental Technologies.
   8. Premise (Imidacloprid).
   9. Demon TC (Cypermethrin).

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verification of Conditions: Examine surfaces to receive Work and report detrimental conditions in writing to Architect. Commencement of Work shall be construed as acceptance of surfaces.
   1. Do not treat soil and fill areas that are excessively wet or after heavy rains to avoid surface flow of toxicants.

B. Confirm weather is acceptable and that there is no possibility of rain during and after application, in accordance with the manufacturer's recommendations.

3.02 PREPARATION

A. Notify Architect and Owner at least forty-eight (48) hours prior to application of materials, so that the Architect or Owner want to can be present during application. The application shall occur during normal working hours in order to be subject to observation.

B. Mix solutions in accordance with Manufacturer's written directions to highest allowable concentration by label.

3.03 APPLICATION

A. Apply treatment in accordance with the manufacturer's recommendations and local codes & regulations.
   1. Provide applicator trucks with approved measuring flow meters.
   2. Apply chemicals on soils and compacted ABC fill materials under entire subsurfaces of concrete floor slabs and slabs abutting building walls, in quantities and locations stated on chemical label.
B. Do not disturb aggregate base course and treated soil between application of chemicals and pouring of concrete.
   1. Re-treat soil or compacted fill which has been disturbed after soil treatment, due to changes or omissions.
   2. Should rainy weather occur prior to pouring concrete slab over treated areas, re-treat the complete area, at the direction of the Architect, and at no additional cost to the Owner.

3.04 FIELD QUALITY CONTROL

A. Tests: Chemical analysis tests shall be made of materials used on the basis of one (1) test for each 10,000 square feet of treated area. Samples and tests may be taken of both concentrates and the dilute materials while being applied.

3.05 CLEANING AND PROTECTION

A. Adjacent property, trees, plants, and irrigation systems shall be protected from injury and damage as a result of the Work operations in this CSI Number.
B. During the course of the Work and upon completion, remove and dispose of excess chemicals, materials, equipment, and debris away from premises in a legal manner.

END OF CSI NUMBER

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SECTION 920-1 – ARCHITECTURAL & STRUCTURAL

CSI NUMBER 41 14 36

TRUCK WEIGH SCALES

PART 1 - GENERAL

1.01 CSI NUMBER INCLUDES

A. Fully operational multi-platform static truck weigh scale within a scale pit.
B. Controls, cabling, and conduits from the weigh scale to the countertops of the Weighmaster room and to the remote weight display.
C. Associated electronic equipment for the scale including digital weight indicators, scale ticket printers, and remote weight displays to be mounted on a steel pole.

1.02 RELATED CSI NUMBERS

A. CSI Number 03 05 14 – Fly Ash.
B. CSI Number 03 10 00 – Concrete Forming and Accessories.
C. CSI Number 03 20 00 – Concrete Reinforcing.
D. CSI Number 03 30 00 – Cast-in-Place Concrete.
E. CSI Number 03 80 00 – Concrete Cutting and Boring.
F. CSI Number 50 00 – Metal Fabrications.
G. CSI Number 10 00 – Dampproofing and Waterproofing.
H. CSI Number 92 00 – Joint Sealants.
I. CSI Division 22 – Plumbing.
J. CSI Division 26 – Electrical.

1.03 REFERENCES

A. Arizona Department of Transportation (ADOT) Standard Specifications for Road and Bridge Construction, Latest Edition.
B. National Association of Corrosion Engineers (NACE) International and Society for Protective Coatings (SSPC) – Surface Preparation Standards.
C. National Institute of Standards and Technology (NIST) – Handbook 44.
D. National Type Evaluation Program (NTEP).
E. Scale Manufacturers Association (SMA) Standards and Guidelines.
F. State of Arizona Department of Weights and Measures.

1.04 DESIGN REQUIREMENTS

A. Scales shall be NTEP certified and shall meet the requirements as set forth by the National Institute of Standards and Technology Handbook 44, current edition for class III L devices. The scale manufacturer shall provide a Certificate of Conformance to these standards. Provisional certification shall not be acceptable.

1.05 SUBMITTALS

A. Product Data: Submit manufacturer’s product data, including descriptive brochures or detail drawings of all product features.
B. Shop Drawings: Submit manufacturer’s shop drawings, including plans, elevations, sections, details, and schematics indicating dimensions, tolerances, materials, components, fabrication, fasteners, hardware, finishes, options, accessories, and other information to

render and construct a complete and functional truck weigh scale system. All calculations and special design requirements shall be clearly detailed and included.
    1. The shop drawings, calculations, and specifications shall be sealed by an engineer registered in the State of Arizona. The contractor shall allow a minimum of four (4) weeks for review and comment on the shop drawings after they have been submitted. Revisions shall be made by an Arizona registered engineer according to the review comments. The Contractor shall not proceed with the construction of the truck weigh scales until the shop drawing review process is complete.
C. Operation and Maintenance Manuals: Submit manufacturer's operation and maintenance manual(s); including operation, maintenance, adjustment, and cleaning instructions; and trouble shooting guide.
D. Installer qualification statement with applicable past project references.
E. Static scale weighing system technology location examples installed and operational within the State of Arizona.
    1. Submit names, addresses, contact persons, and telephone numbers for the locations.
F. List of major spare parts and pricing including (but not limited to) the following:
    1. Replacement load cells.
    2. Digital indicator.
    3. Printer.
    4. Junction box circuit boards.
    5. Accessory parts.

