

DEPARTMENT OF VETERANS AFFAIRS

DESIGN INSTRUCTIONS TO ARCHITECTS AND ENGINEERS

LOCATION :

PROJECT TITLE :

PROJECT NO. :

MASTER PLAN
 SCHEMATICS

DESIGN DEVELOPMENT
 CONSTRUCTION DOCUMENTS

SITE DEVELOPMENT

SITE DEVELOPMENT DESIGN MANUAL
(June 2006)

FROM:

DATE:

Package Preparer:
Telephone Number:

**SITE DEVELOPMENT DESIGN MANUAL
DEPARTMENT OF VETERANS AFFAIRS**

TABLE-OF-CONTENTS

1.	Criteria Unique to VA.....
2.	General.....
3.	Building Number Assignments.....
4.	Parking Analysis.....
5.	Methodology Narrative.....
6.	Site Analysis Summary Plan.....
7.	Schematic Site Development and Landscaping System.....
8.	Topographic/Landscape, Electrical, Civil/Mechanical, and Soil Survey.....
9.	Environmental Protection and Document Checking, Agency Consulting/Review Approval Services.....
10.	Construction Site Preparation.....
11.	Site Development.....
12.	Grading Design.....
13.	Layout Design.....
14.	Design of Vehicular and Pedestrian Pavement.....
15.	Entrances to Buildings.....
16.	Trucking Dock Design.....
17.	Parking Facilities (Surface and Structure).....
18.	Equipment Pads.....
19.	Landscaping Design.....
20.	Exterior Signage.....
21.	Site Engineering and Landscaping Specifications.....
22.	Site and Landscape Development Estimate.....
23.	Applicable Design and Construction Procedures Index.....
24.	Site Engineering and Landscaping Standard Details Index.....
25.	Applicable Site Engineering and Landscaping Master Specifications Index.....

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1. CRITERIA UNIQUE TO VA:

- 1.1 Prepare the Site Engineering and Landscaping design on "GS-Series" drawings (see VA Design and Construction Procedures, "Drawings"). Include dimensional locations and intake elevations of the storm drainage system inlets. Show subsurface drainage lines and storm drainage system details on "CU-Series" drawings.
- 1.2 When referencing articles by manufacturers' trade name and number, stipulate that the reference is to establish a generic standard of quality and not to limit competition.
- 1.3 A licensed Landscape Architect or Civil Engineer shall develop the site drawings. A Landscape Architect, licensed if state registration exists, shall develop the landscape planting plans.

2. GENERAL:

- 2.1 This manual; the current edition of VA Program Guide PG-18-4 (Vol. 2), Standard Details for Site Engineering and Landscaping; VA Program Guide PG-18-1, Master Specifications; VA National CAD Standard Application Guide; and the Statement of Task for the project is presented as general guidance for the site engineering and landscaping.
- 2.2 Obtain written permission to deviate from VA Program Guide PG-18-3, Design and Construction Procedures, VA National CAD Standard Application Guide. The A/E is encouraged to request deviation from a VA Standard, if beneficial to the Government. Submit the request in writing to the Contracting Officer.
- 2.3 Refer to Design and Construction Procedures, "Codes and Standards" which establishes mandatory requirements for construction including:
 - a. VA Directives and Handbooks;
 - b. Uniform Federal Accessibility Standards (UFAS) with VA Supplement, Barrier Free Design Guide.
- 2.4 Each area of the country has localized construction, design criteria, and materials. VA standard details are presented for guidance. The intent is not to restrict the designer's overall freedom of design.
- 2.5 The following sources, including government organizations, trade associations manuals, suppliers, industrial standards, and handbooks, were utilized for obtaining site criteria:
 - A. American Association of Nurserymen (AAN)
 - B. American Association of State Highway and Transportation Officials (AASHTO)
 - C. American Institute of Architects (AIA)
 - D. American National Standards Institute (ANSI)
 - E. American Society of Civil Engineers (ASCE)
 - F. American Society of Landscape Architects (ASLA)
 - G. American Society for Testing Materials (ASTM)
 - H. American Standards Association (ASA)
 - I. American Standards for Nursery Stock (ASNS)

