DIVISION 2

SECTION 2B SITE WORK, EXCAVATION, BACKFILL AND LANDSCAPING

2B.01 GENERAL: Comply with all of the Contract Documents.

2B.02 SCOPE OF WORK: Refer to "Division Scope of Work"

2B.03 EXCAVATION

A. Perform excavating of every type of material encountered within the limits of the work to the lines, grades, and elevations indicated by existing conditions.

B. Satisfactory Excavated Materials

1. Satisfactory soils are gravel and sand materials complying with ASTM D 2487 soil classification Groups GW, GP, GM, SM, SW, and SP.

2. Transport to, and place in, fill or embankment areas within the limits of the work.

C. Unsatisfactory Excavated Materials

1. Unsatisfactory soils are clay gravel or sand, clay, silt and peat materials complying with ASTM D 2487 soil classification groups GC, SC, ML, MH, CL, OL, OH and PT.

2. Excavate to a distance below grade as directed by Architect and replace with satisfactory materials.

3. Include excavation of unsatisfactory materials and replacement by satisfactory materials, as parts of the work of this section.

D. Surplus Materials

1. Dispose of unsatisfactory excavated material, and surplus satisfactory excavated material, away from the site at disposal areas arranged and paid for by the contractor.

E. Excavate and backfill in a manner and sequence that will provide proper drainage at all times.

F. Excavating for Pavements

1. Cut surface under pavements to comply with cross sections, elevations and grades of existing pavements.

G. Cold Weather Protection

1. Protect excavation bottoms against freezing when atmospheric temperature is less than 35 degrees.

H. Existing Utilities

1. Locate existing underground utilities in areas of work and provide adequate support and protection of utilities to remain.

I. Explosives

1. Use of explosives is not permitted.

J. Shoring, Bracing and Protection

1. Support adjoining and abutting properties to prevent injury to persons and property.

2. Install bracing, shoring to maintain excavation sides, banks and adjoining property. Use members of adequate structural strength for imposed loads.

3. All shoring and bracing shall be designed and certified by a New York State licensed professional engineer.

4. Remove shoring and bracing when no longer required.

K. Stability of Excavations:

1. Slope sides of excavations to comply with local code and ordinances.

2. Shore and brace where sloping is not possible due to space restrictions or stability of materials excavated.

2B.04 BACKFILLING

A. Material for backfill shall be clean granular material, free of lumber, trash, or debris and as approved by Architect. Do not use frozen material for backfill. If suitable excavated material is insufficient in quantity, the contractor shall obtain the needed fill from another source at his own expense, depositing the fill and tamping it in the proper places.

B. Soil for planters shall be topsoil, with two (2) inches of peat worked into top one (1) inch of top soil.

C. Backfill trenches with concrete where trench passes below and within 18" of column or wall footings. Place concrete to bottom of footing. Backfill trenches after tests and inspection and backfilling is authorized. Avoid damage or displacement of pipe and conduit.

D. Maximum Density Requirements:

1. Compact cohesive soil to not less than the following percentages of maximum density in accordance with ASTM D 1557 and not less than the following percentages of relative density in accordance with ASTM D 4254 for cohesion-less soils.

a. Structures, Building Slabs, Pavements: Compact top 12" of sub-grade and each layer of fill at 90% density for cohesive soils or 95% density for cohesion-less soils.

b. Lawn or Unpaved Areas: Compact top 6" of sub-grade and each layer of fill at 85% density for cohesive soils and 90% density for cohesion-less soils.

c. Walkways: Compact top 6" of sub-grade and each layer of fill at 90% density for cohesive soils or 95% density for cohesion-less soils.

E. Placement and Compaction:

1. Place backfill and fill in layers not more than 8" in loose depth where compacted by heavy equipment, and not more than 4" in loose depth where compacted by hand tampers.

2. Before compaction, moisten or aerate each layer to optimum moisture content. Compact each layer to required density. Do not place backfill or fill on ground that is muddy or contains frost.

3. Place backfill and fill materials evenly adjacent to structures, piping or conduit to prevent wedging of backfill against structures or displacement of piping or conduit.

2B.05 DISPOSAL

A. All excavated material not suitable for filling, backfilling or top soil, including all broken up concrete and masonry, where not required for such purposes, shall be removed from the premises. Excess suitable material shall likewise be removed.

2B.06 REMOVAL OF WATER

A. The contractor shall provide and operate pumps and other equipment necessary to drain

and keep all excavations, cellar, and foundations dry during the execution of this work. The drainage water shall be disposed of into sewer in a manner approved by Architect.

2B.07 FIELD QUALITY CONTROL

A. Inspections: Allow testing service to inspect and approve sub-grades and fill layers before further construction work is performed.

1. Tests: Field density test will comply with ASTM D 1556 (sand cone method) or ASTM D 2167 (rubber balloon method), as applicable.

2. Footing Sub-grade: For each strata of soil on which footings will be placed, at least one test or inspection will be required to verity required design bearing capacities.

3. Paved Areas and Building Slab Sub-grade: One field density test of sub-grade will required for every 2000 sq. ft. of paved area or building slab, but not less than 3 tests. In Compacted fill, one field density test will be required for every 2000 sq. ft. of building slab or paved area, but not less than 3 tests.

