

ITEM 9
MEASUREMENT AND PAYMENT

9.1. Measurement of Quantities. The Engineer will measure all completed work using United States standard measures, unless otherwise specified.

A. Linear Measurement. Unless otherwise specified, all longitudinal measurements for surface areas will be made along the actual surface of the roadway and not horizontally. No deduction will be made for structures in the roadway having an area of 9 sq. ft. or less. For all transverse measurements for areas of base courses, surface courses, and pavements, the dimensions to be used in calculating the pay areas will be the neat dimensions and will not exceed those shown on plans, unless otherwise directed.

B. Volume Measurement. Transport materials measured for payment by volume in approved hauling vehicles. Display a unique identification mark on each vehicle. Furnish information necessary to calculate the volume capacity of each vehicle. The Engineer may require verification of volume through weight measurement. Use body shapes that allow the capacity to be verified. Load and level the load to the equipment's approved capacity. Loads not hauled in approved vehicles may be rejected.

C. Weight Measurement. Transport materials measured for payment by weight or truck measure in approved hauling vehicles. Furnish certified measurements, tare weights, and legal gross weight calculations for all haul units. Affix a permanent, legible number on the truck and on the trailer to correspond with the certified information. Furnish certified weights of loaded haul units transporting material if requested.

The material will be measured at the point of delivery. The cost of supplying these volume and weight capacities is subsidiary to the pertinent Item. For measurement by the ton, in the field, provide measurements in accordance with Item 520, "Weighing and Measuring Equipment," except for Items where ton measurements are measured by standard tables.

The Engineer may reject loads and suspend hauling operations for overloading.

1. Hauling on Routes Accessible to the Traveling Public. For payment purposes on haul routes accessible to the traveling public, the net weight of the load will be calculated as follows:

- If the gross vehicle weight is less than the maximum allowed by state law, including applicable yearly weight tolerance permit, the net weight of the load will be determined by deducting the tare weight of the vehicle from the gross weight.
- If the gross vehicle weight is more than the maximum allowed by state law, including applicable yearly weight tolerance permit, the net weight of the load will be determined by deducting the tare weight of the vehicle from the maximum gross weight allowed.

- 2. Hauling on Routes Not Accessible to the Traveling Public.** For payment purposes on haul routes that are not accessible to the traveling public where advance permission is obtained in writing from the Engineer,
- if the gross vehicle weight is less than the maximum allowed by the Engineer, including applicable yearly weight tolerance permit, the net weight of the load will be determined by deducting the tare weight of the vehicle from the gross weight and
 - if the gross vehicle weight is more than the maximum allowed by the Engineer, the net weight of the load will be determined by deducting the tare weight of the vehicle from the maximum gross weight allowed.

9.2. Plans Quantity Measurement. Plans quantities may or may not represent the exact quantity of work performed or material moved, handled, or placed during the execution of the Contract. The estimated bid quantities are designated as final payment quantities, unless revised by the governing specifications or this Article.

If the quantity measured as outlined under “Measurement” varies by more than 5% (or as stipulated under “Measurement” for specific Items) from the total estimated quantity for an individual Item originally shown in the Contract, an adjustment may be made to the quantity of authorized work done for payment purposes. The party to the Contract requesting the adjustment will provide field measurements and calculations showing the revised quantity. When approved, this revised quantity will constitute the final quantity for which payment will be made. Payment for revised quantity will be made at the unit price bid for that Item, except as provided for in Article 4.2, Changes in the Work.”

When quantities are revised by a change in design approved by the Department, by change order, or to correct an error on the plans, the plans quantity will be increased or decreased by the amount involved in the change, and the 5% variance will apply to the new plans quantity.

If the total Contract quantity multiplied by the unit bid price for an individual Item is less than \$250 and the Item is not originally a plans quantity Item, then the Item may be paid as a plans quantity Item if the Engineer and Contractor agree in writing to fix the final quantity as a plans quantity.

For callout work or non-site-specific Contracts, plans quantity measurement requirements are not applicable.

9.3. Scope of Payment. Payment of the Contract unit price is full compensation for all materials, equipment, labor, tools, and supplies necessary to complete the Item of work under the Contract. Until final acceptance in accordance with Article 5.8, “Final Acceptance,” assume liability for completing the work according to the plans and specifications and any loss or damage arising from the performance of the work or from the action of the elements, infringement of patent, trademark, or copyright, except as provided elsewhere in the Contract.

The Department will only pay for material incorporated into the work in accordance with the Contract. Payment of progress estimates will in no way affect the Contractor’s obligation under the Contract to repair or replace any defective parts in the construction or to replace any defective materials used in the construction and to be responsible for all

damages due to defects if the defects and damages are discovered on or before final inspection and acceptance of the work.

