



City of Estevan

Construction Specifications

SECTION 1090
GRANULAR MATERIALS AND AGGREGATES

1.0 GENERAL

This section governs the gradation requirements and index properties of Granular Materials and Aggregates used for pipe bedding, pipe zone backfill foundation gravel, trench backfill, replacing native subgrade material granular base for structures, and aggregates for subbase, base and asphalt concrete for roads and lanes.

2.0 MATERIALS

2.1 Granular materials and aggregates shall conform to the gradation shown in Table GA - 1 when tested according to ASTM C135 and C137 in addition the granular and aggregate materials shall conform to the following requirements:

.1 Granular Subbase

The percentage of material passing the 80 um sieve shall not exceed 2/3 of the material passing the 400 um sieve. Soaked CBR shall be a minimum average of 25 with no test result falling below 20.

.2 Granular Base and Asphalt Stabilized Granular Base

The percentage of material passing the designated sieve sizes for any representative sample, when plotted on a semi-log grading chart, shall show a free flowing concave curve with sharp breaks, within the specified gradation limits. The material passing the 400 um sieve shall have a liquid limit less than 25.

A minimum of 50% of material passing the 5mm sieve shall have at least one fractured face. Filler material shall be sand with 100% passing the 60 um sieve. Soaked CBR shall be a minimum average of 50 for Local/ Residential roads and a minimum average of 60 for Collector/Arterial/ Industrial roads for Granular Base and a minimum average of 80 for all classes of roads for Asphalt stabilized Granular Base. Clay binder containing no particles of sand, silt and clay larger than 20 mm may be permitted.

.3 Asphaltic Concrete

If aggregate has insufficient material passing the 80 um sieve, mineral filler shall be used with 100% passing a 16 mm sieve. Minimum sand equivalent shall be 45% by weight of material when tested in accordance to ASTM D2419. Coarse aggregate shall conform to the requirements for gravel in ASTM D692. Fine aggregate shall conform to the requirements of ASTM D1073.

SECTION 1090
GRANULAR MATERIALS AND AGGREGATES

% PASSING SEIVE SIZE (BY WEIGHT)										
SIEVE SIZE (#)	SAND (PIPE BEDDING)	PIT OR CRUSHER RUN GRAVEL		CRUSHER RUN AGGREGATES						
				ROAD BASE		ASPHALT STABILIZED BASE COURSE	ASPHALTIC CONCRETE AGGREGATE			
		Granular Fill and Foundation Gravel	Road Subbase	TYPE 32 25mm MAX.	TYPE 33 20mm MAX.	16mm MAX.	TYPE 34 20mm MAX.	TYPE 72 12.5mm MAX.	TYPE 71 16mm MAX.	TYPE 70 20mm MAX.
50mm			100							
25mm		100		100						
20mm				93-100	100		100			100
16mm						100			100	85-100
12.5mm		70-100		72-93	81-100	89-100	91-100	100	90-100	75-93
10mm	100							90-100	79-92	65-90
5mm	70-100	60-90		45-77	50-80	55-70	70-85	55-85	50-72	40-65
2mm(#10)	50-100	40-75		29-56	32-52		45-65	30-65	32-51	25-46
1.18mm(#16)						26-45				
800um(#20)	15-100	25-55		17-38	18-33		27-42	20-45	20-35	15-32
600um(#30)	25-60					18-38				
400um(#40)		12-38		13-26	15-25		20-30	10-30	15-27	13-25
300um(#50)	10-30					12 30				
160um(#100)	0-15	0-15		7-14	11-19	8-20	11-16	5-15	7-15	7-15
80um(#200)	0-5	0-5	5-15	7-11	7-11	4-10	7-11	2-10	4-11	4-11
Max. Permeability cm/sec	10-4	10-4								
Plasticity Index	0-6	0-6	0-6	0-15	0-15		0-15			

SECTION 1090
GRANULAR MATERIALS AND AGGREGATES

3.0 MEASUREMENT AND PAYMENT

The items in this section shall be deemed incidental to the provision of granular materials and aggregates to the provision of such materials in other sections of these Specifications. No separate payment will be made for the items of this section.