

Table 1
CCPW Materials Testing and Sampling Frequencies - Sept 2017
Aggregate and Backfill Materials

Spec Section	Description	Proctor AASHTO T180	R-Value AASHTO T190	Sieve AASHTO T27 & T11	PI AASHTO T89 & T90	Solubility AW W A 4500E and 3500-NaD	Compression Samples Per RTC 704.03.07	Field Density		
								Riding Equipment	Walk Behind Equipment	
203 Excavation & Embankment	203.02.02	Drainage Excavation (Subgrade)	1/Type		1 / 1000 yd ³			1 / 5000 ft ² / Lift	1 / 1000 ft ² / Lift	
	203.02.03	Channel Excavation (Subgrade)	1/Type		1 / 1000 yd ³			1 / 5000 ft ² / Lift	1 / 1000 ft ² / Lift	
	203.02.04	Borrow	1/Type	1/Type	1 / 1000 yd ³			1 / 5000 ft ² / Lift	1 / 1000 ft ² / Lift	
	203.02.05	Select Borrow	1/Type	1/Type	1 / 1000 yd ³			1 / 5000 ft ² / Lift	1 / 1000 ft ² / Lift	
	203.03.01	Roadway (Subgrade)	1/Type		1 / 1000 lf			1 / 5000 ft ² / Lift	1 / 1000 ft ² / Lift	
	203.03.10	Selected Material	1/Type	1/Type	1 / 1000 lf			1 / 5000 ft ² / Lift	1 / 1000 ft ² / Lift	
	203.03.15	Foundation (Subgrade)	1/Type		1 / 500 yd ³			1 / 500 ft ² / Lift	1 / 100 ft ² / Lift	
	203.03.18	Compaction, Dirt Embankment	1 / 10,000 yd ³ Per Type		1 / 1000 yd ³			1 / 5000 ft ² / Lift	1 / 1000 ft ² / Lift	
	203.03.19	Compaction, Rock Embankment	Due to Material Properties an Engineering Report Documenting Compactive Effort is Required (See Special Provisions)							
206 Structure Excavation	206.03.01	Structure Excavation	1/Type		1 / 1000 yd ³			1 / 500 ft ² / Lift	1 / 100 ft ² / Lift	
207 Structure Backfill	207.02.01	Selected Backfill	1 / 10,000 yd ³ Per Type		1 / 1000 yd ³	1/Source		1 / 500 ft ² / Lift	1 / 250 ft ² / Lift	
	207.02.02	Granular Backfill	1 / 10,000 yd ³ Per Type		1 / 1000 yd ³	1/Source		1 / 500 ft ² / Lift	1 / 250 ft ² / Lift	
208 Trench Excavation & Backfill	208.02.02	Selected Backfill	1 / 10,000 yd ³ Per Type		1 / 1000 yd ³	1/Source		1 / 100 lf / Lift		
	208.02.03	Granular Backfill	1 / 10,000 yd ³ Per Type		1 / 1000 yd ³	1/Source		1 / 100 lf / Lift		
	208.02.04	Sand Backfill			1 / 1000 yd ³	1/Source				
	208.02.05	Type II Aggregate Base (Trench)	Sampling Per Section 704						1 / 100 lf / Lift	
	208.02.06	Drain backfill								
	208.02.07	Type I and II CLSM (Flowable Fill)	Aggregate Sampling Per Section 704					1/300 yd ³ /Day		
	208.02.10	Type III CLSM (BAF)						1/300 yd ³ /Day		
301 Selected Material	301.02.01	Select Subbase	1/Type	1 / Type	1 / 1000 yd ³	1/Source		1 / 5000 ft ² / Lift	1 / 1000 ft ² / Lift	
302 Aggregate Base Course	302.02.01	Type II / I Aggregate Base	Sampling Per Section 704						1 / 5000 ft ² / Lift	1 / 1000 ft ² / Lift

Table 1
CCPW Materials Testing and Sampling Frequencies - Sept 2017
Aggregate and Backfill Materials - Continued