4. Foundation Wall Backfill: At least 2 field density tests will be required, at locations and elevations as directed.

5. Correction: If reports and inspection show sub-grade or fills below specified density, provide additional compaction and testing at no additional expense.

2B.08 SITE FENCES (Picket)

A. Provide site fences in location and of design as shown on the drawings. Fences shall be complete with all fittings, fastenings and erection accessories. Expansion joints shall be provided as required.

2B.08a SITE FENCES (Chain Link)

A. Chain link fence shall be galvanized steel and shall conform to ASTM A-120 and ASTM A-123. All accessories except tie wires shall be galvanized as per ASTM A-153. Fence shall be 6'-0" high above grade level.

B. Fencing shall be constructed of:

1. End, corner and pull posts - 2 1/2" o.d. pipe weighing 3.117 lbs. per foot.

2. Line posts - 2" o.d. pipe weighing 2.281 lbs. per foot.

3. Top rail and bottom rail - 1 5/8" o.d. weighing 1.836 lbs. per foot.

4. Tension wire (if applicable) - 7 gauge coiled spring wire.

5. Chain link fabric - 2" mesh, 9 gauge

6. Post tops - Pressed steel weather-tight closure cap.

7. Wire ties
   - 9 gauge for fastening to line posts, 14" o.c.
   - 9 gauge for fastening to rails and braces, 24" o.c.
   -11 gauge hog rings for tying fabric to tension wire, if applicable.

8. Edges of fabric to be knuckled. Terminal and line posts shall be set in concrete footings 4'-0" deep, 10" diameter for line posts and 12" diameter for terminal posts.

C. Installation

NOTE: ALL STEEL PARTS SHALL BE GALVANIZED BY THE HOT DIP PROCESS IN ACCORDANCE WITH THE RELEVANT ASTM SPECIFICATION AS INDICATED ABOVE.

1. FABRIC: Galvanized chain link fabric shall be 9 gauge woven of good commercial quality steel wire with a uniform square mesh measuring 2" between its parallel sides, galvanized after weaving by the hot dip process to give a minimum of 1.2 ounces of zinc per square foot of wire surface distributed over the entire fabric including the entire fabric including the cut ends, as per ASTM A-392 Class 1. The following minimum breaking strength shall apply as per U.S. Government Specifications RR-F-191/1: 1290 lbs.

2. LINE POSTS AND TERMINAL POSTS: Posts shall be of sufficient length to allow for installation to a depth of approximately 4'-0" below ground level set in concrete curb. They shall be set at equal distance apart, at the beginning and end of each continuous run of fence and at abrupt changes in vertical and horizontal alignments.

3. POST TOPS: Tubular post tops shall be so designed as to exclude moisture from the post.

4. TOP RAIL: The fence shall have a continuous top rail for its full length of 1 5/8" o.d. galvanized tubing as per U.S. Government Specifications RR-F-191/3A. The top rail shall pass through openings provided in the line post tops and each length shall be coupled with an internal swaged sleeve for a distance of 3". Fabric shall be attached to the top rail by means of double wrapped 13 gauge zinc coated tie wire spaced at intervals of approximately 24".

5. TRUSS BRACES: For fences with fabric over 6'-0" high and for all fences where no top rail is used, a brace rail of 1 5/8" o.d. galvanized tubing weighing 1.35 lbs. per linear foot, along with a 5/16" truss rod and turn buckle attachment shall be installed between terminal post and each adjacent line post.

6. TENSION BARS, BANDS AND FITTINGS: Fabric shall be attached to posts by means of 7/8" wide band and tension bar.

7. GATES: Gates should be joined at the corners by arc welding to form a rigid, one piece unit and filled with chain link fabric to match the fence. The fabric should be fastened to the frame on all four sides by means of adjustable hook bolts and tension rods. All gates should be equipped with galvanized steel hinges and latch.

2B.09 YARD DRAINS, PIPING AND DRY-WELLS

A. Dry-well shall be constructed of concrete block, 8" thick hollow, non-load bearing units, ASTM C-129, type 1.

B. Construction

1. Dry-well shall be constructed of concrete block laid with cell openings laid horizontally. Dry-well shall be four (4) feet by four (4) feet by four (4) feet deep with a 4" thick pre-cast concrete slab cover. Provide concrete footing at perimeter of wall for dry-well.

2. Piping shall extended from inside face of wall of concrete block dry-well and connected to yard drains where shown on drawings. The laying of pipes in finish trenches shall commence at lowest point, so that the spigot ends point in direction of flow.

3. Yard drains shall be set in poured concrete basin 12" by 12" by 12" deep.

2B.10 SAMPLES AND CERTIFICATION

A. Submit samples catalog cuts and certification for all work provided under this section.

2B.11 *GUARANTEE* [1]

A. Guarantee all items of work furnished and installed under this Section for (1) one year, in addition to manufacturer's standard warranties. All guarantees to be from the date, when **Final Certificate of Occupancy** is issued from Department of Buildings.

[1] Revised – June, 2003