



Caltrans Local Assistance

RESIDENT ENGINEER ACADEMY

Module 8

Payment

January 2025

Payment: Objectives

Be able to...

- Understand a progress payment
- Properly measure item quantities
- Understand payment scope
- Create proper “source” documents
- Calculate force account payments
- Adjust unit prices of quantities increased or decreased by more than 25%

Payment: Resources

- Caltrans Specification Standards (CSS)
Section 9 Payment
- Green Book
Section 9, Measurement and Payment
- Construction Manual (CM)
Section 3-9, Payment
- Local Assistance Procedures Manual (LAPM)
16.13 Progress Payments, Accounting
Procedures and Payment Records

Progress Payments

Monthly Progress Pay Estimates

1. Total work completed during the pay period (**Items**)
2. Change order bills
3. Amount for materials on hand
4. Amount earned for mobilization
5. Deductions
6. Withholds
7. Payment adjustments

CTSS 9-1.16, Progress Payments
CM 3-906, Progress Payments

Bid Item Quantity Measurement

“Except for final pay quantities, the Engineer **measures** quantities for payment.”

CTSS 9-1.02, Measurement

Payment will be made only for **actual quantities** of Contract Items constructed in accordance with the Contract Documents.

Greenbook 7-3, Payment

Bid Item Quantity Measurement

Bid Item Work Units of Measure

- Count
- Length
- Area
- Volume
- Weight
- Lump sum

Contract Bid Item Quantity = **Estimate**

Payment = **Work Actually Performed**

Bid Item Quantity Measurement

Materials and items of work which are to be paid for on basis of measurement shall be measured in accordance with methods stipulated in the particular sections involved.

Greenbook: 7-1.2 Payment

Bid Item Quantity Measurement

Section 19 Earthwork 19-2 Roadway Excavation

19-2.04 PAYMENT

The payment quantity for roadway excavation is the volume of roadway excavation material, including volume of material involved in:

1. Embankment construction unless a separate bid item for constructing embankments is shown on the Bid Item List
2. Ditch or channel excavation if the bottom width of the ditch or channel is 12 feet or more
3. Local borrow excavation

The volume of material for roadway excavation is determined from the average end areas and the distances between them.

Bid Item Quantity Measurement

Section 65, Concrete Pipe

Section 65-1.04, Payment

The payment quantity for concrete pipe is the length measured along the centerline of the pipe and parallel with the slope line. The payment quantity includes the length of bends, wyes, tees, and other branches to the point of intersection.

If pipes are cut to fit a structure or a slope, the payment quantity is the length of pipe necessary to be placed before cutting measured in 2-foot increments. If you construct CIP connection instead of cutting off the pipe to fit the structure, the payment quantity is the length measured along the centerline of the pipe to the inside face of the structure.

Bid Item Quantity Measurement

Section 84-2.04

Traffic Stripes and Pavement Markings

The payment quantity for a traffic stripe is the length measured along the line of the traffic stripe without deductions for gaps in the broken traffic stripe.

The payment quantity for a pavement marking is the area covered.

A double extruded thermoplastic traffic stripe consisting of two 6-inch-wide yellow stripes is measured as 2 traffic stripes.

A double sprayable thermoplastic traffic stripe consisting of two 6-inch-wide yellow stripes is measured as 1 traffic stripe.

A double traffic stripe consisting of two 6-inch-wide yellow stripes separated by a 3-inch-wide black stripe is measured as a single traffic stripe.

Bid Item Quantity Measurement

General Measurement Specifications:

- Contractor must measure material paid for by weight on **sealed scales**.
- Teamsters must submit a **weight or load slip** at delivery point.

CTSS 9-1.02, Measurement

Greenbook 7-1.3, Certified Weights

Bid Item Quantity Measurement

- Collect weight/load slips at point of delivery
- Initial weight/load slips
- Verify “California Test 109” Sticker

CM 3-902E Weighing Equipment and Procedures

Payment Scope

Payment is full compensation for:

- Furnishing the resources and activities required to complete the work
- All work involved in each bid item

CTSS 9-1.03, Payment Scope

Payment Scope

84-2 Thermoplastic Traffic Stripes and Pavement Markers

- Provide submittals: COC, SDS
- Furnish materials
- Establish layout
- Prepare surface
- Apply primer
- Apply thermo
- Apply glass beads
- Meet tolerances and QC
- Protect from damage
- Test retroreflectivity under ASTM E 1710

Payment Scope

Work paid for under one bid item is *not* paid for under any other bid item.

