

26 AGGREGATE BASES

26-1.01 GENERAL

26-1.01A Summary

Section 26 includes specifications for placing aggregate base.

26-1.01B Definitions

Reserved

26-1.01C Submittals

Reserved

26-1.01D Quality Assurance

26-1.01D(1) General

Reserved

26-1.01D(2) Quality Control

Reserved

26-1.01D(3) Department Acceptance

The Department accepts AB based on aggregate gradation, R-value requirements, and sand equivalent requirements specified in section 26-1.02.

The Department accepts AB based on percent relative compaction specified in section 26-1.03E tested under California Test 231.

Aggregate samples must not be treated with lime, cement, or chemicals before testing for durability index. Aggregate from untreated reclaimed processed AC, PCC, LCB, or CTB is not considered treated.

If the aggregate gradation test results, sand equivalent test results, or both comply with the Contract compliance requirements but not the operating range requirements, you may continue placing AB for the remainder of the work day. Do not place additional AB until you demonstrate to the Engineer the AB to be placed complies with the operating range requirements.

If the aggregate gradation test results, sand equivalent test results, or both do not comply with Contract compliance requirements, remove the AB or request a payment deduction. If your request is authorized, \$2.00/cu yd is deducted. If AB is paid by weight, the Engineer converts tons to cubic yards for the purpose of reducing payment for noncompliant AB left in place.

Each aggregate gradation and a sand equivalent test represents no more than 500 cu yd of AB or 1 day's production, whichever is smaller.

26-1.02 MATERIALS

26-1.02A General

Aggregate must be clean and consist of any combination of the following:

- Broken stone
- Crushed gravel
- Natural rough-surfaced gravel
- Sand
- Processed reclaimed asphalt concrete, PCC, LCB, or CTB

Use either 1-1/2-inch or 3/4-inch maximum aggregate gradation unless otherwise specified. Do not change your selected aggregate gradation without authorization.

26-1.02B Class 2 Aggregate Base

Aggregate gradation must be within the percentage passing limits for the sieve sizes shown in the following table:

Aggregate Gradation

Sieve size	Percentage passing			
	1-1/2 inch maximum		3/4 inch maximum	
	Operating range	Contract compliance	Operating range	Contract compliance
2"	100	100	--	--
1-1/2"	90–100	87–100	--	--
1"	--	--	100	100
3/4"	50–85	45–90	90–100	87–100
No. 4	25–45	20–50	35–60	30–65
No. 30	10–25	6–29	10–30	5–35
No. 200	2–9	0–12	2–9	0–12

The aggregate quality characteristics must comply with the requirements shown in the following table:

Aggregate Quality Characteristics

Quality characteristic	Requirement	
	Operating range	Contract compliance
Resistance (R-value, min)	--	78
Sand equivalent (min)	25	22
Durability index (min)	--	35

26-1.02C Class 3 Aggregate Base

Aggregate gradation must be within the percentage passing limits for the sieve sizes shown in the following table:

Aggregate Gradation

Sieve size	Percentage passing			
	1-1/2 inch maximum		3/4 inch maximum	
	Operating range	Contract compliance	Operating range	Contract compliance
2"	100	100	--	--
1-1/2"	90–100	87–100	--	--
1"	--	--	100	100
3/4"	50–90	45–95	90–100	87–100
No. 4	25–60	20–65	40–70	35–75
No. 30	10–35	6–39	12–40	7–45
No. 200	3–15	0–19	3–15	0–19

The aggregate quality characteristics must comply with the requirements shown in the following table:

Aggregate Quality Characteristic

Quality characteristic	Requirement	
	Operating range	Contract compliance
Resistance (R-value) (min)	--	50
Sand equivalent (min)	21	18

26-1.03 CONSTRUCTION**26-1.03A General**

Apply water to the AB as needed for compaction.

26-1.03B Subgrade

Immediately before spreading AB, the subgrade must comply with the specified compaction and elevation tolerance for the material involved and be free from loose or extraneous material.

You may use AB to fill areas of the subgrade that are lower than the grade established by the Engineer.

26-1.03C Placing Geosynthetic Materials

Section 26-1.03C applies if geosynthetic materials are shown.

Geosynthetic materials include filter fabric and biaxial geogrid.

If filter fabric is shown, place it on the subgrade.

Before placing geosynthetic materials, remove sharp objects that may come in contact with the material.

Place the material:

- Under manufacturer's instructions
- Longitudinally along the roadway alignment
- Without wrinkles

Overlap adjacent edges of geosynthetic material at least 2 feet. Overlap the ends of the rolls at least 2 feet in the direction AB is spread.

You may fold or cut geosynthetic material to conform to curves. If material is cut, overlap it at least 2 feet. You may hold material in place with mechanical ties, staples, pins, or small piles of AB.

Do not place stockpiles on geosynthetic material or place more material than can be covered in 72 hours.

Do not operate equipment or vehicles directly on filter fabric.

Do not operate equipment or vehicles directly on geogrid unless one of the following conditions is met:

- Vehicles and equipment are:
 - Equipped with rubber tires
 - Operated under 10 mph
 - Operated to avoid sudden braking and sharp turns
 - At least 0.35 ft of AB has been placed, spread, and compacted on the material

Repair or replace any damaged geosynthetic material by placing a new piece of material over the damaged area with at least 3 feet of overlap.

26-1.03D Spreading

Deliver uniform mixtures of AB to the roadbed. Deposit AB in layers or windrows. Spread and shape the AB to such thickness that after watering and compacting, the completed AB is within the tolerances specified in section 26- 1.03E. When AB is spread and compacted the moisture content must be uniform and sufficient to obtain the required compaction. Avoid material segregation. AB must be free from pockets of coarse or fine material.

If the subgrade is cohesionless sand, you may dump AB in piles and spread it ahead in sufficient quantities to stabilize the subgrade, if authorized.

If the AB thickness shown is 0.50 foot or less, spread and compact the AB in at least 1 layer. If the thickness shown is more than 0.50 foot, spread and compact the AB in at least 2 approximately equal layers in thickness. The compacted thickness of any one layer must not exceed 0.50 foot.

At locations inaccessible to spreading equipment, spread and compact AB by any means that will attain the specified requirements.

26-1.03E Compacting

Compact each AB layer to at least 95 percent relative compaction.

If biaxial geogrid is shown, compact AB with either (1) a smooth-wheeled roller or (2) a rubber-tired roller. Do not use vibratory devices during compaction.

The finished AB surface must not vary more than 0.05 foot from the grade established by the Engineer.

SECTION 26

AGGREGATE BASES

Correct areas of AB that do not comply with the described thickness or request a payment deduction if AB is paid for by volume. If your request is authorized, the Engineer calculates the deduction by multiplying:

Deficient thickness less allowable tolerance

Planned width

Longitudinal distance of the deficient thickness

\$17.00/cu yd or the item bid price adjusted for cubic yards, whichever is higher

26-1.04 PAYMENT

If aggregate base is paid for by volume, the payment quantity is determined from the dimensions shown. The payment quantity does not include the volume of aggregate base used to fill low areas of the subgrade.

If the basement material is imported borrow, aggregate base placed to fill low areas is not measured or paid for as imported borrow.

If aggregate base is paid for by weight, the Engineer deducts the weight of the water at the time of weighing in excess of the optimum moisture content plus 1 percent from the weight of the aggregate base. The Engineer determines the optimum moisture content under California Test 216.