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SECTION 31 2200

~~~ **MASTER NOTE** ~~~~~

Topsoil removal, rough and finish grading, topsoil placement and grading.

This section includes grading associated with contouring of site, paving, and major site structures.

Excavation is covered by Section 02315.

Fill and compaction are covered by Section 02316.

SECTION 02310 -- GRADING, Copyright 1996-2007, Building Systems Design, Inc.

~~~ **END OF MASTER NOTE** ~~~~~

GRADING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Removal <<and storage; or None - N/A>> of topsoil.
- B. Rough grading <<and _____; or None - N/A>> the site <<for site structures; for site structures and building pads; for site structures, building pads, and _____; for site structures and _____; for building pads; for building pads and _____; for _____; or None - N/A>>.
- C. <<Topsoil and finish grading; Replacement of topsoil and finish grading; or Finish grading>> <<for planting; or None - N/A>>.

1.02 RELATED SECTIONS

- A. Section 31 1000 (02230) - <<Site Clearing; or _____>>.
- B. Section 31 2316 (02315) - <<Excavation; or _____>>.
- C. Section 31 2323 (02316) - <<Fill; or _____>>: Filling and compaction.

~~~ **MASTER NOTE** ~~~~~

Trenching for utilities can also be covered by Sections 02315 and 02316.

~~~ **END OF MASTER NOTE** ~~~~~

- D. Section 31 2316.13 (02317) - <<Trenching; or _____>>: Trenching and backfilling for utilities.
- E. Section 31 2316.26 (02318) - <<Rock Removal; or _____>>.
- F. Section 32 9219 (02921) - <<Seeding; or _____>>: Finish ground cover.
- G. Section 32 9223 (02923) - <<Sodding; or _____>>: Finish ground cover.
- H. Section 32 9300 (02930) - <<Plants; or _____>>: Topsoil in beds and pits.

~~~ **MASTER NOTE** ~~~~~

Utilize this article ONLY when the work of this section is performed under a unit price payment method.

~~~ **END OF MASTER NOTE** ~~~~~

1.03 UNIT PRICES

- A. See Section 01 2200 (01270) - Unit Prices, for general requirements relating to unit prices for this work.

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- B. Topsoil: <<Applies to Unit Price ____.; or None - N/A>>
1. Measurement Method: By the <<cubic foot (cubic meter); cubic yard (cubic meter); ____ (____)>>.
 2. Measurement Method: By the <<square yard (square meter); square foot (square meter); ____ (____)>> down to a drawing-defined elevation.
 3. Includes: <<Excavating existing topsoil; or Supplying topsoil>>, <<stockpiling;; or None - N/A>> <<scarifying substrate surface;; or None - N/A>> placing where required, and compacting.

1.04 SUBMITTALS

~~~ MASTER NOTE ~~~~~

Use this paragraph only when utilities are present in the work area.

~~~ END OF MASTER NOTE ~~~~~

- A. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with <<State; City; Municipality; or ____>> of _____, <<Highway Department; Public Works Department; or ____>> standards.

~~~ MASTER NOTE ~~~~~

Include this paragraph only when the costs of acquiring the specified standards are justified.

~~~ END OF MASTER NOTE ~~~~~

1. Maintain <<one copy; or ____ copies>> on site.

1.06 PROJECT CONDITIONS

- A. Protect above- and below-grade utilities that remain.
- B. Protect <<plants; lawns; rock outcroppings; ____; and other features>> to remain as a portion of final landscaping.
- C. Protect <<bench marks; survey control points; existing structures; fences; sidewalks; paving; curbs; and ____>> from grading equipment and vehicular traffic.

PART 2 PRODUCTS

2.01 MATERIALS

~~~ MASTER NOTE ~~~~~

Topsoil can be specified in more detail in Section 02316, which also includes source quality control testing.

~~~ END OF MASTER NOTE ~~~~~

- A. Topsoil: See Section **31 2323 (02316)**.
- B. Topsoil<<- Soil Type ____; or None - N/A>>: Conforming to <<State; City; Municipality; or ____>> of _____, <<Highway Department; Public Works Department; or ____>> standards.
- C. Topsoil<<- Soil Type ____; or None - N/A>>: <<Topsoil excavated on-site; Friable loam; imported borrow; or Friable loam; local borrow>>.
1. Graded.
 2. Free of roots, rocks larger than <<1/2 inch (12 mm); ____ inch (____ mm)>>, subsoil, debris, large weeds and foreign matter.
- D. Other Fill Materials: See Section **31 2323 (02316)**.

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PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that survey bench mark and intended elevations for the Work are as indicated.

