

09-21-2026

**ADDENDUM No. 1**



TO ALL CONTRACTORS AND OTHERS INTERESTED IN PROJECT

**095 LA 158 F070601C**  
**095-C(229)T**  
QUARTZSITE – PARKER – TOPOCK HWY  
SOUTH OF PARKER

SCHEDULED FOR BID OPENING ON  
FRIDAY, OCTOBER 16, 2026, AT 11:00 A.M. (M.S.T.)

**REVISIONS AND ADDITIONS TO THE SPECIAL PROVISIONS:**

**Page 197 of 220:**

**ITEM 9240117 MISCELLANEOUS WORK (SLOPE DRAPE):** delete in its entirety and replace it with the attached revised specification ITEM 9240117 MISCELLANEOUS WORK (SLOPE DRAPE) and be guided accordingly.

A handwritten signature in blue ink, likely belonging to Brahma Singh, is written over the text.

Brahama Singh, PE,  
Group Manager,  
Contracts & Specifications

Attachment:

-Revised Specification ITEM 9240117 MISCELLANEOUS WORK (SLOPE DRAPE).

## **ITEM 9240117 - MISCELLANEOUS WORK (SLOPE DRAPE):**

### **Description:**

The work shall consist of furnishing and installing a draped mesh rock slope protection system (high tensile wire net, cable net, or ring net fabric drape) and anchors at the locations indicated in the plans and as directed by the Engineer.

The rockfall drape is to be suspended from grouted anchors and wire rope cables along the crest of a slope and draped down the face so as to restrain falling loose and broken rock trajectories between the drape and the rock slope. The drape fabric shall have the structural strength to retain and redirect the load imposed by rock fall trajectories in-plane with the drape configuration shown on the plans with no distress to the system. The rockfall drape shall be resistant to corrosion, UV degradation, and thermal deterioration.

### **Materials:**

The Materials for construction the draped mesh system shall be furnished new and without defects. The materials and installation shall meet the specifications herein and the requirements specified on the plans. Defective materials rejected by the Department's representative shall be removed by the contractor. Draped mesh material shall consist of one of the options below.

- A. Draped mesh consisting of high-tensile spiral rope, or approved equivalent, shall have a minimum tensile strength capacity of 10 kips per foot. High-tensile spiral wire rope fabric shall be fabricated into a rope from three 0.16-inch diameter strands of 256 ksi steel wire turned to form a steel strand that is 0.34 inch in diameter.
- B. Draped mesh consisting of cable net shall be comprised of square or rectangular cable mesh panels joined at the panel boundaries to form a continuous drapery. Each cable mesh panel shall incorporate a uniform grid pattern of square or diamond shaped openings of no more than approximately 12 inches by 12 inches formed by the woven crossing of nearly continuous cable strands. The major axis of any opening shall not exceed 12 inches and the area of any opening shall not exceed 144 square inch. Each perpendicular cable crossing shall be securely fastened at an angle of approximately 90 degrees using a crossing clip or high tensile steel wire ties of sufficient strength to resist slippage or breakage of the crossing connection when subject to the loads generated by the controlled rock fall. Cable mesh cable shall have a minimum diameter of 5/16-inch and have a minimum breaking strength of 9,200 pounds. Cable net shall have a nominal load capacity or tensile strength of 9.2 kips per foot.
- C. Draped mesh consisting of ring net shall be defined as fabric consisting of interlocking steel rings with a diameter of no more than 14 inches. Each ring shall connect to the four or six adjoining rings by passing through them; they must be interlocked. Individual rings shall be fabricated from high tensile steel wire with a nominal steel wire diameter of 0.08-inch and a minimum breaking strength of 250,000 psi. A minimum of 5 strands shall be bundled into each ring. Steel wire used in the fabrication of the ring net shall be galvanized.

Material requirements for other elements of the slope protection system are the following:

- A. Regardless of the mesh material provided, panels shall be covered with chain-link or 8 x 10 type hexagonal mesh material which shall be attached to the primary fabric with interlocking steel fasteners. Chain-link material shall be minimum 9 gage, 2 inch, KK selvedge, chain-link or 8 inches by 10 inches double-twisted hexagonal wire mesh conforming to AASHTO M 181 and shall be zinc coated in accordance with ASTM A392, Class 1. If double-twist mesh is used, all edges shall be mechanically selvedged to prevent unraveling. The wire used for the selvedge shall have a diameter greater than the wire used to form the double-twist mesh.