- J. American Trucking Association (ATA)
- K. Brick Institute of American (BIA)
- L. Environmental Protection Agency (EPA)
- M. Federal Highway Administration, Department of Transportation (FHWA)
- N. Highway Research Board (HRB)
- O. National Concrete Masonry Association (NCMA)
- P. National Crushed Stone Association (NCSA)
- Q. National Fire Protection Association (NFPA)
- R. Portland Cement Association (PCA)
- S. The Asphalt Institute (TAI)
- T. Civil Engineering Handbooks
- U. County Agriculture Extension Agent, Soil Conservation Service, Storm Water Control and other local services
- V. Data Book for Civil Engineers
- W. Site Engineering and Landscape Architectural Program Guides
- X. State Highway Department Standards and Specifications
- Y. U. S. Department of Agriculture, Soil Conservation Service
- Z. Metric Guide for Federal Construction

3. BUILDING NUMBER ASSIGNMENTS:

- 3.1 VA has assigned the following building number(s): BUILDING NOMENCLATURE NUMBER
- 3.2 The VA will assign any additional building numbers during the various reviews.

4. PARKING ANALYSIS:

- 4.1 Replace any parking spaces that are demolished. Develop sufficient new parking so that the total number of facility spaces will be (insert number) at the completion of this project. Provide (insert number) parking spaces for disabled people (handicapped) of which (insert number) are van spaces. Locate these parking spaces convenient to an entrance accessible by physically disabled people.
- 4.2 Provide a parking tabulation on the contract drawings indicating the total number of VA facility parking spaces, existing spaces lost to construction, new standard spaces, and new standard and van spaces for the disabled.

5. METHODOLOGY NARRATIVE:

- 5.1 Provide a narrative with the schematic phase drawings identifying the site design methodology. This narrative should incorporate principles of "sustainable landscape design and management" by considering:
 - A. The characteristics of the site and soil,
 - B. The intended effect and use of the developed area, and
 - C. The selection of plants that need minimal water, increase erosion control, and require less pesticides, fertilizers, and maintenance.
- 5.2 Document an investigation of VA property and surrounding area. Analyze the site in relation to surrounding land usage, affiliated hospital(s), mass transit routes and other existing conditions. Identify restrictions including aircraft flight patterns, zoning ordinances, easements, and fire protection access. Identify features of historical and archaeological significance. Identify

all design impacts including utilities, vehicular and pedestrian circulation patterns, points of ingress/egress, parking areas, and future parking facilities. Also include water bodies, slopes, floodplains, wetlands, surface and subsoil conditions, climatic conditions, etc. Evaluate these characteristics in the context of the proposed project development.

- 5.3 Evaluate these impacts on projections in the Facility Development Plan (FDP). Analyze how future site construction, circulation, parking, access to buildings, and green space requirements will be met.
 - 5.4 Develop phasing strategies to determine construction impacts on maintaining hospital routine, ingress/egress of pedestrians and vehicular traffic flows, transportation and storage of construction materials, mitigation of environmental impacts (see Article 9), and the sequencing of new construction events to minimize conflicts.
 - 5.5 Resubmit the narrative at each design phase review, incorporating all comments from the previous review, and new design features.
 - 5.6 Submit copies of other technical discipline narratives that include data that affect the final site plan design.
6. **SITE ANALYSIS SUMMARY PLAN:** Develop a site analysis plan with a graphic description of site constraints and possibilities, to include:
- A. Utilities, on and off the site;
 - B. Access routes, traffic control devices, and future off-site road improvements; and
 - C. Off-site road work necessitated by the project.
7. **SCHEMATIC SITE DEVELOPMENT AND LANDSCAPING SYSTEM:**
- 7.1 General: The schematic design phase identifies alternate architectural and engineering solutions for the project. VA considers the total environmental approach a necessity to good site development.
 - 7.2 The attached VA prepared site schematic is diagrammatic. The A/E is not expected to strictly adhere to the building location and paving designs shown.
 - 7.3 Using the methodology narrative and the site analysis plan, prepare the schematic site development design. Include all valid alternative solutions.
 - 7.4 If a VA Facility Development Plan (FDP) has not been completed or this project was not included in the FDP, then present a minimum of three alternative architectural and site schematics that are functionally viable. The VA will review and select the schematic site development plan to be used for the Design Development design phase.
 - 7.5 Develop the Final Schematic Plan to provide a well designed facility. Utilize the data furnished by VA for the project, consisting of design objectives, limitations, criteria, site requirements, and subsequent VA instructions. Use originality and imaginative design between site and structures, vehicular and pedestrian circulation, visual elements, and open and screened

area. Produce a plan that has both functional and aesthetic relationships.