9.4. Payment for Extra Work. Payment for extra work directed, performed, and accepted will be made in accordance with Article 4.2, “Changes in the Work.”

9.5. Force Account. The Engineer may provide for payment for extra work under Article 4.2, “Changes in the Work,” on the force account basis, which includes compensation for the use of small tools, overhead expense, and profit. Execute a change order to establish labor and equipment rates and material costs to determine an estimated cost for the proposed work. Payment for extra work directed on a force account basis will be as follows:

- A. Labor.** Compensation will be made for payroll rates for each hour that the labor and foremen or others approved by the Engineer are actually engaged in the work. In no case will the rate of wages be less than the minimum shown in the Contract for a particular category. An additional 25% of the above sum will be paid for overhead, superintendence, profit, and small tools.
- B. Insurance and Taxes.** An additional 55% of the labor cost, excluding the 25% compensation provided in Section 9.5.A, “Labor,” will be paid as compensation for all insurance and taxes including the cost of premiums on public liability and workers compensation insurance, Social Security, and unemployment insurance taxes.
- C. Materials.** Compensation will be made for materials associated with the work based on actual delivered invoice costs, less any discount. An additional 25% of this sum will be paid as compensation for overhead and profit.
- D. Equipment.** Payment will be made for the established equipment hourly rates for each hour that the equipment is involved in the work. An additional 15% will be paid as compensation for overhead and profit not included in the rates.

Transportation cost for mobilizing equipment will be included if the equipment is mobilized from an off-site location.

If a rate has not been established for a particular piece of equipment in the *Rental Rate Blue Book*, the Engineer will allow a reasonable hourly rate, as agreed upon in writing before work is begun. This price will include operating costs.

The Department reserves the right to withhold payment for low production or lack of progress.

- 1. Contractor-Owned Equipment.** For Contractor-owned machinery, trucks, power tools, or other equipment necessary for use on force account work, use the *Rental Rate Blue Book* as modified by the following to establish hourly rates. Use the rates in effect for each section of the *Rental Rate Blue Book* at the time of use.

Compute the hourly rates as follows:

$$H = \frac{M \times R1 \times R2}{176} + OP$$

where:

H = Hourly Rate

M = Monthly Rate

RI = Rate Adjustment Factor
R2 = Regional Adjustment Factor
OP = Operating Costs.

Payment for equipment will be made for the actual hours used in the work. Payment will not be made for time lost for equipment breakdowns, time spent to repair equipment, or time after equipment is no longer needed. If equipment is used intermittently while dedicated solely to the force account work, payment will be made for the duration the equipment is assigned to the work but no more than 8 hours per day.

2. Equipment Not Owned by the Contractor. If equipment is rented exclusively for force account work from a third party not owned by the Contractor, payment will be made at the invoice daily rental rate for each day the equipment is needed for the work. The Department reserves the right to limit the daily rate to comparable *Rental Rate Blue Book* rates. When the invoice specifies that the rental rate does not include fuel, lubricants, repairs, and servicing, the *Rental Rate Blue Book* hourly operating cost for each hour the equipment is operated will be added.

E. Subcontracting. Additional compensation will be made for extra work performed by subcontractors under Article 4.2, "Changes in the Work," on the force account basis or based on actual invoice costs. An additional 5% compensation will be paid on subcontracted work for administrative cost and profit.

F. Law Enforcement. For off-duty law enforcement, an additional 5% of the invoice cost for labor and equipment will be paid for administrative costs, superintendence, and profit.

G. Bond Cost. An additional 1% of the total labor, material, equipment, and subcontracted compensation, including the additional compensation percentages provided by Sections A through F above, will be paid for the increase in bond cost due to the force account work.

H. Cost Records. Maintain daily records of extra work completed on the force account basis. Provide copies of these records daily, signed by the Contractor's representative, for verification by the Department. Request payment for extra work performed on the force account basis, including copies of all applicable invoices, no later than the tenth day of the month following the month in which the work was performed.

If the Engineer directs extra work to be performed on a force account basis, and the estimated cost is less than \$10,000, submit for approval an invoice including the actual cost for materials, equipment, labor, tools, and incidentals necessary to complete the extra work. Also include on the invoice additional compensation allowed in this Article.

9.6. Progress Payments. The Engineer will prepare a monthly estimate of the amount of work performed, including materials in place. Payment of the monthly estimate is determined at the Contract Item prices less any withholdings or deductions in accordance with the Contract. Progress payments may be withheld for failure to comply with the Contract.