Spec Section		Description	Proctor AASHTO T180	Sieve AASHTO T27 & T11	PI AASHTO T89 & T90	Sand Equivalent ASTM D2419	Cement Content NDOT T239	Compressive Strength NDOT T237	Field Density	
									Riding Equipment	Walk Behind Equipment
304 Cement Treated Base	304.02.01	CTB	Per Special Provisions	1 / 1000 Ton			1 / Day	1 / 5000 ft ²	1 / 1000 ft ²	
	Spec Section		Description	Proctor AASHTO T180	R-Value AASHTO T190	Sieve AASHTO T27 & T11	PI AASHTO T89 & T90	Fractured Faces NDOT T230	So.I Sulfates AW W A 4500E and 3500-NaD	LA Abrasion ASTM C131 (500 Rev)
704 Base Aggregates	704.03.02	Drain Backfill			1 / 1000 yd ³				1 / Source	
	704.03.03	Type I Aggregate Base	1 / 10,000 yd ³ Per Type	1 / Type	1 / 1000 yd ³				1 / Source	
	704.03.04	Type II Aggregate Base	1 / 10,000 yd ³ Per Type	1 / Type	1 / 1000 yd ³			1 / Source	1 / Source	
	704.03.05	Type III Aggregate	1 / 10,000 yd ³ Per Type		1 / 1000 yd ³			1 / Source		
	704.03.06	Crushed Rock			1 / 1000 yd ³		1 / 1000 yd ³	1 / Source	1 / Source	
	704.03.07	CLSM Aggregate (Type I, II, & III)			1 / 1000 yd ³					
	704.03.08	Aggregates for PC Treated Base	1 / Type		1 / 1000 yd ³				1 / Source	
	704.03.09	Shouldering Material			1 / 1000 yd ³					
	704.03.10	Agg. Base with RAP and Concrete	1 / 2,000 yd ³ Per Type	1 / Type	1 / 1000 yd ³			1 / Source	1 / Source	1/2000 yd ³

Table 1
CCPW Materials Testing and Sampling Frequencies - Sept 2017
Asphalt Cement Pavement Products and Surfaces

Spec Section		Description	Material Sampling	Prime Coat (Sample)	Tack Coat (Sample)	Field Density		Ride Quality Evaluation NDOT T448	Rut Testing AASHTO T340	Binder Sample
						Field Density Mat Testing	Field Density Joint Testing			
400 Asphalt Rubber Pavement	400.01	Asphalt Rubber Pavement Surface	Per Sec 401	1 / Day		1 / 5000 ft ² / Lift / Day	1 / 400 lf / Lift / Day	1 / Lane / Cont.	1 Set Per 2000 Tons 1 Set / Day Min	2 QT / Day
	Spec Section		Description	Rice AASHTO T209	Oil Content by Extraction AASHTO T164	Sieve AASHTO T30	Marshall Stability & Flow AASHTO T209	TSR AASHTO T283	Air Void Content AASHTO T269	Coldfeed Sample
401 Plantmix Bituminous Pavements	401.03.12	Plantmix Bituminous Pavement Sampling and Testing		1 / 750 Tons / Day			1 / Day	1 / 750 Tons / Day		2 QT / Day

Table 1
CCPW Materials Testing and Sampling Frequencies - Sept 2017
Asphalt Cement Pavement Products and Surfaces - Continued

Spec Section		Description	Material Sampling	Prime Coat (Sample)	Tack Coat (Sample)	Field Density		Ride Quality Evaluation NDOT T448	Rut Testing AASHTO T340	Binder Sample
						Field Density Mat Testing	Field Density Joint Testing			
402 Plantmix Bituminous Surface	402.03	Plantmix Bituminous Surface	Per Sec 401	1 / Day		1 / 5000 ft ² / Lift / Day	1 / 400 lf/ Lift / Day	1 / Lane / Cont.	1 Set Per 2000 Tons 1 Set / Day Min	2 QT / Day
Spec Section		Description	Material Sampling	Field Density				Ride Quality Evaluation NDOT T448		
				Mat Testing		Joint Testing				
404 Hot Plantmix Recycled Bit. Pavement	404.03	Recycled Bituminous Surface	Per Sec 401	1 / 5000 ft ² / Lift / Day		1 / 400 lf/ Lift / Day		1 / Lane / Cont.		
Spec Section		Description	Sampling	Application Rate						
405 - 406 Tack, Prime, Seal Coat	405 - 406	Tack, Prime, Seal Coat Surface Treatment	1 / Day	Calculation / Day						
Spec Section		Description	PMM Application Rate RTC 413.03.06	Oil Content by Extraction AASHTO T164	Sieve AASHTO T30	Yield Verification	Ride Quality Evaluation NDOT T448	Binder Sample	PMM Sample	Cold Feed
413 Plantmix Gap-Graded Surface (UTACS)	413.03.06	Ultra Thin Asphalt Cement Surface UTACS	2 / Day Min.	3 / Day	3 / Day	Twice / Day (Mid Day and End of Shift)	1/Lane/Cont.	2 QT / Day	1 / Day	3 / Day
Spec Section		Description	Sieve AASHTO T27 & T11	Methylene Blue AASHTO TP57	Fine Agg Angularity AASHTO T304	Fractured Faces AASHTO T335	LA Abrasion ASTM C131 (500 Rev)	Elongation @ 5:1 ASTM D4791	Soundness ASTM C88	
705 Aggregates Bituminous Courses	705.03	Plantmix Base and Surface Agg.	1 / 750 Tons of HMA / Day				1 / Source			
Spec Section		Description	Sieve AASHTO T27 & T11	Fractured Faces ASTM D5821	Methylene Blue AASHTO TP57	Uncompacted Void Content AASHTO T304	Sand Equivalent AASHTO T176	LA Abrasion ASTM C131 (500 Rev)	Elongation @ 3:1 ASTM D4791	Soundness ASTM C88
705 Aggregates for UTACS	705.03.08	UTACS Coarse and Fine Aggregate	3 / Day	1 / Day	1 / Day	1 / Day	1 / Source			