CTSS 9-1.03, Payment Scope

Payment Scope

Payment for a bid item includes payment for work in sections referenced by the section set forth by that bid item.

CTSS 9-1.03, Payment Scope

Payment Scope

19-2 Roadway Excavation

19-2.03 CONSTRUCTION

19-2.03A General

Excavate to the described or authorized grade. If you overexcavate, backfill with authorized material and compact.

Where a portion of the existing pavement is to be removed, cut the outline of the area to be removed on a neat line with a power-driven saw to a depth of at least 0.17 foot before removing surfacing.

Construct embankments under section 19-6.

Payment Scope

Full compensation for work specified in divisions I, II, and XI is included in the payment for the bid items *unless bid item for the work is shown on the Bid Item List or work is specified as change order work.*

CTSS 9-1.03, Payment Scope

Payment Documentation

Source documents:

- Permanent record sheets supporting payments made to the contractor.
- Provide an Audit trail.
- Examples:
 - Daily reports.
 - Quantity Calculation Sheets
 - Weigh Tags
 - Invoices (for force account work).

CM 3-902C Source Documents

LAPM 16.13

Payment Documentation

Quantity Calculation Sheets:

- 1 per Bid Item Paid, per Pay Estimate!
- Show *measurements and calculations* supporting item quantity paid.
- Show location of installation.
- Cite source of figure, calculation, or quantity

CM 3-902C Source Documents

LAPM 16.13

Payment Documentation

Includes (continue):

- Source of figure, calculation, or quantity
 - Field measured
 - Field counted
 - Scale weights
 - Calculations based on planned dimensions

CM 3-902C Source Documents

LAPM 16.13

Payment Documentation

Includes (continued):

- Name and date of preparer.
- Name and date of checker.

CM 3-902C Source Documents
LAPM 16.13

STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION

Quantity Calculations

Job Stamp:
 06-0W7804
 06-Ker, Tul-83, 65, 216-Var
 Griffith Company

Calculation Sheet: 48 -12-02
 Item: Rubberized Hot Mix Asphalt- Gap Graded (BWC)
 Calculation by: Maudh Alansy Date: 09/11/20
 Checked by: SPH Date: 9-11-20
 Engineers Estimate: 33,000 Ton
 Unit Price: \$ 106 / Ton

Date	Ticket #'s	Tons	Description
08/20/2020 Day	357568 357720	1851.40	Hwy 63 from PM 12.4 to PM 113.4 91 Loads
08/21/2020 Day	357713 357961	1863.56	Hwy 63 from PM 13.4 to PM 14.4 94 Loads
08/24/2020 Day	357991 358123	1804.83	Hwy 63 from PM 14.4 to PM 16.0 93 Loads
08/25/2020 Day	358144 358255	1778.33 -25.00 1753.33	Hwy 63 from PM 16.0 to PM 17.1 90 Loads
08/26/2020 Day	358286 358441	1883.90	Hwy 216 from PM 11.7 to PM 9.7 96 Loads
08/27/2020 Day	358460 358564	1191.53	Hwy 216 from PM 9.7 to PM 8.6 60 Loads
08/28/2020 Day	358590 358737	1774.40	Hwy 216 from PM 8.6 to PM 6.9 91 Loads
08/31/2020 Day	358740 359039	1870.59	Hwy 216 from PM 6.9 to PM 5.9 95 Loads
09/01/2020 Day	359077 359134	2298.55	Hwy 216 from PM 5.9 to PM 4.4 118 Loads
09/02/2020 Day	359482 359716	1822.85 -15.00 1807.85	Hwy 216 from PM 4.4 to PM 2.7 93 Loads
09/09/2020 Day	360224 360339	1603.17	Hwy 65 from PM 15.8 to PM 17.5 81 Loads
09/10/2020 Day	360424 360541	1531.07	Hwy 65 from PM 17.5 to PM 19.8 77 Loads