- 7.6 During the schematic design phase, the A/E and VA will collaborate in solving any problems for the grading, drainage, paving and landscaping before the subsequent design phase.
- 7.7 Immediately after VA selects the preferred scheme, to be developed into the Final Schematic Plan, acquire site data, consisting of topographic, landscape, utility, and soil surveys indicated in Article 8.
- 7.8 On the Final Schematic Plan, show the following:
 - A. Location of the proposed structures and essential design elements in relation to existing facilities or site features.
 - B. Proposed site preparation and demolition elements.
 - C. Proposed roadways, parking, service areas, and primary entrances and exits.
 - D. Potential for expansion on the site, including future parking facilities.
 - E. Proposed on-grade mechanical and electrical structures.
 - F. First floor elevations for the proposed structures and other floor elevations that are critical to the site solution.
 - G. Spot elevations at all structure corners, entrances, and other critical areas or major breaks in grade.
 - H. Preliminary grading of the entire area affected by the site work by contours at no greater than 500 mm (two foot) intervals.
 - I. Environmental consideration that could affect cost including erosion control and storm water management (see Article 9).
 - J. Major plant material groupings and list of proposed plant materials to be used (plant materials must be indigenous to the area and be available locally or in areas of the nation with similar climatic conditions).
 - K. Proposed limits of the lawn irrigation system. Design requirements for the irrigation system are indicated in the Sanitary Design Manual.
- 7.9 Coordinate the schematic site development planning efforts with other technical disciplines.
- 7.10 A formal presentation of the above schematic development system may be necessary. Consult VA Project Manager for details.

8. TOPOGRAPHIC/LANDSCAPE, ELECTRICAL, CIVIL/MECHANICAL, AND SOIL SURVEY:

8.1 General:

- A. These surveys are the basis for making site design decisions. Obtain these surveys and determine the survey limits that will include a sufficient area to cover the complete project. Refer all vertical elevations to permanent bench marks based on

actual geodetic datum (not assumed datum) or the VA Station Bench Mark.

Produce the Topographic/Landscape, Electrical, and Civil/Mechanical Surveys on VA standard size mylar sheet as specified in the Architectural Design Manual. **CERTIFY** on drawings that all information was obtained or verified by actual field investigation. Provide surveys at an engineering scale not less than 1:400 (1" = 30').

- B. Final Schematic, Design Development, and Construction phase documents shall be based on these surveys. Prepare the Design Development phase and ensuing design drawings at the same engineering scale as the surveys. Show detail layouts at a scale sufficient to indicate the required work.
 - C. At each design phase review, resubmit the survey documents and include them with the bidding documents (See VA Design and Construction Procedures).
- 8.2 On the Topographic/Landscape Survey, include features affecting site development, such as:
- A. Contours at a maximum interval of 500 mm (two feet),
 - B. Location and elevation of all roads, walks, underground and over head utilities, existing buildings and structures,
 - C. All property lines, building line set-backs, leases, or easements, and
 - D. Trees, and landscape material with size and species identification.
- 8.3 On the Electrical Survey, include the locations of all underground, overhead, and surface electrical utilities and structures. Show size, depth, and top elevation of all electrical structures, based on actual site investigation. Indicate type of service (primary or secondary), number of ducts, voltage, phase and other electrical data.
- 8.4 On the Civil/Mechanical Survey, include the locations of all underground and surface civil and mechanical utilities and structures. Show size, depth, invert and top elevation of all utility structures, based on actual site investigation. Indicate direction of flow and size of pipe for all sewers, drains, and connecting lines between manholes.
- 8.5 Include a Soil Survey as part of the Structural requirements for subsurface investigation in the A/E Submission Instructions, PG-18-15 (Schematics 2). Analyze the soil fertility, organic content, and pH measurement. Reference AASHTO-T-86 and local District Office of the U.S. Soil Conservation Service Standards for procedures in obtaining the above information. Utilize results from the study to make design decisions including:
- A. Earthwork handling techniques such as benching, compaction, and erosion control.
 - B. Selection of pavement type and cross section.
 - C. Selection of soil amendments.
 - D. Selection of landscape materials.