The chain-link or hexagonal mesh shall be attached to the outside (roadside) of the nets and the fasteners placed on the top longitudinal wire rope of the draped mesh on 2 foot centers, and attached with an open pattern of interlocking steel fasteners over the drape to maintain flexibility of the system, as approved by the Engineer or shown on the plans.

- B. Wire Rope (Galvanized) (Support Cable) shall be equal to or greater than  $\frac{3}{4}$ - inch diameter Class 6 x 19 Independent Wire Rope Core (IWRC) Extra Improved Plow Steel (EIPS) in accordance with ASTM A1023-09. The minimum breaking load of the rope shall be 52,000 lbs.
- C. Wire Rope (Galvanized) (Wire Rope Anchors and Taglines) shall be equal to or greater than  $\frac{3}{4}$ -inch diameter Class 6 x 19 IWRC EIPS in accordance with ASTM A1023-09. The minimum breaking load of the rope shall be 52,000 lbs.
- D. Wire Rope (Galvanized) (Lacing Cable) shall be equal to or greater than  $\frac{1}{2}$ - inch diameter Class 6 x 19 IWRC in accordance with ASTM A1023-09. The minimum breaking load of the rope shall be 20,000 lbs.
- E. Drop forged wire rope clips shall correspond to the wire rope diameter used, and shall meet Federal Specification FF-C-450 Type 1, Class 1.
- F. Wire rope thimbles shall correspond to the wire rope diameter used and shall meet Federal Specification FF-T-276B Type III.
- G. All shackles used in draped mesh to top support rope connections shall be screw pin anchor type and shall be a minimum of  $\frac{3}{4}$ -inch 5.0 ton working load limit (WLL). Shackles used in mesh to mesh seam connections shall be screw pin forged chain type and shall be a minimum of  $\frac{1}{2}$ -inch 2.0 ton WLL. All shackles shall meet Federal Specification RR-C-271D Type IVA/IVB, Grade B, Class 2.
- H. Weldless Rings shall be a minimum of 1-inch x 4-inch and shall meet the performance requirements of Federal Specification RR-C-271D Type VI, and exhibit a single pull working limit of 10,000 pounds.
- I. All miscellaneous materials such as wire rope clips, shackles, thimbles, bolts, rings, etc., shall be supplied by the system manufacturer. All miscellaneous material associated with the system shall be hot-dipped galvanized in accordance with ASTM A153.

- J. All wire shall be galvanized per ASTM A641 for zinc coated (galvanized) carbon steel wire, or equivalent method as approved by the Engineer. The minimum weight of the coating shall be in accordance with Table 1 ASTM A641 when tested in accordance with ASTM A90. The adhesion of the zinc coating to the wire should be such that when the wire is wrapped six times around a mandrel of four times the diameter of the wire it does not flake or crack to such an extent that zinc can be removed by rubbing with bare fingers.
- K. Centralizers shall be constructed of Schedule 20 PVC, shall be securely attached to the anchor, sized to position the anchor within 1-inch of the center of the drill hole, sized to allow grout tube insertion to the bottom of the drill hole, and sized to allow grout to flow freely up the drill hole.
- L. Anchor grout shall be a neat, non-shrink cement or sand-cement mixture with a minimum 3-day compressive strength of 1,800 pounds per square inch (psi) and a minimum 28-day compressive strength of 4,000 psi per ASTM C109 / AASHTO 106.
- M. Cement shall conform to ASTM C150 / AASHTO M85, Type I.
- N. Fine aggregate shall conform to ASTM C33 / AASHTO M6.
- O. Packaged, dry, concrete mix, if used, shall conform to ASTM C387.

Cement shall be adequately stored to prevent moisture degradation and partial hydration. Grout that has become caked or lumpy shall not be used.

All cables and other steel items shall be carefully handled and shall be stored on supports to keep the steel from contact with the ground. Steel cables shall be picked up in such a way as to prevent overstressing. Damage to the anchor steel or galvanized coating as a result of overstressing, abrasion, cuts, nicks, welds, and weld spatter shall be cause for rejection by the Engineer. Grounding of welding leads to the steel will not be allowed. Anchor steel shall be protected from and sufficiently free of dirt, rust and other deleterious substances prior to installation. Heavy corrosion or pitting of anchors shall be cause for rejection by the Engineer. For damaged galvanized anchors, the coating shall be repaired in accordance with the manufacturer's recommendations.

## **Construction Requirements:**

### **(A) Contractors Submittals:**

Prior to initiating the work, the contractor shall submit the following to the Engineer for review and approval:

- A. The proposed construction work plan and schedule for installation of the draped mesh system.
- B. The proposed drilling method and equipment for wire rope anchor installation.
- C. Manufacturer's certificates of compliance for wire ropes, drape mesh material,

cable anchors, and chain-link or hexagonal mesh material.

