

Colorado Department of Transportation

Soils and Aggregate Density/Moisture CP80

Soil- Rock Correction CP23 & Density Check (1 Point) CP25

Contract ID	Region	Date:
Project Number:		
Project Location:		

Pit Name:			Material:			
Item:	Class:	Material Code (SMM):	Curve NO.	Classification:	T99 T180	Method A D
Gauge ID:	Tested by:		Maximum Dry Density:		Optimum Moisture Content:	
Moisture Standard Count:	Sample ID SMM:	Test NO:	Station:		Depth Below Grade:	
Density Standard Count:	Density Standard Count Date:	Transmission Depth (Probe Setting)		Lane:	Offset:	

Field Test Gauge Readings CP80			M/D Gauge Moisture Verification T265		
% Moisture		Density		Pan ID: _____ Pan Wt.: _____	
Reading 1: _____		Dry: _____	Wet: _____	Wet Soil & Pan: _____	
Reading 2: _____		Dry: _____	Wet: _____	Dry Soil & Pan: _____	
Reading 3: _____		Dry: _____	Wet: _____	Wet Soil Wt.: _____	
Reading 4: _____		Dry: _____	Wet: _____	Dry Soil Wt.: _____	
Average: _____		Ave: _____	Ave: _____	Loss: _____	
FDR/RAP - Max. Dry Density: Wet density corrected to Dry Density use formula here. Ave. Wet Density _____ ÷ [1 + (T265 % moist A _____ ÷ 100)] = _____ Dry Density Full Depth Reclamation: Record Wet Density only. Mixture shall be compacted to a min. of 95% of the Max. dry density determined by T180 Method D. CP25 & T265 must be performed at each in-place density location to verify the curve. See CP80 - 8.4.3.			% Moisture (A): _____ Specifications for % Moisture: Gauge % Moisture within ± 1% of T265. If not, perform T265 at each location		

CP80 - Percent Compaction Calculations with less than 5 % Rock (+#4)

Field Dry Density _____ ÷ Curve Max. Dry Density _____ x 100 = _____ % Relative Compaction at _____ % Moisture

CP23 Calculations for Percent Rock (+#4) and Soil

Method A - Oven Dried

Dry weight of Rock _____ ÷ Dry Weight of Total Sample _____ x 100 = Rock _____ % 100 - % Rock = Soil _____ %

Method B - Using Moisture Density Gauge Moisture Content

Wet Weight of Rock _____ ÷ [1 + (Absorption _____ ÷ 100)] = Dry Weight of Rock _____ (a)

Wet Weight of Soil _____ ÷ [1 + (Gauge % Moisture _____ ÷ 100)] = Dry Weight of Soil _____ (b)

Dry Weight of Rock (a) _____ ÷ Total Weight of Dry Sample (c) _____ x 100 = Rock _____ % (d)

Total Weight of Dry Sample

Dry wt. of Rock (a) + Dry wt. of Soil (b) _____ (c)

100 - % Rock (d) = Soil _____ %

<p align="center">CP23 Rock Correction Calculations</p> <p>AASHTO T 99 CF = 0.90 AASHTO T180 CF = 0.95</p> <p>% Soil _____ x Max. Dry Density of Soil _____ = _____ (a)</p> <p>% Rock _____ x CF _____ x (SpG of Rock _____ x 62.4) = _____ (b)</p> <p>Sum (a) + (b) _____ ÷ 100 = Corr. Max. Dry Density _____</p>	<p align="center">CP23 Optimum Moisture Calculations</p> <p>% Soil _____ x Opt. Moisture Content _____ = _____ (a)</p> <p>% Rock _____ x Absorption _____ = _____ (b)</p> <p>Sum (a) + (b) _____ ÷ 100 = Corr. Opt. Moisture _____ %</p>
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CP80 - Percent Compaction Calculations with more than 5 % (Rock % = _____) (+#4)

Field Dry Density _____ ÷ Corrected Max. Dry Density _____ x 100 = _____ % Relative Compaction at _____ % Moisture

<p align="center">CP25 - Compaction Cylinder Density Check (1 Point)</p> <p>Weight of Mold _____ (lbs) Mold ID _____ Mold Volume _____</p> <p>Weight of Soil & Mold (lbs) _____ - Weight of Mold _____ = Weight of Compacted Soil _____ (lbs)</p> <p>Weight of Compacted Soil _____ (lbs) ÷ Mold Volume _____ = Wet Density _____</p> <p>Wet Density _____ ÷ [1 + (T265 % Moist B) _____ ÷ 100]] = Dry Density _____</p>	<p align="center">T265 Moisture Content</p> <p>Pan ID _____ Pan wt. _____</p> <p>Wet Soil & Pan _____</p> <p>Dry Soil & Pan _____</p> <p>Wet Soil _____</p> <p>Dry Soil _____</p> <p>Loss _____</p> <p>% Moisture (B): _____</p>
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IA Sample ID: _____	Place IA Stamp Here:
IA % Relative Compaction: _____ % Moisture: _____	
Remarks:	
Electronic Signature of IA Personnel	