9. ENVIRONMENTAL PROTECTION AND DOCUMENT CHECKING, AGENCY CONSULTING/REVIEW/APPROVAL SERVICES:

- 9.1 Research Federal, State, and municipal laws, regulations, and permits concerning design and construction controls for environmental protection of aesthetics, air, water, and land (See VA Master Specification 01568, Environmental Protection). VA will sign permits and pay any fees. Investigate the following regulatory categories:
- A. Storm water permits e.g. NPDES,
 - B. Pollution control and solid waste disposal,
 - C. Erosion control and protection of land resources,
 - D. Protection of landscape, and
 - E. Protection of water resources, wetlands, and areas preserved for wildlife.
- 9.2 Prepare any required written reports, forms, and graphics.
- 9.3 Submit permit forms on behalf of the government.
- 9.4 Represent the government at agency and community meetings.
- 9.5 Ensure that the drawings and specifications include necessary information to mitigate any adverse environmental impacts. Ensure that:
- A. Surface water, during and after construction, will not adversely impact the site or areas down stream from the site;
 - B. Grading, seeding, erosion control measures, and storm sewers are used to avoid the above;
 - C. Air and noise pollution is minimized;
 - D. Destruction of land resources is minimized; and
 - E. Interference with the normal function of the VA facility and the surrounding community during construction is minimized.

10. CONSTRUCTION SITE PREPARATION:

- 10.1 General: Provide the level of detail for indicated site and landscape elements to be demolished that is consistent with the degree of completeness of the drawings being submitted. On the Schematic design phase demolition, indicate those major elements shown on existing VA facilities site plans that will affect the project cost estimate. After the required site surveys are procured, the elements will be shown in detail on the site preparation plan. These drawings shall be a screen-down of the survey photographic prints.
- 10.2 Provide construction site preparation design showing the following:
- A. Area of construction, surface objects to be cleared, grubbed, and removed, topsoil stripping, trees, shrubs, stumps, fencing, foundations, incidental structures, and other protruding obstructions planned for demolition and removal.

- B. Site and landscape surface elements to remain and be preserved from injury or defacement. Do not include mechanical and electrical elements. These are shown on their respective discipline classified drawings (see Design and Construction Procedures).
- C. Refinement of the Final Schematic environmental components referenced in Article 7, para. 7.8.I. and Article 9.
- D. Construction phasing including:
 - 1. Contractor's staging area;
 - 2. Construction sign location (see VA Architectural Standard Detail 01010-1, PG-18-4);
 - 3. Provisions for a temporary construction fence enclosing the construction site and contractor's staging area (see VA Master Specifications, General Requirements);
 - 4. Construction limits and construction access;
 - 5. Stockpiles for stripped topsoil, earthwork borrow, and waste;
 - 6. Temporary phasing solutions to maintain existing facility operations and avoid unnecessary construction conflicts (see VA Program Guide PG-18-15, Critical Path Method (CPM), Article, Phasing Requirements).

11. SITE DEVELOPMENT:

- 11.1 Insure that the building property line setbacks are consistent with adjacent structures and local codes.
- 11.2 Provide a circular driveway to the building drop-off with access to the parking areas. The drop-off shall have canopy cover designed to accommodate a public bus (see Architectural Design Manual, Exterior Entrances and Platforms).
- 11.3 When locating the proposed building, structure, and equipment locations, consider topography, adjacent facilities, environmental impacts, and future development to produce a design that is functional and aesthetically successful.
- 11.4 Locate transformers, cooling towers, generators and other equipment in accordance with VA Construction Standards and other VA technical Design Manuals. When possible, locate this equipment on the interior or on the roof of the new buildings. When this is not possible, provide landscape planting, grading, architectural screening, or fencing of equipment for patient and personnel protection.
- 11.5 Design patient exterior areas that are conveniently accessible from the building without vehicular crossings and are oriented to the most favorable site climatic conditions.
- 11.6 Provide a separate circulation systems for vehicular service and patient/visitor traffic.
- 11.7 Consider impacts on existing natural and man-made storm water drainage patterns and systems. VA is committed to the control of storm water by the Federal Water Pollution Control Act, the Federal Flood Disaster Protection Act, and other Environmental