1.06 QUALITY ASSURANCE

A. Manufacturer's Qualifications: A company specializing in the manufacturing of the type of hydraulic pit cover operators specified herein with a minimum of ten (10) years experience.
B. Installer Qualifications: A company with a minimum of three (3) years installation experience of similar equipment.
C. The Contractor shall provide representatives from the scale manufacturer on an on-call, as-needed basis for review, consultation, and onsite construction observation of the truck weigh scale installation.
D. The static scale weighing system technologies as described in this CSI Number shall have been previously installed and successfully used in field operation at a minimum of two (2) locations in the State of Arizona. Submit names, addresses, contact persons, and telephone numbers for the locations. If the information provided by the contractor is not satisfactory, Contractor shall resubmit appropriate data to comply with this requirement. No work shall start until this requirement has been satisfactorily met. There will be no adjustment to the contract time as a result of an unsatisfactory submittal.
E. Pre-installation Meeting:
    1. Convene pre-installation meeting prior to the start of installation of truck weigh scales.
    2. Require attendance of parties directly affecting the work of this CSI Number, including Contractor, Architect, Owner, and scale manufacturer/installer.
F. Special Inspections:
    1. The scale manufacturer shall perform a special field inspection of the weighbridge installation, metal deck form installation, and deck reinforcement placement prior to the placement of the deck concrete. The scale manufacturer shall provide written acceptance that the above work complies with the Drawings and Specifications, the reviewed shop drawings, and the scale manufacturer's requirements.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
B. Storage: Store materials in clean, dry area indoors in accordance with manufacturer's instructions.

C. Handling: Protect materials during handling and installation to prevent damage.

1.08 FIELD CONDITIONS

A. Contractor to provide temporary electrical power as necessary.

1.09 WARRANTY

A. Truck weigh scales shall carry a five (5) year warranty against all defects in materials and workmanship, including the deck and components below the deck. Defective components shall be replaced by the manufacturer, at no cost to the owner.
B. The digital weight indicator, remote weight displays, printer, and all other items manufactured by the scale manufacturer shall be warranted for a period of twelve (12) months from the date of Substantial Completion.
C. The load cells shall be warranted for an additional twelve (12) months on a parts replacement only warranty.
D. Items not manufactured by the scale manufacturer shall be warranted by the manufacturer(s) of those items.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Subject to compliance with the requirements of the Contract Documents**,** provide products from one of the following manufacturers:
   1. **Basis of Design Manufacturer: Cardinal Scale Manufacturing Co., www.CardinalScale.com.**
   2. As approved by Architect and in compliance with substitution requirements.

2.02 MATERIALS

A. General:
   1. Source Limitations: The design and manufacture of the scale weighbridge, load cells, digital weigh indicator, remote weight displays, and associated accessories shall be from a single manufacturer to maximize compatibility and availability of components and design.
   2. Scale shall be of a fully digital load cell design and shall not incorporate any mechanical weighing elements, check rods, or check stays.
   3. Dimensions within the scale pit may vary depending upon the requirements of the static scale manufacturer. The contractor shall coordinate all dimensions with the scale pit for these requirements.
   4. The scale shall be NTEP certified and shall meet the requirements as set forth by the National Institute of Standards and Technology Handbook 44, current edition for class III L devices. The scale manufacturer shall provide a Certificate of Conformance to these standards. Provisional certification will not be acceptable.
   5. The scale shall be furnished with one digital weight indicator, one printer, four (4) remote weight displays (housed in a factory-built cabinet), and all accessories necessary to be fully functional and set up to process data for the scale.
   6. The manufacturer shall provide a listing of major spare parts and prices including, but not limited to, replacement load cells, digital indicator, printer, junction box circuit boards and associated accessory parts.
B. Weighbridge:
   1. Scale shall have a clear and unobstructed weighing surface of not less than 12 feet in width by 100 feet in length, as indicated in the Drawings, with three (3) weighing platforms:

a. Steering Platform: 12 feet x 20 feet.
b. Drive Platform: 12 feet x 20 feet.
c. Trailer Platform: 12 feet x 60 feet.