Total → 21,194.18 *21,234.18*

To Date: 25,843 *25,683.18* Ton
 Previous: 4,449 Ton
 This Sheet: 21,194.18 Ton *21,234.18*
 Posted to: 10 Posted by: Mel S Date: 9-11-2020
 Checked by: SW Date: ✓
 % Complete to Date: 78%
 Calculation Sheet: 48-12-01
 Pay this Sheet: 21,194.18 *21,234.18* T

Sample Quantity Calculation Sheet

8.1 Handout page 2

STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION
QUANTITY CALCULATIONS

Job Stamp:

On: 06/10/14
 016 - TUL-99 - 19.2/19.8
 Ave 152 over existing Reconstruction
 Granite Construction Company

Description and Location: _____

First Working Day: _____ Day No. _____

Contract Days: _____

Estimate Date: _____ Day No. _____

Previous Estimate: _____

By duration
 Current w/days 44 (up to 8/3/14)
 Previous w/days 26
 Total w/days 180

$$0.5 \left(\frac{44 - 26}{180} \right) = 0.05$$

Calculation Sheet: 48 - 1 - 4

Item: Lead construction Plan

Calculation by: J. Le Date: 8/10/14

Checked by: SMV Date: 8/10/14

Engineers Estimate: LS

Unit Price: \$1500.00

Break down
 50% Approval ✓
 50% duration ✓

To Date: 0.622 % Complete to Date: 62.2%

Previous: 0.572 Calculation Sheet: 48 - 1 - 3

This Sheet: 0.05

Posted to: 5/1/14 _{EST} Posted by: Mel S Date: 8/19/14

Checked by: J. Le Date: 8/19/14 PAY THIS SHEET: 0.05 ✓

Sample Quantity Calculation Sheet (Lump Sum)

8.1 Handout page 3

Change Order (CO) Work

Methods to Pay for Change Order (CO) Work

1. Bid prices
2. Bid prices with adjustment
3. Agreed price (lump sum or by unit)
4. Force account
5. Specialist billing

9-1.03 Payment Scope

Change Order Work

Agreed Price:

- First Choice if No Bid Item exists
- Easier to measure and pay
- More upfront time to reach a FAIR agreed price
- Less staff time overall
- Preferred option by FHWA

Change Order Work

Force account:

- Time and Materials
- With Markups

**CTSS 9-1.04 Force Account
CM 3-904, Payment Adjustments**

Force Account

- Get a CO signed!
- Discuss operation prior to work.
- Write a quality daily report.
- Agree on hours with contractor daily.
- Sign tentative agreements.

Force Account Payment

Labor Payment

Cost of labor used in the direct performance of the work **plus a 35 percent markup.**”

Labor payment:

1. Basic Hourly Wages plus Fringe Benefits
2. Labor surcharge percentage (currently about **12%**)
3. Subsistence and travel allowance



FA Labor Costs =

$$[(1 \times 2) + 3] \times 135\% \times \text{hrs}$$

CTSS 9-1.04B Labor

- **Construction's Website**
- **FHWA Approved**

<https://dot.ca.gov/programs/construction/equipment-rental-rates-and-labor-surcharge>

State of California
California State Transportation Agency

Department of Transportation
Division of Construction

Labor Surcharge and Equipment Rental Rates (Cost of Equipment Ownership)



Effective September 1, 2022 through March 31, 2023



Labor Surcharge % Changes Note – Exceptions

FOR LABOR SURCHARGE AND EQUIPMENT RENTAL RATES
September 1, 2022 - March 31, 2023

Equipment Rental Rates are available on the Internet at:

<https://dot.ca.gov/programs/construction/equipment-rental-rates-and-labor-surcharge>

The miscellaneous listing is updated daily.

Changes

Books are no longer available in hard copy and should be downloaded from the internet and printed.