Protection Agency (EPA) regulations that are implemented by Federal, State, and municipal jurisdictions (see Article 9 and the VA Sanitary Design Manual, Sanitary and Storm Drainage Systems).

- 11.8 Insure that construction causes minimal interference with the normal function of VA facility and surrounding community (see Program Guide PG-18-15, Critical Path Method (CPM), Article, Phasing Requirements).
- 11.9 Locate at least one flagpole near the administration building or near the public main entrance to the facility for displaying the U.S. Flag.
- 11.10 Provide necessary data and coordinate VA compliance with FAA Regulations for obstructions to air navigation, constructing heliports, and other navigable air space regulations (see Advisory Circulars 70/7460-1H, Obstruction Marking and Lighting, 70/7460-2I, Proposed Construction or Alteration of Objects That May Affect Navigable Airspace, and 150/5390-2A, Heliport Design). Federal Aviation Administration (FAA) Advisory Circulars are available free of charge and only written requests for publications are accepted: Write or FAX:

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12. GRADING DESIGN:

- 12.1 Prepare separate grading drawings based on refinements to the final schematic. Include earthwork cut and fill 1500 mm (5 feet) beyond new building wall perimeters, surface drainage design, pavement grading, and other spot elevations at critical design areas. Coordinate surface grades with architectural, structural, and mechanical design to provide proper surface drainage. Storm sewer criteria is specified in the Sanitary Design Manual.
- 12.2 Consult soil classification data in the subsurface investigation (geotechnical report), required by the Structural Engineering Design Manual.
- 12.3 Use contours at a maximum interval of 500 mm (two feet) to show grading of the entire project site. Utilize spot elevations as control points.
- 12.4 Show any temporary (construction period) or permanent erosion control.
- 12.5 Provide minimum vertical clearances of 2900 mm (9'-6") at loading zones, parking structure spaces, and along vehicle access routes.
- 12.6 Include on the grading drawings:
 - A. Bench Mark location;
 - B. Spot elevations at structure corners, entrances, all first floor elevations of new buildings and, if appropriate, of existing buildings.
 - C. Spot elevations of all walks and paved surfaces, corners in parking lots, high and low points, top and bottom of walls, steps, curbs, and other critical site features.
 - D. Accessible routes used by people with disabilities.
 - E. Flow lines/center lines of drainage ways with slope gradient.
 - F. Intake elevations of all storm drainage elements. Show all utility storm sewerage new work on "W" Drawings.
 - G. The established grading limits.
 - H. The quantity of rock excavation, if required, for the site grading.
 - I. Non-utility shoring required by major site excavation.
 - J. Profiles of roads, including:
 1. All changes in grade connected by parabolic vertical curves of such lengths as to provide safe stopping and sight distance. Minimize vertical curves between relatively flat grades to ensure proper drainage. Avoid sharp horizontal curves at the apex of peak vertical curves.
 2. Vertical curve data consisting of:
 - a. Total length of curve (L);
 - b. Stationing at the point of vertical curve (PVC), point of vertical tangent intersection (PVI), point of

- vertical tangent (PVT), low point (LP), and high point (HP) of the curve;
- c. Curve elevations for all stations in **b** above;
- d. Tangent gradients; and
- e. Vertical curve number for identification.