A. Retainage.

- 1. Routine Maintenance Contracts.** No retainage will be withheld from routine maintenance Contracts.
- 2. Construction Contracts.**
 - a. Contracts Without Recycled Materials.** For a Contract not using nonhazardous recycled materials (NRMs) as defined by Item 6, "Control of Materials," and DMS-11000, "Evaluating and Using Nonhazardous Recyclable Materials Guidelines," 5% retainage will be withheld from the total amount approved for payment until the completion and final acceptance.
 - b. Contracts With Recycled Materials.** For a Contract using NRMs, submit all required documentation before the first monthly progress estimate. For the Contract, 4% retainage will be withheld until the completion and final acceptance.
 - c. Partial Retainage Release.**
 - (1) Vegetative Establishment and Maintenance, Test and Performance Periods.** For a Contract that provides for a separate vegetative establishment and maintenance, and test and performance periods following the completion of all other construction in the Contract for all work locations, the Department may release a portion of the amount retained provided all other work is completed as determined by the Engineer. Before the release, all submittals and final quantities must be completed and accepted for all other work. An amount sufficient to ensure Contract compliance will be retained.
 - (2) Final Acceptance.** For a Contract on which recycled materials is used, 50% of the 4% retainage withheld will be released upon final acceptance. For a Contract without recycled materials, 60% of the 5% retainage withheld will be released upon final acceptance.
 - d. Final Retainage Release.** The remaining retainage will be released after all submittals are received and final quantities have been determined.

- B. Payment Provisions for Subcontractors.** Pay the subcontractor for work performed within 10 days after receiving payment for the work performed by the subcontractor. Also, pay any retainage on a subcontractor's work within 10 days after satisfactory completion of all of the subcontractor's work. Completed subcontractor work includes vegetative establishment, test, maintenance, performance, and other similar periods that are the responsibility of the subcontractor.

For the purpose of this Section, satisfactory completion is accomplished when:

- the subcontractor has fulfilled the Contract requirements of both the Department and the subcontract for the subcontracted work, including the submittal of all information required by the specifications and the Department; and
- the work done by the subcontractor has been inspected and approved by the Department and the final quantities of the subcontractor's work have been determined and agreed upon.

The inspection and approval of a subcontractor's work does not eliminate the Contractor's responsibilities for all the work as defined in Article 7.14, "Contractor's Responsibility for Work."

The Department may pursue actions against the Contractor, including withholding of estimates and suspending the work, for noncompliance with the subcontract requirements of this Section upon receipt of written notice with sufficient details showing the subcontractor has complied with contractual obligations as described in this Article.

These requirements apply to all tiers of subcontractors. Incorporate the provisions of this Article into all subcontract agreements.

9.7. Payment for Material on Hand (MOH). If payment for MOH is desired, request compensation for the invoice cost of acceptable nonperishable materials that have not been used in the work before the request, and that have been delivered to the work location or are in acceptable storage places. Nonperishable materials are those that do not have a shelf life or whose characteristics do not materially change when exposed to the elements. Include only materials that have been sampled, tested, approved, or certified, and are ready for incorporation into the work. Only materials which are completely constructed or fabricated on the Contractor's order for a specific Contract and are so marked and on which an approved test report has been issued are eligible. Payment for MOH may include the following types of Items: concrete traffic barrier, precast concrete box culverts, concrete piling, reinforced concrete pipe, and illumination poles. Any repairs required after fabricated materials have been approved for storage shall require approval of the Engineer before being made and shall be made at the Contractor's expense. Include only those materials that have an invoice cost of at least \$1,000 in the request for MOH payment.

For multiple work order Contracts, payment for MOH will only be made for materials authorized for purchase by the work order or by written approval of the Engineer.

If the request is acceptable, the Engineer will include payment for MOH in a progress payment. Payment for MOH does not constitute acceptance of the materials. Payment will not exceed the actual cost of the material as established by invoice, or the total cost for the associated Item less reasonable placement costs, whichever is less. Materials for which the Contractor does not have a paid invoice within 60 days will not be eligible for payment and will be removed from the estimate. Payment may be limited to a portion of the invoice cost or unit price if shown elsewhere in the Contract. Payment for precast products fabricated or constructed by the Contractor for which invoices or freight bills are not available may be made based on statements of actual cost.

Submit the request on forms provided by the Department. These forms may be electronically reproduced, provided they are in the same format and contain all the required information and certifications. Continue to submit monthly MOH forms until the total value of MOH is \$0.

By submitting a request for MOH payment, the Contractor expressly authorizes the Department to audit MOH records, and to perform process reviews of the record-keeping system. If the Department determines noncompliance with any of the requirements of this

provision, the Department may exclude payment for any or all MOH for the duration of the Contract.

Maintain all records relating to MOH payment until final acceptance. Provide these records to the Engineer upon request.

9.8. Final Payment. When the Contract has been completed, all work has been approved, final acceptance has been made in accordance with Article 5.8, "Final Acceptance," and Contractor submittals have been received, the Engineer will prepare a final estimate for payment showing the total quantity of work completed and the money owed the Contractor. The final payment will reflect the entire sum due, less any sums previously paid.