Changes to the equipment rates in the September 1, 2022 book are the result of: 1) fuel costs increased; 2) no change in interest rates ; 3) no change in Producers' Price Index ; 4) no change in sales tax; and 5) no change in freight (F.O.B.) rates. **This book was published to update equipment rates with updated fuel costs due to the increase in fuel prices.**

Labor Surcharge

The labor surcharge ~~compensates the contractor for~~ statutory payroll items stipulated by various governmental agencies. The six items included are worker's compensation, social security, Medicare, Federal unemployment insurance, State unemployment insurance, and State training taxes. The general rate is an average of the job classifications common to Caltrans projects. There are no changes to the labor surcharge rates for the interim book. The labor surcharges in the April 1, 2022 book are the result of some changes in worker's compensation rates. The rates were derived from using the pure premium rate approved by the Insurance Commissioner effective September 1, 2021 and increasing it by the historical statewide average expense. In the calculation of the labor surcharge for overtime work, the worker's compensation is not included on the premium portion of overtime, as provided by worker's compensation regulations.

The surcharge percentage to be applied to the actual wages paid as provided in Section 9-1.041 [9-1.03A(1b)] of the *Standard Specifications* will be **10 percent for regular time (RT) and 1 percent for overtime (OT).**

Exceptions to the general rate are listed below. These classifications were chosen because of high worker's compensation insurance costs. Forward questions regarding worker's compensation rating and proper labor surcharge usage to the rental rate personnel in the Division of Construction.

**Labor Surcharge
% Changes
Note – Exceptions**

EXCEPTIONS		
<u>Type of Work Performed</u>	<u>Labor Surcharge Percent</u>	
	RT	OT
Concrete Construction - Bridge.....	10	10
Drilling	12	11
Fence & Guardrail Construction	10	10
Erection of structural metal for metal bridges, excluding sign bridge	13	12
Landscape Gardener	10	10
Mobil Crane & Hoist Service.....	12	11
Painting Steel Structures or Bridges	13	12
Pile Driving, not including drilled, cast-in-place concrete piles	16	14
Sign Erection or Repair	13	13
Wrecking & Demolition	12	11

An appropriate labor surcharge will be established by the Division of Construction for work that is determined by the resident engineer to be covered by Longshoreman and Harbor Worker's Act.

Force Account Payment

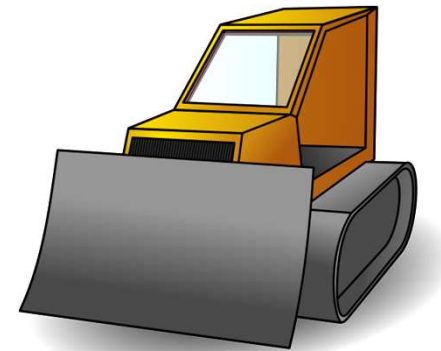
Equipment Payment

Rental Rate x 115% x Hours (Including transport)

CTSS 9-1.04D Equipment



115%



LOADERS, RUBBER TIRE

[LDRRT]

DELAY FACTOR = 0.12**OVERTIME FACTOR = 0.89**

Includes all attachments and accessories. Clam-action buckets, 4WD and backhoes are excluded unless otherwise noted.

ALLIS-CHALMERS

[A-C]

<u>Model</u>	<u>Code</u>	<u>Rate</u>
710C	0747	\$33.82
714B	0750	\$32.93
714C w/ backhoe	0752	\$35.40
715B w/ backhoe	0765	\$34.82
715C w/ backhoe	0767	\$35.66

CASE

[CASE]

<u>Model</u>	<u>Code</u>	<u>Rate</u>
W-11	1365	\$31.79
W-11B	1368	\$38.68
W-18	1444	\$53.47
W-18 9213140 serial	1450	\$56.92

**Need to know
exact model #**

**Request
equipment list
from
contractor
BEFORE
start of work**

Force Account Payment

Equipment

Equipment rental rates include the cost of:

- Fuel
- Repairs and Maintenance
- Oil
- Lubrication
- Supplies
- Small tools not consumed
- Necessary Attachments
- Depreciation
- Insurance
- Incidentals

Agency pays for small tools consumed by use.