2. The scale shall be fully electronic in design and shall incorporate a restraint system that prevents motion of the deck. Scale platforms or appurtenances shall not come in contact with the concrete approaches.
3. The scale shall have a gross weighing capacity of 100 tons and shall have a concentrated capacity of 40 tons. This scale shall be designed to accept vehicles that generate up to 60,000 pounds per tandem axle. The platforms shall have the following minimum weighing capacities:
   a. Steering Platform: 80,000 lbs.
   b. Drive Platform: 80,000 lbs.
   c. Trailer Platform: 120,000 lbs.
4. Scale shall be calibrated in 20-pound increments to 200,000 pounds.
5. The weighbridge shall be fabricated of steel and shall include main girders, cross members, deck channels, four manhole access covers, and all necessary miscellaneous nuts, bolts, and other items to permit field assembly of the weighbridge. The main girders of the weighbridge shall not be less than those outlined in the Scale Manufacturers Association (SMA) recommendation handbook. The cross members and outriggers used in the weighbridge shall support the concrete deck. Outriggers shall be in line with each cross member.
6. The scale shall have a poured in place reinforced concrete deck with a concrete lock anchoring system. No additional shoring or bracing shall be required before pouring the concrete for the deck. The deck thickness shall be as indicated within the Drawings.
7. The concrete for the deck shall be Class S with a minimum 28-day comprehensive strength of 4,000 psi in accordance with the requirements of Section 601-2 of the ADOT Standard Specifications for Road and Bridge Construction, or as indicated in the Drawings, whichever is more stringent. The reinforcing steel for the deck shall be Grade 60, or as indicated in the Drawings, whichever is more stringent.
8. Materials and workmanship for reinforced concrete shall be in accordance with the ADOT Standard Specifications or the Drawings, whichever is more stringent. The material for the concrete deck shall conform to Section 1006 of the ADOT Standard Specifications for Road and Bridge Construction or the Drawings, whichever is more stringent.
9. The reinforced concrete deck shall be designed to support all dead and live loads, and to prevent cracks from developing even under sustained and prolonged heavy truck traffic and impact load.
10. The weighbridge shall be supplied with all anchor bolts, check plates, and curb angles as required for casting into the concrete pit.
11. One metal ladder shall be provided at each access manhole. The ladders shall be bolted to the weighbridge and shall be removable.
12. The weighbridge and load cell mounting assemblies shall be designed to permit installation or replacement of a load cell with only one (1) additional inch of clearance required between the top of the foundation and the bottom of the weighbridge.
13. There shall be no bolted connections between the load cells and weighbridge assemblies.
14. There shall be no shims required below the top surface of the load cells or between the load base plates.
15. There shall be no bumper assemblies attached to the weighbridges, load cell stands, foundation or approaches.
16. All required junction boxes, load cells, and interconnecting cables shall be furnished and installed at the jobsite.
17. The structural steel of the weighbridge shall be shot blasted in accordance with SSPC Surface Preparation Standard SSPC-SP6 – Commercial Blast Cleaning to remove rust and mill scale and then painted with the scale manufacturer’s standard paint. Preparation and painting of the weighbridge structural steel shall be in accordance with the

requirements of Section 610 of the ADOT Standard Specifications for Road and Bridge Construction.

C. Load Cells:
   1. All load cells shall be either a digital compression load cell or the digital double-ended shear beam load cell and shall have a minimum capacity of 100,000 pounds. The strain signal shall be converted from analog to digital inside the cell.
   2. Each load cell shall incorporate a fully sealed strain gauge element and integrated digital signal processing electronics to provide a stable, noise immune digital output directly from the load cell body.
   3. The minimum number of load cells required for each platform is:
      a. Steering Platform: 4 load cells.
      b. Drive Platform: 4 load cells.
      c. Trailer Platform: 8 load cells.
   4. The load cell assembly shall be constructed so that the load-bearing surfaces perform as rockers and shall have no positive fixed mechanical connectors such as bolts or links which are required in mounting the load cell to the weighbridge or foundation base plates. Load cells shall be certified by NTEP and meet the specifications set forth by the National Institute of Standards and Technology (NIST) Handbook 44 for Class III L, 10,000 devices. A Certificate of Conformance to these standards shall be provided by the manufacturer. Load cells shall be contained in a stainless-steel canister, hermetically sealed with a minimum ingress protection IP67 rating.
   5. The load cells and load cell mounting hardware and fasteners shall be constructed of stainless steel and shall meet the following performance requirements:
      a. Overload:
         i. Safe: 150%
         ii. Ultimate: 300%
      b. Rated Output: RS-485, CANbus, or proprietary digital serial communication.
      c. Resistance:
         i. Input: 1100 Ohms minimum.
         ii. Output: 1050 +/- 1%Ohms.
         iii. Zero Balance: +/-1% of rated output Excitation
      d. Recommended: 15 vdc.
      e. Maximum: 25 vdc.
      f. Non-Linearity: +/- 0.05% of rated output.
      g. Hysteresis: +/- 0.03% of rated output.
      h. Non-Repeatability: +/- 0.02% of rated output.
      i. Creep in 20 minutes: +/- 0.03% of load.
      j. Insulation Resistance: 5k megaohms.
      k. Temperature Range:
         i. Compensated: 14 degrees F to 104 degrees F.
         ii. Operating: -20 degrees F to +200 degrees F.
      l. Temperature Effect:
         i. Rated Output: +/- 0.0008% /F of load.
         ii. Zero Balance: +/- 0.0015% / F of rated output.
      m. Deflection: 0.008