12.7 Grading guidelines:

<u>Condition</u>	<u>Maximum Slope</u>	<u>Minimum Slope</u>	<u>Preferred</u>
Lawns	25% 4:1 a	2% 50:1	2- 10%
Turf athletic area	2% 50:1	0.5% 200:1	1%
Berms and mounds	20% 5:1	5% 20:1	
Mowed slopes	25% 4:1 a		20%
Planted slopes and Beds	10% 10:1	0.5% 200:1	3-5% b
Road crown	3% 33.3:1	2% 50:1	2.5%
Roads, longitudinal*	20% 5:1	0.5% 200:1	1-10%
Walks, longitudinal	10% 10:1	0.5% 200:1	1-5%
Parking, longitudinal	5% 20:1	0.25% 400:1	2-3%

- a. The maximum slope for mowing machinery is 25%.
- b. Slopes over 6% should have erosion protection.
- c. Accessible routes used by people with disabilities shall conform to the criteria of Article 2, paragraph 2.4 of this Design Manual.

* Payload is drastically reduced on heavy trucks sustaining grades over 3%. Ideal maximum sustained grade for safe operation of trucks and automobiles is 6%. On roads subject to frequent icing and winter conditions, the maximum sustained grade is 5%.

13. LAYOUT DESIGN:

13.1 General: Provide complete dimensioned layouts for vehicular and pedestrian pavement, structures, and other components of the site and landscape design. Establish control for the layout by a base control line with dimensions from this line. Small scope projects may use property lines for control. Larger projects require coordinates on a grid system (see VA Program Guide PG-18-4).

13.2 Include on the layout drawings:

- A. Beginning point.
- B. Dimension, angles, coordinates, and curve data for:
 1. Roads, walks, ramps, walls, fences, landscape components and accessories, curb ramps, lawn mower crossings, corners of buildings, entrances and other critical elements.
 2. Storm drainage inlets, detention ponds, open drainage systems, and other surface storm water management components.
 3. Service areas and docks.
 4. Parking areas, parking striping and other pavement marking.

5. Existing buildings and other structures to remain within the project area.
 6. Exterior signage system.
- C. Road alignment including:
1. Horizontal curve data:
 - a. Included angle (I)
 - b. Radius (R);
 - c. Tangent distance (T);
 - d. Length of curve (L);
 - e. Station points for PC and PT;
 - f. Bearings for tangent lines;
 - g. Length and bearing of chord (C); and
 - h. Horizontal curve number for identification.
 2. Road centerline with stations and station references for locating main building entrances, service drives, drainage inlets and other site features.
- D. Where applicable, provide horizontal and vertical curve data for extensive walk layouts.

14. DESIGN OF VEHICULAR AND PEDESTRIAN PAVEMENT:

- 14.1 General: Design the pavement to reflect topography, soils, climate, local materials, function, and other requirements and specific situations. Provide sufficient details to construct all pavement elements. Consider local materials and design details. Use Program Guide PG-18-4 as a guide for developing details.
- 14.2 Public Road Intersections: Intersection design of VA roads with public roads must receive joint approval of VA Office of Facilities Management and the local municipal authorities.
- 14.3 Pavement Construction:
- A. Design pavement sections of all roads, service areas, fire apparatus vehicle accessibility areas, and parking areas for the maximum anticipated traffic loads and existing soil conditions.
 - B. Construct service areas for bulk oxygen storage, laundries, warehouses, kitchens, canteens, utility buildings, and similar facilities of reinforced concrete.
 - C. Where required, provide a concrete paving joint pattern plan and details.
 - D. Construct roads and surface parking of asphaltic concrete.
 - E. Principal roads and primary service roads should be 7200 mm (24'-0") wide between faces of curbs. Secondary service roads should be 3600 mm (12'-0") between faces of curbs.
- 14.4 Curbs and Gutter: Design all roads with integral concrete curbs and gutters. Substitute free-standing curbs only when justified.
- A. Curb Radii: The radii of curbs at road intersections should be 9000 mm (30'-0"), preferred; 7500 mm (25'-0"), minimum.