Table 1
CCPW Materials Testing and Sampling Frequencies - Sept 2017
Portland Cement Concrete Pavement, Materials, and Structures

Spec Section		Description	Slump ASTM C172	Unit Weight and Yield ASTM C138	Air Content Pressure Method	Concrete Compression	Concrete Beams Nev T442		Plant Inspection	Aggregate Sampling
409 Portland Cement Concrete Pavement	409.00.00	PCCP	1 / 300 yd ³ / Day				1 / 750 yd ³ / Day		Continuous	1 / 500 yd ³ / Day
	Spec Section		Description	Slump ASTM C172	Unit Weight and Yield ASTM C138	Air Content Pressure Method	Concrete Compression		Unauthorized Sources	
501 - 502 Portland Cement Concrete and Structures	501.02.04	PCC	1 / 100 yd ³ / Day						Continuous	1 / 500 yd ³ / Day
	502.01.01	PCC	1 / 100 yd ³ / Day						Continuous	1 / 500 yd ³ / Day
Spec Section		Description	PCC Testing	Tests for Popouts ASTM C330	Freezing and Thawing ASTM C666	Dry Unit Weight ASTM C567	Unit Weight & Cement Factor ASTM C138	Air Content Vol. Method (Lw Concrete)	Unauthorized Sources	
504 Lightweight Concrete	504.02.03	LPCC	Section 501	1 / 100 yd ³ / Day	1 / 100 yd ³ / Day	1 / 100 yd ³ / Day	1 / 100 yd ³ / Day	1 / 100 yd ³ / Day	Continuous	1 / 500 yd ³ / Day
	Spec Section		Description	Ult. Tensile Strength ASTM A615	Bend Test AASHTO T285					
505 Reinforcin g Steel	505.02.02	#4 Bars and Larger	2 / Lot / Size	1 / Lot / Size						
Spec Section		Description	Gradation Visual	LA Abrasion (500 Rev) ASTM C131	Bulk Specific Gravity ASTM C127					
610 Rip- Rap	610.02.04	RipRap	1 / Shipment	1 / Source	1 / Source					
Spec Section		Description	Field Density Subgrade & Aggregate base		Portland Cement Concrete Refer to Section 501					
613 Curb, Sidewalk, Gutter, & Driveway	Varies	Curbs	1 / 100 lf / Day		1 / 100 yd ³ / Day					
		Sidewalk	1 / 100 lf / Day		1 / 100 yd ³ / Day					
		Driveways / Spandrels	1 / 250 ft ² / Day		1 / 100 yd ³ / Day					

Table 1
CCPW Materials Testing and Sampling Frequencies - Sept 2017
Portland Cement Concrete Materials and Structures - Continued

Spec Section	Description	Sieve AASHTO T27 & T11	Fractured Faces NDOT T230	LA Abrasion ASTM C131 (100 & 500)	Soundness Sodium Sulfate AASHTO T104	Clay Lumps AASHTO T112	C.V. Cal Trans 227	Organic Impurities ASTM C40	Bulk Specific Gravity
706 Aggregates for Portland Cement Products	706.03.01	Coarse Aggregate	1 / 500 yd ³	1 / 500 yd ³	1 / Source	1 / Project	1 / Project	1 / 500 yd ³	1 / Source
	706.03.02	Lightweight Aggregate	1 / 500 yd ³				1 / 500 yd ³	1 / Source	1 / Source
		Description	Sieve AASHTO T27 & T11	Sand Equivalent ASTM D2419	Soundness Sodium Sulfate AASHTO T104	Organic Impurities ASTM C40	Lightweight Pieces AASHTO T113		Bulk Specific Gravity
	706.03.03	Fine Aggregate	1 / 500 yd ³	1 / 1000 yd ³	1 / Project	1 / Source	1 / 500 yd ³		1 / Source
	706.03.04	Grout and Mortar Sand	1 / 500 yd ³			1 / Source			1 / Source
Spec Section	Description	Ultimate Tensile Strength ASTM A615	Bend Test AASHTO T285						
713 Reinforcement	713.03.01	Deformed Steel Bars	2 / Lot Per 100 Tons	1 / Lot					
		Spiral Reinforcement	2 / Lot Per 100 Tons	1 / Lot					

Table 1
CCPW Materials Testing and Sampling Frequencies - Sept 2017
Notes:

General Notes

- Note 1: The Engineer may request additional testing not to exceed a maximum of 10% of the required testing for any type performed.
- Note 2: Refer to project special provisions for concrete sampling and testing requirements on placement quantities less than 3 yd³/ day and less than 50 yd³/ week.
- Note 3: The specified density testing frequencies are based on a per lift basis. For example an embankment fill of 7500 ft² per lift requires a min of 2 tests per lift.
- Note 4: Soluble Sulfate testing is required on soil in contact water lines, concrete structures, metal pipe, and fittings.