D. Digital Weight Indicator:
   1. The digital weight indicator (DWI) shall be furnished with a truck axle program with two (2) modes of operation as described herein:
      a. Mode 1 – Manual Operation by the Scale Operator:
         i. Operator will turn the red/green light on and off to meter the trucks across each scale.
         ii. Operator selects “Manual Mode” on the indicator.
         iii. When the first axle is positioned on the scale, the operator will press a print key on the indicator and the time, date ID (if entered), axle #1 and gross weight will be printed.

iv. Operator positions truck for axle #2 by turning traffic light on and off as required.
v. Operator presses indicator print key and axle #2 and gross weight is printed.
vi. Repeat steps 4 and 5 for additional axles.
vii. When the last axle is weighed and printed, the operator presses the indicator "Total" key and the total gross weight will be printed.

b. Mode 2 – Automatic Operation (an overweight preset will be entered on the indicator which will remain in memory until changed):
i. Operator sets green traffic light to remain on.
ii. Operator selects "Auto" model on the indicator.
iii. Trucks drive slowly across the scale without stopping.
iv. If the overweight preset is exceeded, the audible alarm will sound. The alarm may be silenced with a key on the indicator. The alarm will not sound again until the overweight preset is exceeded again.
v. Printing will not occur in the auto mode.

E. Printer:
1. Printer shall be a desktop roll tape printer capable of printing 4.2 inches per second and shall include a rewind mechanism.
2. The printer shall operate with 115VAC and shall include an RS-232 communications port. The contractor shall supply all serial and power cables necessary for full functionality.

F. Remote Weight Display (RWD):
1. The remote weight display (RWD), also known as the Scoreboard, shall consist of four (4) separate displays, daisy-chained together that will simultaneously show the three individual platform weights as well as the total overall weight. The four (4) RWD's shall be contained in a factory-built steel cabinet specially made for this application and be capable of being mounted on a 4" diameter steel pole. All four of the RWD's shall have message board capability.
2. Remote Weight Display features shall include:
a. Display: High intensity LED.
b. Levels of Brightness: Ten (10).
c. Character Height: 2.6 inches.
d. Character Type: 5x7 alphanumeric with upper and lower case letters, descenders, and decimal points.
e. Annunciators: lb, kg, T, t, G, N.
f. Ambient Light Levels: Total darkness to direct sun.
g. Power Input: 115/230 VAC 50/60 Hz.
h. Power Consumption: 60 watts maximum.
i. Interface: 20mA - active or passive, RS-232, RS-422, RS-485 with serial, fiber optic.
j. Display Capacity: -99999 to 999999.
k. Enclosure Rating: NEM4/IP65.
l. Enclosure: Painted milled steel.
m. Viewing Angle: +/- 70 degrees.
n. Viewing range: 200 feet.
o. Ambient Temperature: -15 degrees to +130 degrees F.
p. Character Format: All standard printable ASCII characters.
q. Individual Cabinet Dimensions: Nominally 25" W x 3" D x 10" H.
r. Overall Cabinet Dimensions: Nominally 36" W x 11" D x 48" H and provided with a rain hood.

G. Junction Boxes and Cabling Conduit:
1. All junction boxes shall be stainless steel and at least NEMA 4 rated.
2. All cable within the pit shall be fully enclosed in rigid metal conduit properly secured to the underside of the weighbridge and/or the sides of the concrete scale pit.
3. Cabling from the scale pit to the Weighmaster room shall be run in conduits as shown on the Drawings and as required.

H. Surge Voltage Protection:

1. A comprehensive surge voltage protection system shall be provided with the scale. The system shall not require complicated wiring or devices to provide this protection.
2. There shall be a surge voltage protection system built into the load cells themselves and also surge voltage protections in the junction boxes on the scale.
3. Proper grounding of all scale components, including load cells, digital weight indicator, remote weight displays, printer and accessories, shall be grounded to one common point. Multiple ground point systems are not acceptable. The grounding point shall be in accordance with the scale manufacturer's specifications

I. Sump Pump:
1. The sump pump shall be a close coupled submersible type with 1-inch minimum diameter discharge, integral thermal overload protection and Type SOOW cable. The pump and motor shall be assembled on a single vertical stainless-steel shaft fitted with a mechanical seal. The pump control shall be a switch located in the Weighmaster room. The pump shall be adequately sized to remove water from the scale pit.
2. The discharge line piping inside and outside the scale pit to the cleanout shall be Schedule 40 polyvinyl chloride (PVC) pipe with solvent welded fittings. The check valve shall be bronze type and shall be the size of the pipe on which they are installed. Check valve shall be flap type.

J. Cleanout with Frame and Cover:
1. Castings for the frame and cover shall conform to ASTM, Class 30. The bearing surfaces of the frames and covers shall be machined, and the cover shall seat firmly onto the frame without rocking.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Notify Architect in writing of dimensional discrepancies or other conditions detrimental to proper installation or performance of the Work under this CSI Number.
B. Do not proceed with installation until unsatisfactory conditions have been corrected in a manner acceptable to the manufacturer.
C. Commencement of Work shall be construed as acceptance of substrates and subsurfaces.