CTSS 9-1.04D Equipment

Force Account Payment

Materials furnished and *used in the work*.

(Purchase Price + Delivery Charges) x 115%

15%



CTSS 9-1.04C Materials

Force Account Payment

Subcontractor Markup 10%
(Force Account Costs) x 110%

CTSS 9-1.04A General

Force Account Payment

Summary of Markups

Labor	Labor surcharge and 35%
Equipment	15%
Material	15%
Subcontractor	10%

CTSS 9-1.04

Force Account Payment

Supporting Documentation

Extra Work @ FA Payment Report

Extra Work Detail Report Page 3 of 4

Contract No: 05 1H7304 CCO No: 001 Pay Method: +EW@FA RE Report No: 0001
 County/Rte/PM/KP: SCR 1 Date Report Received: 03/17/2017 Contractor Job No: 673494 Contractor Report No: 0001.0
 Date Performed: 12/09/2016 Work Performed By: Granite Construction Company Contractor Rev No: 1
 RESIDENT ENGINEER: BEACH, KATIE RE Correction No: 0
 Status: 04/07/2017 CASPD **EWB Scheduled by CAS for Payment**

Description of Work: Pre Job With Tony To Set Up For Monday. Place Rock & Clean Up Road

EQUIPMENT CHARGES:

Line	Equip ID	Equip Class	Equip Make	Equip Code	Reg Hours	Rate	O/T Hours	O/T Factor	Delay Factor	Attach Code 1	Attach Rate 1	Attach Code 2	Attach Rate 2	Rejection Code/Comments	Amount
04	0618981	TRUCK	T&T	06-12	2.00	22.76	.00	.85	1.00	.00	.00	.00	.00		45.52
05	MESSAGE	TRAFRA	CMSN	SOL2	8.00	11.03	.00	.89	1.00	.00	.00	.00	.00		88.24
06	CONES	TRAFRA	2TC	D100	.20	22.29	.00	1.00	1.00	.00	.00	.00	.00		4.46
07	LIGHTPL	ELGEN	LITE	4 LIGHT	8.00	7.56	.00	.88	1.00	.00	.00	.00	.00		60.48
08	06738	TRUCK	T&T	06-12	8.00	22.76	.00	.85	1.00	.00	.00	.00	.00		182.08
09	041481	TRUCK	T&T	12-20	8.00	28.17	.00	.85	1.00	.00	.00	.00	.00		225.36
10	081118	LDRRT	DEER	2722	8.00	70.68	.00	.88	1.00	.00	.00	.00	.00		565.44
Subtotal Equipment \$															1,171.58
21 % Markup \$															246.03
Total Equipment \$															1,417.61

LABOR CHARGES:

Line	Craft ID	First Initial	Last Name	Reg Hours	Reg Rate	Reg Surchrg	O/T Hours	O/T Rate	O/T Surchrg	Sub Units	Sub Rate	Rejection Code/Comments	Amount
34	OE	BH	CAVANAGH	2.00	73.100	.12	.00	0.000	.12	.00	.00		163.74
35	OE	DM	JOHNSON	2.00	71.570	.12	.00	0.000	.12	.00	.00		160.32
38	OE	JJ	CAVANAUGH	8.00	73.100	.12	8.00	94.435	.12	.00	.00		1,501.11
37	LBR	PE	BLOOM	8.00	58.970	.12	7.00	77.345	.12	.00	.00		1,134.76
38	LBR	JL	CERNA MURILLO	8.00	61.210	.12	7.00	65.705	.12	.00	.00		973.97
39	OE	DJ	ZACHARY	8.00	70.090	.12	2.00	89.920	.12	.00	.00		829.43
Subtotal Labor \$													4,763.33
21 % Markup \$													1,000.30
Total Labor \$													5,763.63
Total Labor, Other and Markup \$													5,763.63

Supporting Daily Report

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION Form IC-1024 (Rev. 7/85)

JOB STAMP
05 - 1H7304 (0516000146)
05 - SCR - 1 - 3.7 / 3.9
Reconstruct Slope and Drainage System