- B. Curb Ramps (Curb Cuts): Provide curb ramps to accommodate people with disabilities as well as lawn mowers.
- 14.5 Pavement Marking: Provide locations and details of pavement stripping for parking, roadways, crosswalks, areas restricted to people with disabilities, and other special areas.
- 14.6 Pedestrian Pavement Construction:
- A. Design walkways to provide clearly defined, unobstructed, direct routes through the site, interconnecting site and building entryways, curb ramps, parking areas, pedestrian landscaped features, such as, open area plazas, courts, atriums and other site elements.
 - B. New pavement material should be compatible with and complement the existing installations.
 - C. Construct walks of concrete. Reinforce the concrete pavement if subbase conditions warrant. Where pedestrian and vehicular pavement meet, thicken the subbase material.
 - D. Pedestrian wearing course material may be rigid unit pavers (bricks, stone set's, concrete units, large paving slabs, etc.). To facilitate use by people with disabilities, design a rigid base of concrete or asphaltic concrete beneath pavers.
 - E. Walks should be at least 1500 mm (60 inches wide), except 2400 mm (96 inches) minimum where abutting parking stalls.
 - F. Design walks to accommodate people with disabilities. Eliminate steps unless unavoidable (see paragraph 2.4).
15. **ENTRANCES TO BUILDING:** Analyze special requirements for entrances to buildings based on the requirements in the Architectural Design Manual, Exterior Entrances and Platforms. Particular reference is made to complying with vertical clearances of buildings and canopies over roadways and vehicular access areas, and snow melting requirements at specific entrances.
16. **TRUCK DOCK DESIGN:** Design adequate space for truck maneuverability and parking of facility equipment, including trash dumpsters. Provide for the protection of freight and personnel from the weather. VA facility will provide information on volume of truck activity and projection of future activity (see Architectural Design Manual, Exterior Entrances and Platforms).
17. **PARKING FACILITIES (SURFACE AND STRUCTURE):**
- 17.1 Provide compact car parking in employee areas of parking lots and garages. VA facility will provide information on number of required spaces (see Article 4).

17.2 Acceptable dimensions for 90 degrees parking angle are as follows:

	Minimum Bay Width	Minimum Stall Width
If cars overhang curbs on both sides	18 000 mm (60'-0")	2550 mm (8'-6")
	17 700 mm (59'-0")	2625 mm (8'-9")
	17 400 mm (58'-0")	2700 mm (9'-0")
If cars overhang curbs on one side	18 800 mm (62'-6")	2550 mm (8'-6")
	18 500 mm (61'-6")	2625 mm (8'-9")
	18 200 mm (60'-6")	2700 mm (9'-0")
If cars will not overhang either curb or will be parked in the center bumper to bumper	19 500 mm (65'-0")	2550 mm (8'-6")
	19 200 mm (64'-0")	2625 mm (8'-9")
	18 900 mm (63'-0")	2700 mm (9'-0")

17.3 Parking at angles other than 90 degrees may be used only when justifiable. Written request shall be submitted to Contracting Officer for deviation.

17.4 Design parking facilities to accommodate people with disabilities. The required minimum number of accessible parking spaces shall comply with Article 2, para. 2.4 and Article 4.

17.5 Project Statement of Task that require a new parking structure shall include automated paid parking gates for all surface parking lots (existing and new) and existing parking structures. For projects not requiring a new parking structure, provide gates accommodations for future installation in new surface parking lots.

18. EQUIPMENT PADS:

18.1 Locate the bulk oxygen storage pad, preferably, adjacent to the service area, easily accessible to trucks, and well screened. The location shall comply with the local safety codes and NFPA Standard Nos. 50 and 99. Construct the oxygen storage and delivery vehicular parking area of reinforced concrete. Enclose the storage area with a chain link fence and gate.

18.2 Locate transformers, cooling towers, generators, gaseous tank storage and other equipment pads in accordance with VA requirements. To prevent injury to patients and personnel, enclose pad area with chain link fencing.

19. LANDSCAPING DESIGN:

19.1 General: Integrate the landscape planting design with the overall design of the site. The landscape planting shall compliment the architecture, preserve designated site features, facilitate vehicular and pedestrian access, create open areas and vegetative screens, and consist of plant material that promotes sustainable plants.

19.2 Enhance established design and historical character of existing buildings and landscapes. The design should be an outgrowth of

site function and building massing. Site, building, and landscape should reflect an integrated concept.