3.02 PREPARATION

A. Coordinate with the necessary Trades as required to provide items to be built-in.

3.03 INSTALLATION

A. Erect Work to the proper lines and levels, plumb and true, and in correct relation to other Work. Maintain this condition through completion.

3.04 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by installation activities.
B. During the course of the Work and on completion, remove and dispose of excess materials, equipment and debris away from premises in a legal manner. Leave Work in clean, operable condition.

3.05 SCALE CERTIFICATION AND PLACING OF SCALE INTO SERVICE

A. The manufacturer, or their local representative through the Contractor, shall test, calibrate, and place the scale into service per the requirements of the State of Arizona Department of Agriculture Office of Weights & Measures Services Division (WMSD). The Office of Weights &

Measures can be contacted at 1110 West Washington Street, Suite 450, Phoenix, Arizona 85007, phone number (602) 542-4373.

B. The truck scale shall be certified by the Office of Weights & Measures before it can be put into service.
C. Contractor shall provide a minimum of 72 hours advance notice to the Owner of all visits scheduled by the Office of Weights & Measures.

3.06 TRAINING

A. The Contractor shall provide a minimum of two (2) hours of onsite field training by the scale manufacturer for the Owner's personnel prior to final acceptance. This shall include, but not be limited to calibration techniques, software and hardware operation, replacement of load cells, programming of instrumentation, and scheduled maintenance of equipment.
B. The scale manufacturer shall provide documentation for all equipment and hardware to the Owner.

END OF CSI NUMBER

ARIZONA DEPARTMENT OF TRANSPORTATION
PROJECT DELIVERY AND OPERATIONS DIVISION
CONTRACTS AND SPECIFICATIONS GROUP

BID SCHEDULE

CONTRACT # 2026051

TRACS No.	Project No.	Item	County	District	Gross Length	Net Length	Prepared By:
010 CH 383 F072801C	010-F-(238)T	104462	COCHISE	SOUTHEAST	0.3		Brandon Campbell

Highway Termini	Location	Work Description
• BENSON -STEINS PASS HWY (I-10)	• San Simon Port of Entry	• SITE IMPROVEMENTS

BID SCHEDULE

010 CH 383 F072801C

Item No.	Item Description	Unit	Quantity	Unit Price	Extended Amount
2010011	CLEARING AND GRUBBING	ACRE	1		
2020021	REMOVAL OF CONCRETE CURB AND GUTTER	L.FT.	1,764		
2020029	REMOVAL OF ASPHALTIC CONCRETE PAVEMENT	SQ.YD.	1,525		
2020030	REMOVAL OF ASPHALTIC CONCRETE PAVEMENT (COMPACTED AC MILLINGS DRIVEWAY)	SQ.YD.	47		
2020031	REMOVAL OF PORTLAND CEMENT CONCRETE PAVEMENT	SQ.YD.	5,507		
2020041	REMOVAL OF PIPE	L.FT.	82		
2020050	REMOVE (MISC. ITEMS)	L.SUM	1		
2020052	REMOVE (BARRIER CURB)	L.FT.	28		
2020055	REMOVE AND SALVAGE (VIDEO SURVEILLANCE SYSTEM)	L.SUM	1		
2020071	REMOVE GUARD RAIL	L.FT.	153		
2020101	REMOVE FENCE	L.FT.	1,013		
2020118	REMOVE (CATCH BASIN)	EACH	3		
2020120	REMOVE (SLOTTED DRAIN)	L.FT.	21		
2020154	REMOVE (12' X 20' SCALE PIT AND SCALE)	L.SUM	1		

BID SCHEDULE

010 CH 383 F072801C

Item No.	Item Description	Unit	Quantity	Unit Price	Extended Amount
2020155	REMOVE (SIGNS)	EACH	12		
2020157	REMOVE (PULL BOX)	EACH	5		
2020175	REMOVAL OF LIGHT POLES (ASSEMBLIES)	EACH	3		
2020366	REMOVE LEAD-BASED PAINT MATERIALS	L.SUM	1		
2020370	DISPOSE OF LEAD-BASED PAINT MATERIALS (FORCE ACCOUNT)	L.SUM	1	$3,500.00	$3,500.00
2020400	REMOVE AND RELOCATE (STORAGE CONTAINER)	EACH	2		
2030301	ROADWAY EXCAVATION	CU.YD.	546		
2030401	DRAINAGE EXCAVATION	CU.YD.	53		
3030022	AGGREGATE BASE, CLASS 2	CU.YD.	505		
4010019	PORTLAND CEMENT CONCRETE PAVEMENT (12" DOWELED)	SQ.YD.	5,728		
4010306	LOAD TRANSFER DOWEL ASSEMBLY (6-FT)	EACH	67		
4010308	LOAD TRANSFER DOWEL ASSEMBLY (8-FT)	EACH	206		
4010310	LOAD TRANSFER DOWEL ASSEMBLY (10-FT)	EACH	147		
4010312	LOAD TRANSFER DOWEL ASSEMBLY (12-FT)	EACH	14		
4010314	LOAD TRANSFER DOWEL ASSEMBLY (14-FT)	EACH	28		