3.02 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Stake and flag locations of known utilities.
- C. **<<Locate, identify, and protect; or Protect>>** utilities that remain, from damage.
- D. Notify **<<utility company; or _____>>** to remove **<<and relocate; or None - N/A>>** utilities.

3.03 ROUGH GRADING

- A. Remove topsoil from **<<areas to be further excavated, re-landscaped, or re-graded; marked areas; entire site; or _____>>**, without mixing with foreign materials.
- B. Do not remove topsoil when wet.
- C. Remove subsoil from **<<areas to be further excavated, re-landscaped, or re-graded; marked areas; entire site; or _____>>**.
- D. Do not remove wet subsoil **<<, unless it is subsequently processed to obtain optimum moisture content; or None - N/A>>**.
- E. When excavating through roots, perform work by hand and cut roots with sharp axe.
- F. See Section **31 2323 (02316)** for filling procedures.
- G. Benching Slopes: Horizontally bench existing slopes greater than **<<1:4; or _____>>** to key fill material to slope for firm bearing.
- H. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.

3.04 SOIL **<<REMOVAL; and STOCKPILING>>**

- A. Stockpile excavated topsoil on site.
- B. Stockpile topsoil to be re-used on site; remove remainder from site.
- C. Remove excavated topsoil from site.
- D. Stockpile excavated subsoil on site.
- E. Stockpile subsoil to be re-used on site; remove remainder from site.
- F. Remove excavated subsoil from site.
- G. Stockpiles: Use areas designated on site; pile depth not to exceed **<<8 feet (2.5 m); _____ feet (_____ m)>>**; protect from erosion.

~~~ **MASTER NOTE** ~~~~~

*Finish grading applies to general site grading whether topsoil is to be placed or not.*

~~~ **END OF MASTER NOTE** ~~~~~

3.05 FINISH GRADING

- A. Before Finish Grading:
 - 1. Verify building and trench backfilling have been inspected.
 - 2. Verify subgrade has been contoured and compacted.

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- B. Remove debris, roots, branches, stones, in excess of <<1/2 inch (13 mm); 1 inch (25 mm); 2 inch (50 mm); ____ inch (____ mm)>> in size. Remove soil contaminated with petroleum products.
- C. Where topsoil is to be placed, scarify surface to depth of <<3 inches (75 mm); 6 inches (150 mm); ____ inches (____ mm)>>.
- D. In areas where vehicles or equipment have compacted soil, scarify surface to depth of <<3 inches (75 mm); 6 inches (150 mm); ____ inches (____ mm)>>.
- E. Place topsoil in areas where <<seeding; sodding; planting; and ____>> are indicated.
- F. Place topsoil in areas indicated.
- G. Place topsoil where required to level finish grade.
- H. Place topsoil to thickness <<as scheduled; or indicated>>.
- I. Place topsoil to nominal depth of ____ inches (____ mm).
- J. Place topsoil to the following compacted thicknesses:
 - 1. Areas to be Seeded with Grass: <<6 inches (150 mm); ____ inches (____ mm)>>.
 - 2. Areas to be Sodded: <<4 inches (100 mm); ____ inches (____ mm)>>.
 - 3. Shrub Beds: <<18 inches (450 mm); ____ inches (____ mm)>>.
 - 4. Flower Beds: <<12 inches (300 mm); ____ inches (____ mm)>>.
 - 5. Planter Boxes: To within <<3 inches (75 mm); ____ inches (____ mm)>> of box rim.
- K. Place topsoil during dry weather.
- L. Remove roots, weeds, rocks, and foreign material while spreading.
- M. Near <<plants; buildings; and ____>> spread topsoil manually to prevent damage.
- N. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.
- O. <<Lightly compact; or Roll>> placed topsoil.

3.06 TOLERANCES

- A. Top Surface of Subgrade: Plus or minus <<1/10 foot (30 mm); ____ foot (____ mm)>> from required elevation.
- B. Top Surface of Finish Grade: Plus or minus <<1/2 inch (13 mm); ____ inch (____ mm)>>.

3.07 FIELD QUALITY CONTROL

- A. See Section 31 2323 (02316) for compaction density testing.

3.08 CLEANING AND PROTECTION

~~~ **MASTER NOTE** ~~~~~  
*Use this paragraph only if stockpiles are a possibility. If subsoil is to be used for fill in Section 02316 - Fill and Backfill removal of subsoil stockpile should be covered by that section.*  
~~~ **END OF MASTER NOTE** ~~~~~

- A. Remove unused stockpiled <<topsoil; and subsoil>>. Grade stockpile area to prevent standing water.
- B. Leave site clean and raked, ready to receive landscaping.

END OF SECTION