- D. Grout mix design including: brand and type of Portland cement; source, gradation, and quality of all aggregates; proportions of mix by weight and water-cement ratio; manufacturer and brand name of all admixtures; and compressive strength test results (per ASTM C109 / AASHTO T106) verifying the specified minimum 3 and 28 day grout strengths.
- E. Anchor testing methods and equipment including details of the jacking frame and appurtenant bracing.
- F. Identification numbers and certified calibration records for each test jack and pressure gauge pair to be used. Calibration records shall include the date tested, device identification number, and the calibration test results, and shall be certified for an accuracy of within at least 2 percent of the applied certification loads by a qualified independent testing laboratory within 180 days prior to submittal.
- G. Fabrication drawings that shall include: type and diameter of all wire ropes, full list and description of the parts included in the draped mesh system "kit", cable anchor locations, type, pull-out strength, and anchor test results.
- H. The contractor shall submit daily field reports to the Engineer for approval. The field report shall include the location, description, and area of all mitigation activities installed each day.

**(B)     Scaling:**

The contractor shall scale slope faces as shown on the plans and described in these Special Provisions to remove loose, unstable rock and debris, and dispose of this rock and debris at locations approved by the Engineer prior to installation of the draped mesh system.

**(C)     Anchor Installation:**

Wire Rope Anchors shall be fabricated from  $\frac{3}{4}$ -inch wire rope and be folded over on itself and fastened with a thimble at the termination end as shown on the plans. Wire rope anchors shall be installed at the locations and to the lengths indicated on the plans. The contractor, with Engineer approval, may add, eliminate, or relocate anchors to accommodate actual field conditions. The minimum bonded length shall be at least 10 feet into rock. The contractor shall flush the anchor drill hole of all drill cuttings and debris with compressed air following completion of drilling.

The contractor's driller shall keep and provide a borehole log for each borehole drilled for anchors. The log shall include, but not be limited to the following information: hole diameter, hole length, angle from horizontal, date/time of drilling, drilling equipment used, encountered conditions (groundwater, depth of significant joints or voids, soil/weak rock, etc.), and the name of the driller. The contractor shall submit the logs to the Engineer on a daily basis.

Two successful verification tests shall be performed on sacrificial anchors in rock prior to

starting installation of production wire rope anchors. The verification test locations are determined by the contractor and approved by the Engineer.

The contractor shall select the drilling equipment and methods suitable for the ground conditions. The drill hole diameter shall be selected to provide the minimum specified grout cover over the wire rope anchor and to develop the specified pullout resistance.

The contractor shall immediately suspend drilling operations if ground subsidence is observed or if adjacent ground or structures are damaged as a result of the drilling operation. The adverse conditions shall be stabilized immediately and the Engineer shall be notified of such conditions within 24 hours.

Wire rope anchors shall be inserted into the drill hole to the required length without difficulty and in such a manner as to prevent damage to the drill hole. Wire rope anchors that cannot be fully inserted to the design depth shall be removed from the drill hole and the drill hole shall be cleaned sufficiently to allow unobstructed installation of the anchor.

#### **(D) Anchor Grouting:**

Grout equipment shall produce a uniformly mixed grout free of lumpy and undispersed cement. A positive displacement grout pump shall be used. The pump shall be equipped with a pressure gauge that can measure at least twice but no more than three times the intended grout pressure. The grouting equipment shall be sized to enable the entire anchor to be grouted in one continuous operation. The mixer shall be capable of continuously agitating the grout during usage.

Uncased drill holes shall be grouted immediately after installation of the anchor. Grouting prior to insertion of the anchor may be allowed provided neat cement grout is used and the anchor is immediately inserted through the grout to the specified length without difficulty. Anchors shall be installed into drilled holes the same day the holes are drilled unless approved otherwise by the Engineer. The grout shall be injected at the lowest point of each drill hole through a tremie pipe with the drill hole filled in one continuous operation. Cold joints in the grout placement are allowed for construction of test anchors. Tremie pipes can be grouted into the anchor hole provided they are made of non-corrodible material and are less than 1-inch diameter. The quantity of grout and the grouting pressures shall be recorded for each wire rope anchor. Grout pressures shall be controlled to prevent excessive ground heave or fracturing.

Anchor grout shall be tested by a testing agency under contract with the contractor in accordance with ASTM C109 / AASHTO T106 at a frequency of no less than one test for every 50 cubic yards of grout placed and at a minimum frequency of every 3rd grouting day.