Sheet # 1 of 1
Report No. 926
Date 12/9/2016
S M T W TH F S Circle Day
Shift Hours Start 7:00 Stop 21:00

ASSISTANT RESIDENT ENGINEER'S DAILY *Emergency Force Account Work* **REPORT**

Location & Description of Operation **11:00-21:00**, Granite Construction Company crews continue work the Emergency Force Account work, they continue work on placing the filter fabric (100 feet long by 60 feet long) on the bottom of the trench on Hwy 1 N/B shoulder around PM 3.75. Next, they assisted Assured Aggregate Company crews with the rock placement in the trench (on top of the filter fabric) on Hwy 1 N/B shoulder around PM 3.75. They place a total of 355.04 ton of rock (see attached sheet for load # and weight). Then they sweep the roadway clean of all the debris from the operation of work.

HOURS - ITEM NO.

EQPT. NO.	NO. MEN	DESCRIPTION (Equipment or Labor)	Emergency Force Account	IDELE OR DOWN	REMARKS	Company
6-738	1	1/2 Ton Pickup (F-250)	16		Jawn Cavanaugh, Foreman	Granite Construction
4-1481	1	1/2 Ton Pickup (F-250)	15		Jorge Cerna, Labor	
4-1128	1	Case Truck	15		Paul Bloom, Labor	
	1	Telet trailer	8			
			10		Doug Zachary, Operator	
Cresco	1	Loader (Cat 950M)	8			
	1	Portable CMS	8			
8-1118	1	Backhoe (JD 710C)	8			
6-18981	1	1/2 Ton Pickup (F-250)	2		Brady Cavanaugh, Foreman	
			2		Dennis Johnson, Operator	
CAD3	1	10 Wheel Load dump rock spreader	10		Charles Ayala, Teamster	Assured Aggregate Company

Family, they pickup the lane closure on Hwy 1 N/B lane # 3 between PM 3.65 to 4.10. I did call San Luis Obispo Dispatch to notify that we pickup the emergency lane closure on Hwy 1 N/B lane # 3 between PM 3.65 to 4.10 (no log ID).
09:00-12:00, Caltrans Maintenance crews begin work on setting up and maintenance the lane closure on Hwy 1 N/B lane # 3 between PM 3.65 to 4.10. I did verify that all the signs, cones, CMS and etc. are in place for the closure and the closure meet the requirement of Standard Plans -T11, page 239). Then they work on removing all the trees in the trench on Hwy 1 N/B shoulder around PM 3.75 and haul it off the jobsite.
11:00-21:00, Assured Aggregate Company crews continue work the Emergency Force Account work, they begin work by providing a 10 wheel rock spreader truck for placing te rock in the trench on Hwy 1 N/B shoulder around PM 3.75.

Note: Granite Construction have a 18 wheel transport truck that deliver a backhoe onto the jobsite around 11:00 They also have a 18 wheel transport that deliver a loader on the jobsite around 13:00 and haul off the jobsite around 20:00. They also brought material (filter fabric and rope - invoice #22876319).

Total Cost for Today : \$26,909.56
Total Cost for To date : \$29,638.32

INTERMITTENT INSPECTION *[Signature]* Assistance Resident Engineer
Signature Title

Progress Payments

Payment Adjustments

Changed Quantity:

- Increases of More than 25%.

CTSS 9-1.06B

- Decreases of More Than 25%.

CTSS 9-1.06C

Price Index Fluctuation:

- Asphalt in materials.

**CTSS 9-1.07C Payment Adjustments for Price Index Fluctuations
CM 3-904B and CM 5-3, “Change Orders” sample**

Progress Payments

Deductions

- Subcontracting Act Violation
- DBE Utilization Violation
- Liquidated damages
- Out of Specification Material
- Source Inspection Expense Deduction (6-2.01E)

CTSS 1-1.07B
CM 5-103F(1c)

Progress Payments

Withholds for Noncompliance

- Lack of Progress (10% of PP)
- Performance Failure (25% to 100% of PP)

CTSS 9-1.16E