

## **PART 1 - GENERAL**

### **1.1 RELATED WORK**

- .1 Section 01 33 00 – Submittal Procedures
- .2 Section 31 23 33.01 - Excavating, Trenching and Backfilling
- .2 Section 32 11 16.01 - Granular Sub-base
- .3 Section 32 11 23 - Granular Base

### **1.2 REFERENCES**

- .1 American Society for Testing and Materials (ASTM)
  - .1 ASTM D 4791-10, Standard Test Method for Flat Particles, Elongated Particles or Flat and Elongated Particles in Coarse Aggregate.

### **1.3 SOURCE APPROVAL**

- .1 Inform Departmental Representative of proposed source of aggregates and provide access for sampling at least two (2) weeks prior to commencing production.
- .2 If, in opinion of Departmental Representative, aggregate from the proposed source do not meet, or cannot reasonably be processed to meet, specified requirements, locate an alternative source or demonstrate that aggregate from source in question can be processed to meet specified requirements.
- .3 Should a change of aggregate source be proposed during work, advise Departmental Representative one (1) week in advance of proposed change to allow sampling and testing.
- .4 Acceptance of an aggregate at source does not preclude future rejection if it is subsequently found to lack uniformity, or if it fails to conform to requirements specified, or if its field performance is found to be unsatisfactory.

### **1.4 SAMPLING**

- .1 Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 Allow continual sampling by Departmental Representative during production.
  - .3 Provide Departmental Representative with access to source and processed material for sampling.
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- .4 Install sampling facilities at discharge end of production conveyor, to allow Departmental Representative to obtain representative samples of items being produced. Stop conveyor belt when requested by Departmental Representative to permit full cross section sampling.
- .5 Pay cost of sampling and testing of aggregates which fail to meet specified requirements.

### **1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 – Common Product Requirements.

### **1.6 MEASUREMENT FOR PAYMENT**

- .1 No separate measurement for payment shall be made for items under this section. Include costs incidental in the Lump Sum Amount of work on the Combined Price Form.

## **PART 2 – PRODUCTS**

### **2.1 MATERIALS**

- .1 Aggregate quality: sound, hard, durable aggregate free from soft, thin, elongated or laminated particles, organic material, clay lumps or minerals, or other substances that would act in a deleterious manner for the use intended.
  - .2 Flat and elongated particles of coarse aggregate: to ASTM D4791.
    - .1 Greatest dimension to exceed three times least dimension.
  - .3 Fine aggregate satisfying requirements of applicable section to be one, or a blend of following:
    - .1 Natural sand.
    - .2 Manufactured sand.
    - .3 Screenings produced in crushing of quarried rock, boulders, gravel or slag.
  - .4 Coarse aggregates satisfying requirements of applicable section to be one of or blend of following:
    - .1 Crushed rock.
    - .2 Gravel and crushed gravel composed of naturally formed particles of stone.
    - .3 Light weight aggregate, including slag and expanded shale.
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### **PART 3 – EXECUTION**

#### **3.1 DEVELOPMENT OF AGGREGATE SOURCE**

- .1 Prior to excavating materials for aggregate production, clear and grub area to be worked, and strip unsuitable surface materials. Dispose of cleared, grubbed and unsuitable materials as directed by Departmental Representative.
- .2 Where clearing is required, leave a screen of trees between cleared area and roadways as per the Guidelines.
- .3 Clear, grub and strip area ahead of quarrying or excavating operation sufficient to prevent contamination of aggregate by deleterious materials.
- .4 When excavation is completed dress sides of excavation to nominal 1.5:1 slope, and provide drains or ditches as required to prevent surface standing water.
- .5 Trim off and dress slopes of waste material piles and leave site in neat condition.

#### **3.2 STRIPPING OF TOPSOIL**

- .1 Commence topsoil stripping of areas as indicated by the Guidelines and as directed by the Departmental Representative.
- .2 Avoid mixing topsoil with subsoil.
- .3 Stockpile in locations as indicated by the Guidelines. Stockpile height not to exceed 2 m.

#### **3.3 PROCESSING**

- .1 Process aggregate uniformly using methods that prevent contamination, segregation and degradation.
  - .2 Blend aggregates, if required, to obtain gradation requirements, percentage of crushed particles, or particle shapes, as specified. Use methods and equipment approved by Departmental Representative.
  - .3 Wash aggregates, if required to meet specifications. Use only equipment approved by Departmental Representative.
  - .4 When operating in stratified deposits use excavation equipment and methods that will produce uniform, homogeneous aggregate.
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### **3.4 HANDLING**

- .1 Handle and transport aggregates to avoid segregation, contamination and degradation

### **3.5 STOCKPILING**

- .1 Stockpile aggregates on site in locations as indicated unless directed otherwise by Departmental Representative. Do not stockpile on completed pavement surfaces.
  - .2 Stockpile aggregates in sufficient quantities to meet project schedules.
  - .3 Stockpiling sites to be level, well drained, and of adequate bearing capacity and stability to support stockpiled materials and handling equipment.
  - .4 Except where stockpiled on acceptably stabilized areas, provide compacted sand base not less than 300 mm in depth to prevent contamination of aggregate. Stockpile aggregates on ground but do not incorporate bottom 300 mm of pile into work.
  - .5 Separate different aggregates by strong, full depth bulkheads, or stockpile far enough apart to prevent intermixing.
  - .6 Do not use intermixed or contaminated materials. Remove and dispose of rejected materials as directed by Departmental Representative within 48 hours of rejection.
  - .7 Stockpile materials in uniform layers of thickness as follows:
    - .1 Maximum 1.5 m for coarse aggregate and base coarse aggregate.
    - .2 Maximum 1.5 m for fine aggregate and sub-base aggregate.
    - .3 Maximum 1.5 m for other aggregate.
  - .8 Uniformly spot-dump aggregates delivered to stockpile in trucks and build up stockpile as specified.
  - .9 Do not cone piles or spill material over edges of piles.
  - .10 Do not use conveying stackers.
  - .11 During winter operations, prevent ice and snow from becoming mixed into stockpile or in material being removed from stockpile.
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**3.6 AGGREGATE STOCKPILE CLEANUP**

- .1 Leave aggregate stockpile site in tidy, well drained condition, free of standing surface water.
- .2 Leave any unused aggregates in neat compact stockpiles as directed by Departmental Representative.

**3.7 SOURCE ABANDONMENT**

- .1 For temporary or permanent abandonment of aggregate source, rehabilitate source to condition meeting requirements of the Guidelines.