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PART 4

THE LANDSCAPE

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I. DRAWING GUIDELINES:

A. Clarity: Clearly differentiate between existing and proposed elements.

B. Contours: Contour lines must be shown and drawn such that they do not obscure the proposed landscape work or cause difficulty in reading the drawing.

C. Historic Sites: For historic grounds, obtain historic drawings and use them as a basis for the design.

D. Details: Maintain consistency between details and specifications. If details are required, they may be at any scale consistent with clarity. Dimensions should be shown and not left to the contractor to scale. Details not drawn to scale should be marked "NTS."

E. Legend: Show distinctive non-geometric symbols for the following if applicable to the specific project.

EXISTING TREES	NEW TREES
EXISTING WOODLAND EDGE	NEW WOODLAND EDGE
EXISTING EVERGREEN SHRUBS	NEW EVERGREEN SHRUBS
EXISTING DECIDUOUS SHRUBS	NEW DECIDUOUS SHRUBS
EXISTING GROUNDCOVER	NEW GROUNDCOVER
EXISTING TURF	NEW TURF

F. Plans: Plans should be the largest scale possible to fit standard drawing sheets. If the landscape work covers a large area, use two drawings at 1:240 (1"=20') or 1:360 (1"=30'). A scale of 1:120 (1"=10') is ideal for small projects. For metric requirements see the Site Development Instructions and Guidance to Architect-Engineers. Lengthy notes, detailed performance or materials specifications belong in the specifications.

G. Technical Manuals (TM's):

1. This is a partial list of Government TM references. They can be obtained through the COE Design Team Leader.

- TM 5-830-4 Planting and establishment of trees, shrubs, groundcovers and vines.
- TM 5-830-2 Establishment of Herbaceous Groundcover

- TM 5-803-5 Installation Design
- Installation Design Guides

2. Non Government Publications - such as, but not limited to:

- American Society of Landscape Architects Publications
- Landscape Architecture Foundation Publications
- American Standard for Nursery Stock - ANSI Z60.1 - 1990
- American Forestry Association Publications

II. GENERAL GUIDELINES:

A. General: Employment of professional landscape architects early in the design process is necessary to develop planting plans which demonstrate consideration for preserving existing vegetation, desirable site features and other aspects of professional design treatment. Sessions which are held to formulate alternative design solutions should include all designers to ensure that potential problems are recognized. This advance planning activity permits orderly scheduling of work and provides data for management decisions on design alternatives.

B. Objectives:

1. Planting should not be thought of in the oversimplified terms of "beautification" and "landscaping", which obscure the multiple objectives of planting. Among the detailed objectives that can be realized by planting are the provision of shade, reduction of noise and dust, control of erosion and the tempering of climate with respect to temperature, humidity and winds. A military installation can be made more functional by using vegetation to establish and define areas of differing uses, screen objectionable views such as service areas, and purify the ambient air.

2. In addition to the utilitarian purposes of vegetation are many aesthetic purposes such as: introducing variety, enframing vistas, relieving barrenness, reducing the oppressive monumental scale so often found in modern installations,

separating areas and softening structural lines by visually tying buildings to the ground.

III. GENERAL DESIGN GUIDELINES:

A. **Simplicity of Planting Layouts:** Layouts for planting trees and shrubs will take massed simple forms to avoid excessive maintenance. Isolated geometric-shaped beds of shrubs/flowers make mowing of turf costly. The use of very small turf areas shall be avoided by substituting ground covers or shrubs that require less maintenance. Simplify the shapes of large planting beds when they are bordered by turf requiring mowing. Avoid isolated geometric-shaped beds.

B. **Spacing Plants:** Plants should be spaced appropriately for the species and for mature growth size unless the scope of work requires a more immediate effect.

C. **Informality vs. Formality:** Informality in planting design has numerous advantages over formality although there may be circumstances such as at the approaches to a building of symmetrical design, under which a formal layout of limited extent may be the appropriate and better solution. Symmetry requires high maintenance. Formal plantings tend to accent, rather than minimize, the regimented character of the layout. Informal or naturalistic plantings will soften the whole effect and make any plant losses less conspicuous.

D. **Arrangements and Grouping:** Filling in between the trees of a given group with smaller shade-enduring flowering trees or broad-leaved evergreens will serve to solidify the boundary of areas and provide color and interesting outlines to the lawns. Partial screens may also be effective in separating various functional areas.

E. **Planning for Ultimate Effects:** Tall growing material shall be avoided near windows. For example, evergreens that are forest trees in their native habitat would either cut off light, air and views from windows or they would have to be sheared at frequent intervals, thereby creating an undesirable unnatural effect, in addition to increasing maintenance costs. Vision at traffic intersections shall be maintained by planting material with a maximum maturity height of 1 meter (3.5 feet) or branches that are limbed up to 3 meters (10 feet). In a limited funding project, it is better to procure trees and shrubs in smaller sizes and wait longer for the effects ultimately desired than to compromise by substituting inappropriate species.

F. Trees or Shrubs: Important points for the designer to bear in mind are: (1) properly selected trees will ultimately give greater effect than shrubs, (2) trees are generally less expensive to maintain than shrubs because they do not need to be so numerous and they require less pruning, and (3) trees provide shade which is frequently lacking even at well established installations.

G. Selection of Material: The choice of plant materials to produce desired effects should be limited to those capable of thriving under actual site conditions. Use of native vegetation is preferred. An investigation of the site and surrounding area will demonstrate plant material currently thriving. Evaluate factors such as fertility of soil, wetness or dryness of ground, degree of exposure to wind and salt air, availability of material at a reasonable cost, ability to withstand transplanting, and disease resistance.