BID SCHEDULE

010 CH 383 F072801C

Item No.	Item Description	Unit	Quantity	Unit Price	Extended Amount
4026002	JOINT AND CRACK REPAIR (SEALING)	L.FT.	9,584		
4090004	ASPHALTIC CONCRETE (MISCELLANEOUS STRUCTURAL) (3/4")(FOR PCCP BASE)	TON	116		
4090005	ASPHALTIC CONCRETE (MISCELLANEOUS STRUCTURAL) (SPECIAL MIX)(3/4")	TON	470		
5010107	PIPE, CORRUGATED METAL, SLOTTED, 18"	L.FT.	53		
5011014	PIPE, REINFORCED CONCRETE, CLASS IV, 18"	L.FT.	520		
5030070	CONCRETE CATCH BASIN (C-15.30) SINGLE, H=8' OR LESS	EACH	1		
5030142	CONCRETE CATCH BASIN (MEDIAN) (C-15.80)	EACH	1		
5050001	MANHOLE (C-18.10) (NO. 1) (FOR PIPES 6" TO 36")	EACH	1		
6060076	FOUNDATION FOR BRIDGE SIGN STRUCTURE (SD9.20, TYPE 2F)	EACH	2		
6060301	RELOCATE EXISTING BRIDGE SIGN STRUCTURE	L.SUM	1		
6070038	SLIP BASE	EACH	15		
6070048	FOUNDATION FOR SQUARE TUBE POST	EACH	16		
6070054	SIGN POST (PERFORATED) (2 S)	L.FT.	11		
6070057	SIGN POST (PERFORATED) (2 1/2 T)	L.FT.	188		

BID SCHEDULE

010 CH 383 F072801C

Item No.	Item Description	Unit	Quantity	Unit Price	Extended Amount
6080005	REGULATORY, WARNING, OR MARKER SIGN PANEL	SQ.FT.	80		
6080018	EXTRUDED ALUMINUM SIGN PANEL	SQ.FT.	203		
6080025	FLAT SHEET ALUMINUM SIGN PANEL	SQ.FT.	42		
6080105	RELOCATE SIGNS	L.SUM	1		
7015032	TEMPORARY PREFORMED MARKING (TYPE II, TAPE LINE)	L.FT.	3,000		
7015052	OBLITERATE PAVEMENT MARKING (STRIPE)	L.FT.	13,170		
7016030	BARRICADE (TYPE 1, TYPE 2, VERT.PANEL, TUBULAR MARKER)	EACH-DAY	70,090		
7016031	BARRICADE (TYPE 3, HIGH LEVEL FLAG TREE)	EACH-DAY	18,270		
7016033	PORTABLE SIGN STAND (SPRING TYPE)	EACH-DAY	10,770		
7016035	WARNING LIGHT (TYPE A)	EACH-DAY	12,980		
7016037	WARNING LIGHT (TYPE C)	EACH-DAY	70,090		
7016039	EMBEDDED SIGN POST	EACH-DAY	4,410		
7016051	TEMPORARY SIGN (LESS THAN 10 S.F.)	EACH-DAY	3,870		
7016052	TEMPORARY SIGN (10 S.F. OR MORE)	EACH-DAY	9,100		

BID SCHEDULE

010 CH 383 F072801C

Item No.	Item Description	Unit	Quantity	Unit Price	Extended Amount
7016067	CHANGEABLE MESSAGE BOARD (CONTRACTOR FURNISHED)	EACH-DAY	882		
7040005	PAVEMENT MARKING (WHITE EXTRUDED THERMOPLASTIC) (0.090")	L.FT.	17,221		
7040006	PAVEMENT MARKING (YELLOW EXTRUDED THERMOPLASTIC) (0.090")	L.FT.	980		
7040072	PAVEMENT MARKING (TRANSVERSE) (THERMOPLASTIC) (ALKYD) (0.090")	L.FT.	545		
7040073	PAVEMENT LEGEND (EXTRUDED THERMOPLASTIC) (ALKYD) (0.090")	EACH	2		
7040074	PAVEMENT SYMBOL (EXTRUDED THERMOPLASTIC) (ALKYD) (0.090")	EACH	14		
7042031	PRIMER-SEALER FOR PCCP THERMOPLASTIC STRIPING	L.FT.	11,240		
7042036	PRIMER-SEALER FOR PCCP THERMOPLASTIC SYMBOL/LEGEND	EACH	15		
7042051	REMOVAL OF CURING COMPOUND FOR STRIPING	L.FT.	6,780		
7042056	REMOVAL OF CURING COMPOUND FOR SYMBOL/LEGEND	EACH	4		
7080201	WATERBORNE-TYPE I PAVEMENT MARKING (PAINTED) (WHITE)	L.FT.	440		

