Part 1 General

1.1 RELATED REQUIREMENTS

.1 The list of work sections in this division is indicative and non-exhaustive. It does not exclude the works described in the other specification sections, shown in the drawings or necessary for the execution of the works in keeping with overall intent of the plans.

.2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.3 Section 31 05 16 - Aggregate Materials.

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM)

.1 ASTM C117-95, Standard Test Methods for Material Finer Than 0.075 mm Sieve in Mineral Aggregates by Washing.

.2 ASTM C131-96, Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.

.3 ASTM C136-96a, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

.4 ASTM D422-63(1998), Standard Test Method for Particle-Size Analysis of Soils.

.5 ASTM D698-00a, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3) (600 kN-m/m^3).

.6 ASTM D1557-00, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3) (2,700 kN-m/m^3).

.7 ASTM D1883-99, Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils.

.8 ASTM D4318-00, Standard Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-8.188, Sieves, Testing, Woven Wire, Inch Series.

.2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.

1.3 WASTE MANAGEMENT AND DISPOSAL

.1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.2 Divert excess aggregate materials from landfill to local, authorized site. Obtain necessary permits and authorizations necessary beforehand, and notify Departmental Representative.

Part 2 Products

2.1 MATERIALS

.1 Granular sub-base material: MG 112 and in accordance with requirements set out in Section 31 05 16 - Aggregate Materials. Thickness of materials placed shall be in accordance with value indicated on drawings.

.2 Granular base material: MG 20 and in accordance with requirements set out in Section 31 05 16 - Aggregate Materials. Thickness of materials placed shall be in accordance with value indicated on drawings.

Part 3 Execution

3.1 VERIFICATIONS AND FINAL ADJUSTMENTS OF THE ELEVATION AND GRADE PROFILE

.1 The profile and geometry on the plans are provided for information purposes only. The final profile and geometry will be determined on the site after the elevation levels and grade have been implanted by the surveyor in collaboration with the Contractor, the Departmental Representative, the Engineer and the Architect in outdoor landscaping while considering drainage and the landscape as well as existing installations.

.2 To complete this task, the Contractor must follow this procedure :

.1 Implant stakes on the site following the plans (profile, slopes, and inclination) showing the alignments, levels, reference points for the sidewalks or curbs at every 10 m intervals (maximum), low and high points for the vertical alignment, points indicating direction change, and the location of existing and/or new catch basins.

.2 Verify with the aforementioned professionals to optimize the final profile and adapt it to existing conditions (existing buildings, drainage, parkings, and existing catch basins).

.3 Working with the Engineer to establish the new elevation points.

.4 Modify or correct the alignments, elevations and reference points using the new elevation points.

.3 The following procedures must be followed for the elevation verifications (for each layer of roadway structure, including the infrastructure line) by the site supervisor :

.1 Implant stakes on the center line the at every 10 m intervals (starting at chaining position 0+000) indicating low and high points for the vertical alignment, points indicating direction change, and the location of existing and/or new catch basins.

.2 For zones where there are no chaining on the plans, implant stakes showing the elevation and reference points at every 10 m intervals indicating low and high points for the vertical alignment, points indicating direction change, and the location of existing and/or new catch basins. The site supervisor can request supplemental points to be implanted from the Contrator.

.3 Allow a reasonable time frame for the Departmental Representative to proceed with the verifications before continuing with the subsequent roadway structure layer.

3.2 PLACEMENT

.1 Place granular sub-base after subgrade is inspected and approved by Departmental Representative.

.2 Place granular sub-base after subgrade is inspected and approved by Departmental Representative.

.3 Construct granular sub-base and granular base to specified depth and grade in areas indicated.

.4 Ensure no frozen material is placed.

.5 Place material only on clean unfrozen surface, free from snow or ice.

.6 Place granular base materials using methods which do not lead to segregation or degradation.

.7 Place material to full width in uniform layers.

.8 Shape each layer to smooth contour and compact to specified density before succeeding layer is placed.

.9 Remove and replace portion of layer in which material has become segregated during spreading.

3.3 COMPACTION

.1 Compaction equipment to be capable of obtaining required material densities.

.2 Efficiency of equipment not specified to be proven at least as efficient as specified equipment at no extra cost and written approval must be received from Departmental Representative before use.

.3 Compaction equipment shall be equipped with device that records hours of actual work, not motor running hours.

.4 Compact granular sub-base of MG 112 to minimum threshold of 95% of reference density, as determined by modified Proctor testing in accordance with CAN/BNQ 2501¬255 standard.

.5 Compact MG 20 granular base to minimum threshold of 98% of reference density, as determined by modified Proctor testing in accordance with CAN/BNQ 2501-255 standard.

.6 Shape and roll alternately to obtain smooth, even and uniformly compacted granular base.

.7 Apply water as necessary during compaction to obtain specified density.

.8 In areas not accessible to rolling equipment, compact to specified density with mechanical tampers approved by Departmental Representative.

.9 Correct surface irregularities by loosening and adding or removing material until surface is within specified tolerance.

.10 Unless otherwise specified, the Contractor shall at all times proceed to compaction statically. He must obtain the approval of the Departmental Representative prior to dynamic compaction.

3.4 SITE TOLERANCES

.1 Finished granular base surface to be within 10 mm of elevation as indicated but not uniformly high or low.

3.5 PROTECTION

.1 Maintain finished granular base in condition conforming to this section until succeeding layer is constructed, or until granular base is accepted by Departmental Representative.

END OF SECTION