H. Maintenance Considerations:

1. Preservation of existing vegetation will be an important consideration in developing the grading plan. Demonstrating knowledge of construction processes will preclude undue damage to vegetation and soils. The cost of preserving vegetation should be weighed against the cost of special measures for its preservation but the correct decision cannot be made by balancing earthwork costs alone. Also to be taken into account is the length of time required to re-establish trees, shrubs, vines and grasses - a consideration that may lead to the conclusion that saving existing vegetation is justified.

2. Tree beds between streets and sidewalks should be four to eight feet wide, or consider placing sidewalks flush with the curb. Adequate soil volume is essential to support tree growth and vigor.

3. If necessary to correct conditions of soil saturation, subdrainage systems will be incorporated into the design.

4. Where banks are unavoidable in grading, their gradients will be kept to a minimum with top and bottom rounded to obtain a smooth flowing profile, thereby preventing erosion and facilitating mowing.

5. Fillets with radii of 3 to 5 feet at walk intersections will greatly reduce wear on turf.

6. Edging with saw-tooth bricks or irregular rock should be avoided because the grass would have to be cut by hand. Flush concrete edges, steel or aluminum edging is preferred. Plastic edging shall not be used.

7. Major trees should be located at least five feet from known underground utilities and 10 feet from fire hydrants and driveways.

8. If plantings are around a transformer, leave at least an eight-foot clearance in front of the doors and at least a two-foot clearance from the sides so that equipment can be serviced.

I. Sound Site Planning: Reduce clearing and grading operations to a minimum. Coordinate with existing and proposed topography, buildings, walks, roads, parking areas, utilities (conduits, transformers, pipes, above ground wires, sewers, storm drains, inlets, headwalls, fire hydrants, valves, etc.). Whenever possible, all utilities should be in a common corridor and be combined with transportation corridors. During construction, minor variations in the building layout may be made to avoid the destruction of important vegetation. The following provisions should be in the contract specifications:

1. Tree guards, barricades and fences will be erected, maintained and removed by the Contractor as approved by the Contracting Officer.

2. In the felling of trees that must be removed, care will be exercised to avoid damage to existing vegetation.

3. Stock-piling of materials and storage of equipment will be permitted only in areas where damage to existing vegetation will be kept to a minimum.

J. Ameliorating Climate:

1. Wind - A combination of trees with tall-growing shrubs form the best possible protection against winds. Staggered evergreen trees are best for windbreaks but deciduous trees are also effective if planted in fairly wide belts of three or four rows. Proper planting design should facilitate summer breezes and dissipate winter wind.

2. Temperature - Vegetation reduces temperature by transpiration of water through the leaves and by actually shading

the ground. Natural vegetation covering the ground decreases temperature extremes, whereas manmade surfaces usually exaggerate temperatures. A park may be 1.7 degrees C. (35 degrees F.) lower than a paved area.

3. Solar Access - Solar access should be maximized or minimized in accordance with the use of the facility. Retain existing or plant new deciduous shade trees on the south and southwest sides of structures, play areas, parking areas, etc., to reduce solar gain. Do not block access to solar collectors.

IV. CONCEPT DESIGN REQUIREMENTS:

A. Provide a narrative description of the purpose and rationale for the landscape plan including sensitivity to off site features and views. This will also inform the reviewer who may not be familiar with the user requirements/program and should result in fewer review comments.

B. Provide a schematic landscape plan that is fairly substantive showing locations of evergreen and deciduous trees, accent trees, shrub types (i.e., evergreen mass, groundcover, slope stabilizer, texture contrast) and areas to be turfed. Specific species are not necessary.

C. Provide outline specifications.

D. Have soil tested from appropriate areas of the site.

V. PRELIMINARY DESIGN REQUIREMENTS:

A. A preliminary design submission may be required in addition to the concept and final submissions for certain projects.

B. Drawings and design analysis should follow the requirements for final design with approximately 60% of the design completed.

C. Provide specifications in accordance with specifications in the final design requirements. Prescribe fertilizer, soil amendments etc., using soil test results as a basis.

VI. FINAL DESIGN REQUIREMENTS:

A. Specifications: Final technical specifications are prepared by editing Corps of Engineers Guide Specifications to reflect the specific project requirements.

B. Drawings: The final planting plan should be prepared by translating the desired forms and sizes of plant masses determined at the conceptual phase into specific species of plant materials. A thorough knowledge of available plant materials and their functional characteristics is required. Each plant or mass should be labeled and quantified. The plant schedule should provide the key, botanical name, common name, quantity, size, planting method, and additional remarks as required. Show utilities and resultant topography if the planting plan is not too crowded and in a way that is subordinate to the planting plan.

VII. SPECIAL REQUIREMENTS:

A. Maryland Forest Conservation Act: The Maryland Forest Conservation Act applies to all projects in Maryland. Projects do not have to be in a forest in order to invoke this regulation.

B. Section 404 of the Clean Water Act and/or Section 10 of the River and Harbor Act of 1899: Waters of the United States, including jurisdictional wetlands, tidal or non-tidal, are regulated by the Department of the Army. The regulations apply to grading or filling. State and local authorizations may also be required. If projects are sited in wetland areas or wetlands must be developed, all required plantings must be scientifically ecological.

C. Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (SDA) and Uniform Federal Accessibility Standards (UFAS).

D. Metric Guide for Federal Construction, National Institute of Building Sciences.

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