BID SCHEDULE

010 CH 383 F072801C

Item No.	Item Description	Unit	Quantity	Unit Price	Extended Amount
7080202	WATERBORNE-TYPE I PAVEMENT MARKING (PAINTED) (YELLOW)	L.FT.	100		
7080204	WATERBORNE-TYPE I PAVEMENT MARKING (PAINTED SYMBOL)	EACH	1		
7310070	POLE (TYPE G) (STANDARD BASE)	EACH	3		
7310195	POST (PEDESTRIAN PUSH BUTTON)	EACH	1		
7310201	BREAKAWAY BASE FOR LIGHTING POLES (OVER 30')	EACH	3		
7310260	POLE FOUNDATION (TYPE G) (STANDARD BASE)	EACH	10		
7310390	PEDESTRIAN PUSH BUTTON POST FOUNDATION	EACH	1		
7310551	MAST ARM (20 FT.) (STRAIGHT OR TAPERED)	EACH	3		
7310832	RELOCATE EXISTING LIGHT POLES	EACH	7		
7320030	ELECTRICAL CONDUIT (1") (PVC)	L.FT.	150		
7320050	ELECTRICAL CONDUIT (2") (PVC)	L.FT.	5,675		
7320055	ELECTRICAL CONDUIT (2") (PVC) (DIRECTIONAL DRILL)	L.FT.	460		
7320073	ELECTRICAL CONDUIT (2 - 3") (PVC)	L.FT.	60		
7320130	ELECTRICAL CONDUIT (2") (RIGID METAL)	L.FT.	315		
7320291	ELECTRICAL CONDUIT (2 -2 " PVC)	L.FT.	260		

BID SCHEDULE

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Item No.	Item Description	Unit	Quantity	Unit Price	Extended Amount
7320420	PULL BOX (NO. 7)	EACH	9		
7320450	PULL BOX (NO. 7) (FMS)	EACH	11		
7320455	PULL BOX (NO. 9)	EACH	2		
7320456	PULL BOX (4B)	EACH	7		
7320500	CONDUCTOR (NO. 12)	L.FT.	300		
7320520	CONDUCTOR (NO. 8)	L.FT.	900		
7320530	CONDUCTOR (NO. 6)	L.FT.	13,750		
7320540	CONDUCTOR (NO. 4)	L.FT.	1,590		
7320585	CONDUCTOR (INSULATED BOND) (NO. 12)	L.FT.	150		
7320586	CONDUCTOR (INSULATED BOND)(NO. 8)	L.FT.	240		
7320590	CONDUCTOR (INSULATED BOND) (NO. 6)	L.FT.	2,835		
7320595	CONDUCTOR (INSULATED BOND) (NO. 4)	L.FT.	800		
7320740	REMOVAL OF EXISTING CONDUCTORS	L.FT.	2,550		
7320765	SINGLE MODE FIBER OPTIC CABLE (12 FIBERS)	L.FT.	350		
7320788	SINGLE MODE FIBER OPTIC CABLE (6 FIBERS)	L.FT.	2,430		

BID SCHEDULE

010 CH 383 F072801C

Item No.	Item Description	Unit	Quantity	Unit Price	Extended Amount
7340100	CONTROL CABINET	EACH	1		
7340101	CONTROL CABINET (POLE MOUNTED)	EACH	4		
7340103	CONTROL CABINET (WALL MOUNTED)	EACH	1		
7340105	CONTROL CABINET FOUNDATION	EACH	1		
7360110	LUMINAIRE (HORIZONTAL MOUNT)(INSTALL ONLY)	EACH	3		
7370410	ELECTRICAL SYSTEM (LANE CONTROL SIGNAL SYSTEM)	L.SUM	1		
7370452	MISCELLANEOUS ELECTRICAL (VIDEO SURVEILLANCE SYSTEM)	L.SUM	1		
7370455	MISCELLANEOUS ELECTRICAL (LIGHTING RECORD DRAWINGS)	L.SUM	1		
8050003	SEEDING (CLASS II)	ACRE	1		
8080028	BACKFLOW PREVENTION UNIT (PRESSURE 1 1/2")	EACH	1		
8080394	PIPE (PVC) (4") (SCHEDULE 40)	L.FT.	370		
8080424	PIPE (COPPER) (1 1/2")	L.FT.	390		
8080696	CONCRETE PIPE PLUG (C-13.76)	EACH	1		
8081116	ABANDON WATER LINE	EACH	2		