#### **(E) Anchor Testing:**

##### **1) General:**

A minimum of two sacrificial wire rope anchors shall be load tested in accordance with the verification test procedures described below to verify the contractor's installation methods and anchor pullout capacity. The contractor shall select the location to install the ground anchors

for the verification tests, subject to approval by the Engineer.

Proof testing shall also be performed on 10 percent of the production wire rope anchors using the same testing procedure.

All test data shall be recorded by the Engineer, unless approved otherwise. Pull testing of anchors shall not be performed until the anchor grout has attained at least 50 percent of its specified 28-day compressive strength.

Testing equipment shall include jack and pressure gauge, a pump, and a jacking chair (reaction frame). The hydraulic jack, pressure gauge, and pump shall be used to apply and measure the test load.

The jack and pressure gauge shall be calibrated by an independent testing laboratory as a unit. The jack shall be capable of applying load in 100-pound increments or less and shall have a range not exceeding twice the anticipated maximum pressure during testing unless approved otherwise by the Engineer. The ram travel of the jack shall be sufficient to enable the test to be performed without re-setting the jack.

The jack shall be independently supported and centered over the wire rope anchor so that the anchor does not carry the weight of the jack. The stressing equipment shall be placed over the wire rope anchor in such a manner that the jack, bearing plates, and stressing anchorage are in alignment. The jack shall be positioned at the beginning of the test such that unloading and repositioning of the jack during the test will not be required.

The test reaction frame shall be sufficiently rigid and of adequate dimension such that excessive deformation of the test apparatus requiring repositioning of any components does not occur during testing, where the reaction frame bears directly on the surrounding rock or grade.

Wire rope test anchors shall be constructed using the same equipment, methods, and hole diameter as planned for the production anchors. Changes in the drilling or installation method may require additional anchor testing as determined by the Engineer.

## **2) Testing Procedure:**

The unbonded length of all test anchors shall be at least 2-feet unless approved otherwise by the Engineer.

The bond length for verification test anchors shall be determined by the Engineer.

The anchor load applied during testing of all test anchors shall not exceed 80 percent ultimate strength for the anchors

The anchor design load is:

ANCHOR  
¾-inch Cable

DESIGN LOAD  
30 kips

Test anchors shall be incrementally loaded to 120 percent of the design load. The load shall be applied in increments of 25 percent of the design load, and the load at each increment shall be held for 1 minute up to the maximum 120 percent load, which shall be held for an additional 5 minutes following the initial 1-minute load period. Each incremental load shall be monitored for cable set and anchor creep. The anchors shall be considered acceptable if the 120 percent load increment can be maintained for 5 minutes.

**(F) Mesh Installation:**

The draped mesh fabric shall be placed on the slope in a manner that will follow the contours of the slope and minimize gaps and large spaces between adjacent panels.

The top of the draped mesh fabric shall be secured to the horizontal support wire rope. The horizontal support wire rope shall be positioned a minimum of 10 feet above the top of the cut slope. Heavy duty thimbles and 4-inch x 1-inch weldless rings shall be used to connect the horizontal support wire rope to the tag lines. The horizontal support wire rope shall be placed such that the sag at the midpoint between two adjacent tag lines is a minimum of 45 inches when measured vertically in the plane of the draped mesh fabric.

Draped mesh fabric panels shall be attached to the 3/4-inch horizontal support wire rope with 5/8-inch screw pin anchor shackles. Shackles shall be attached at each mesh opening or ring.

Connection of adjacent draped mesh fabric panels or sections shall be made with galvanized wire seam rope or with 1/2-inch screw-pin forged chain shackles attached at each ring or mesh opening.

**Method of Measurement:**

Miscellaneous Work (SLOPE DRAPE) to be measured for payment will be the number of square feet placed in the completed and accepted work. The measured quantity shall be the square feet of draped mesh fabric measured in the plane of the slope face between the top horizontal support wire rope and the bottom of the draped mesh fabric and between the outermost vertical limits of the draped mesh fabric.

**Basis of Payment:**

The accepted quantity of Miscellaneous Work (SLOPE DRAPE) will be paid for at the contract unit price per square foot.

The payment for these items shall be considered full compensation for detailing, furnishing, handling, assembling, and placing the materials specified, including all wire rope anchors (grouted in-place), ties, shackles, wire, fasteners, chain-link or 8 x 10 type hexagonal mesh material, weldless rings, kits, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work. Payment for preparing and making required submittals will not be made separately but will be considered incidental to the work under this Section.