- 19.3 Select plants that are indigenous to the area, require little maintenance, and are disease and insect resistant. Select plant material that is nursery propagated from sources as close as practicable to the project area, indigenous to the area, locally available, low maintenance, and disease and insect resistant. Plant materials shall conform to the standardized system of the American Association of Nurserymen, Inc. current American Standards for Nursery Stock, ANSI Z60.1.
- 19.4 Do not select plants for patient areas that are poisonous, highly aromatic, irritating, or thorny. In parking and pedestrian areas avoid plants that drop fruit or sap. Locate plants so they do not interfere with driver or pedestrian visibility, circulation, and safety.
- 19.5 Plant bed outlines curvature shall have minimum radii of 1000 mm (3 feet). Design lawn areas to facilitate maintenance.
- 19.6 Provide metallic edging or concrete curbs around shrub beds (essential where Bermuda or similar grasses are grown).
- 19.7 Utilize ground cover on slopes steeper than 3:1, i.e. 900 mm horizontally to 300 mm vertically (3 feet to 1 foot).
- 19.8 Include on landscape drawings:
 - A. A planting plan showing the location of all the landscape elements. Show special landscaped features, such as, open area plazas, courts, atriums, entryways and other various exterior/interior elements. Indicate the proposed materials to be used for each element (see Article 14, para. 14.6A and 14.6D).
 - B. All plant material with the spread they will attain at maturity.
 - C. Outline of shrub planting beds to receive edging.
 - D. Existing plants to be removed, transplanted, or to remain.
 - E. Lawn limits.
 - F. A complete plant list giving key number, botanical name, common name, condition, size, quantity, and special characteristics required.
 - G. Areas to be irrigated and the quantity of water in inches per hour. Design requirements for the irrigation system are indicated in the Sanitary Design Manual.
 - H. Details for all the landscape elements.

20. **EXTERIOR SIGNAGE:** Indicate the location of the exterior signage on the contract drawings. Use Environmental Graphics Design Program Guide for development of exterior signage components. The VA will furnish exterior signage details at the first drawing review.
21. **SITE ENGINEERING AND LANDSCAPING SPECIFICATIONS:** Edit the specifications but do not type them, until directed by the project manager. Include specifications, other than VA, that are referenced in the construction documents. Return all drafts.
22. **SITE AND LANDSCAPE DEVELOPMENT ESTIMATE:** In the estimate, include all the work covered by the design documents, except building excavation and trench work outside of the building walls. Refer to VA Program Guide PG-18-15, Estimate Submission Requirements.
23. **APPLICABLE DESIGN AND CONSTRUCTION PROCEDURES (PG-18-3) INDEX:**
Use the current list of Topics pertaining to the site work.

PG-18-3 DESIGN AND CONSTRUCTION PROCEDURES, NATURAL DISASTERS NON-STRUCTURAL RESISTIVE DESIGN (FORMERLY CD-54)

24. **SITE ENGINEERING AND LANDSCAPING STANDARD DETAILS INDEX:** Details not provided as a hard copy with this A/E Package may be obtained at the first review.

<u>TITLE</u>	<u>DETAIL</u>	<u>DATE</u>
RAMP FOR DISABLED PERSONE	02514-1	JUN 01
CURB RAMP	02514-2	JUN 01
PARKING STALL LAYOUT	02514-3	JUN 01
COMBINATION CURB-WHEEL STOP	02577-1	JUN 01
MOUNTABLE CONCRETE CURB AND GUTTER	02577-2	JUN 01

25. **APPLICABLE SITE ENGINEERING AND LANDSCAPING MASTER SPECIFICATIONS INDEX:**

<u>TITLE</u>	<u>SECTION</u>	<u>DATE</u>
<u>DIVISION 1-GENERAL REQUIREMENTS</u>		
ENVIRONMENTAL PROTECTION	01568	OCT 02
<u>DIVISION 2-SITE WORK</u>		
EARTHWORK	02200	NOV 02
EARTHWORK (SHORT FORM)	02201	SEP 04
CHAIN LINK FENCE AND GATES	02444	FEB 04

LANDSCAPING	02480	AUG 01
ASPHALTIC CONCRETE PAVING	02513	AUG 01
SITE WORK CONCRETE	02514	AUG 01
PAVEMENT MARKING	02577	FEB 03
<u>DIVISION 10-SPECIALTIES</u>		
EXTERIOR SIGNAGE	10430	JUN 00

- END -