BID SCHEDULE

010 CH 383 F072801C

Item No.	Item Description	Unit	Quantity	Unit Price	Extended Amount
8101018	EROSION CONTROL (STABILIZED CONSTRUCTION ENTRANCE/EXIT GRAVEL PADS)	SQ.YD.	200		
8101021	EROSION CONTROL (WATTLES) (9")	L.FT.	1,317		
9010001	MOBILIZATION	L.SUM	1		
9020002	CHAIN LINK FENCE, TYPE 1 (48")	L.FT.	255		
9020004	CHAIN LINK FENCE, TYPE 1 (72")	L.FT.	267		
9020112	CHAIN LINK FENCE GATE, TYPE 1 (72") (OVER 13' TO 18' WIDE)	EACH	2		
9020129	CHAIN LINK FENCE GATE (26' ACCESS CONTROL GATE, KEY CARD CONTROLLED)	EACH	1		
9050005	GUARD RAIL, W-BEAM, SINGLE FACE (MASH)	L.FT.	101		
9080001	CONCRETE CURB (C-05.10) (TYPE A)	L.FT.	918		
9080105	CONCRETE CURB, PRECAST (MAG DET. 150)	L.FT.	180		
9080201	CONCRETE SIDEWALK (C-05.20)	SQ.FT.	3,216		
9080295	CONCRETE SIDEWALK RAMP	SQ.FT.	132		
9240023	FORCE ACCOUNT WORK (ELECTRICAL PANEL, SSVE INSTALL)	L.SUM	1	$2,500.00	$2,500.00

BID SCHEDULE

010 CH 383 F072801C

Item No.	Item Description	Unit	Quantity	Unit Price	Extended Amount
9240050	MISCELLANEOUS WORK (WELL SITE RELOCATION AND CONNECTION)	L.SUM	1		
9240052	MISCELLANEOUS WORK (ABANDON EXISTING WELL STRUCTURE)	L.SUM	1		
9240053	MISCELLANEOUS WORK (GRINDER LIFT STATION INSTALLATION)	L.SUM	1		
9240054	MISCELLANEOUS WORK (DRY WELL STRUCTURE INSTALLATION)	L.SUM	1		
9240055	MISCELLANEOUS WORK (ABANDON EXISTING SANITARY SEWER)	L.SUM	1		
9240057	MISCELLANEOUS WORK (WELL INSTALLATION)	L.SUM	1		
9240058	MISCELLANEOUS WORK (HAZARDOUS MATERIALS SPILL CONTAINMENT BASIN)	L.SUM	1		
9240060	MISCELLANEOUS WORK (COALESCING PLATE WATER-OIL SEPARATOR)	L.SUM	1		
9240061	MISCELLANEOUS WORK (LIGHTNING PROTECTION SYSTEM)	L.SUM	1		
9240063	MISCELLANEOUS WORK (TRUCK WEIGH SCALE – ARCHITECTURAL & STRUCTURAL)	L.SUM	1		
9240064	MISCELLANEOUS WORK (TRUCK WEIGH SCALE – PLUMBING)	L.SUM	1		

Item No.	Item Description	Unit	Quantity	Unit Price	Extended Amount
9240065	MISCELLANEOUS WORK (TRUCK WEIGH SCALE – ELECTRICAL)	L.SUM	1		
9240066	MISCELLANEOUS WORK (ADMINISTRATION BUILDING – ARCHITECTUAL & STRUCTURAL)	L.SUM	1		
9240067	MISCELLANEOUS WORK (ADMINISTRATION BUILDING – MECHANICAL)	L.SUM	1		
9240068	MISCELLANEOUS WORK (ADMINISTRATION BUILDING – PLUMBING)	L.SUM	1		
9240069	MISCELLANEOUS WORK (ADMINISTRATION BUILDING – ELECTRICAL)	L.SUM	1		
9240070	MISCELLANEOUS WORK (ITS RECORD DRAWINGS)	L.SUM	1		
9240071	MISCELLANEOUS WORK (INSPECTION BUILDING – ARCHITECTUAL & STRUCTURAL)	L.SUM	1		
9240072	MISCELLANEOUS WORK (INSPECTION BUILDING – MECHANICAL)	L.SUM	1		
9240073	MISCELLANEOUS WORK (INSPECTION BUILDING – PLUMBING)	L.SUM	1		
9240074	MISCELLANEOUS WORK (INSPECTION BUILDING – ELECTRICAL)	L.SUM	1		
9240111	MISCELLANEOUS WORK (REMOVE AND RELOCATE TEMPORARY CONCRETE BARRIER)	L.FT.	1,067		

BID SCHEDULE

010 CH 383 F072801C

Item No.	Item Description	Unit	Quantity	Unit Price	Extended Amount
9240112	MISCELLANEOUS WORK (HDPE FORCE MAIN AND STEEL CASING INSTALLATION)	L.FT.	320		
9240119	MISCELLANEOUS WORK (PIPE PENETRATION)	EACH	1		
9240170	CONTRACTOR QUALITY CONTROL	L.SUM	1		
9240181	MISCELLANEOUS WORK (CONTROL OF NOXIOUS PLANTS) (MANUAL/MECHANICAL METHODS)	SQ.YD.	530		
9240182	MISCELLANEOUS WORK (CONTROL OF NOXIOUS PLANTS) (HERBICIDE)	SQ.YD.	530		
9250001	CONSTRUCTION SURVEYING AND LAYOUT	L.SUM	1		

BID TOTAL :