

# BASE EXTERIOR ARCHITECTURE PLAN



Marine Corps Base  
Quantico, Virginia  
November 2000  
Revised March 2008

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## Executive Summary

The Base Exterior Architecture Plan (BEAP) for the Marine Corps Base (MCB) Quantico is being developed in conjunction with the revision of the Master Plan. The BEAP provides guidance to improve the visual environment of the Base by coordinating the design and development of all manmade and natural elements. Design guidelines established in the BEAP are intended to direct and control the style and quality of all renovations and new construction. Existing development and elements that detract from the visual character may be replaced or improved to conform to the guidelines.

The visual environment is a critical part of the identity of the Base. Improving the visual quality of the Base benefits military and civilian employees, residents and visitors. A cohesive, well-planned visual character presents a positive image to visitors and the surrounding community. It enhances pride and professionalism on the Base, boosts recruiting and retention and improves community relationships.

The BEAP was begun by establishing existing conditions on the Base. A "Visual Survey and Functional Analysis" of the various discrete areas or development districts was undertaken. The general character of the development was recorded along with specific deficiencies noticed. Each district is described under the following areas:

- Architecture and Landscape
- Parking and Circulation
- Site Elements

The existing conditions were taken into account to create the overall "Design Guidelines" for the Base. The design guidelines include:

- Architecture - General rules and concepts for massing and facade composition;
- Landscape Architecture - A plant palette and guidelines for selection, installation and maintenance of plant material;
- Circulation and Parking - Concepts and considerations for planning and improving vehicular and pedestrian circulation; guidelines for planning parking lots;
- Outdoor lighting - Guidelines for selecting and locating lighting fixtures;
- Signage - Materials and style of various types of signage;
- Site Elements - Guidelines for selecting and locating site elements including benches, trash receptacles, bicycle racks and bus shelters with examples of appropriate styles and designs;
- Utilities - Considerations for siting and installing of equipment;
- Security - Considerations for protection of assets and appropriate style of elements such as fences, gates and gatehouses;

Since the predominant architectural style on Mainside is Georgian, the design guidelines are tailored to match this style. Certain development districts have distinctly different characters, such as the Chopawamsic Annex, the Family Housing District and the Guadalcanal side of the Base. The architectural guidelines for these districts are defined in separate sections.

Four areas that needed more attention in planning and design were selected as "Priority Projects". Additionally, a number of projects were identified in high visibility areas that need improvement of the visual environment. These are listed for future consideration as priority projects. The priority project areas have been studied in greater detail and conceptual plans with detail designs for selected areas have been developed. The four priority projects are:

- Barnett Avenue - Barnett Avenue functions as the main street of Mainside. The streetscape was originally designed as a boulevard with street trees, sidewalks and lampposts. Over the years, the street has been widened and extended without a long range plan. The conceptual design developed for Barnett Avenue unifies the streetscape of the two parts of the street - the boulevard and the addition. It also emphasizes key intersections and establishes the character of open spaces along the street.
- South Gate - The South Gate is the primary access to the Exchange and other commercial facilities located along Russell Road. The commercial facilities and their parking lots need to be buffered from Russell Road. Enhancement of the building facade of the Marine Corps Exchange (MCX) is also proposed. An option to relocate the South Gate to segregate traffic entering the Base from that accessing the MCX Center was also explored.
- Camp Barrett - Camp Barrett mainly consists of training and related facilities for The Basic School (TBS). The goal of the proposed improvements is to establish a campus setting and enhance the visual character of Camp Barrett to portray its academic function.
- Weapons Training Battalion/ C. A. Lloyd Range - The main goals of the improvements proposed at the Weapons Training Battalion area are to establish a campus green in place of the large central parking lot, to relocate the main parking lot closer to the entrance and to emphasize the entrance area and route to the headquarters building using trees and vegetation.

To help implement the BEAP, the creation of a Facilities Review Board within MCB Quantico Public Works is recommended. The BEAP guidelines will apply to all new construction and major renovation projects, including those generated in conjunction with other Base planning documents. The standards set by the BEAP will help to ensure that the existing visual character is preserved and enhanced.

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## 1.0 Introduction

This report presents the Base Exterior Architecture Plan (BEAP) for the Marine Corps Base (MCB) Quantico, Virginia. This section describes the background, purpose and scope of the plan.

### 1.1 Background and Purpose

According to the NAVFAC E1, a Base Exterior Architecture Plan (BEAP) is an element of a shore facility's Comprehensive Master Plan. It provides a set of standards and criteria for the design and development of all natural and manmade exterior elements. The BEAP is normally updated in conjunction with the Master Plan. However, it is a stand alone document so that it may be updated at any time that the facility has a need. <sup>1</sup>

The visual environment is a critical part of the identity of the Base. Improving the visual quality of the Base benefits military and civilian employees, residents and visitors. A cohesive, well-planned visual character presents a positive image to visitors and the surrounding community. It enhances pride and professionalism on the Base, boosts recruiting and retention and improves community relationships.

To help guide the long-term development of the Base, MCB Quantico has undertaken the task of revising its Master Plan. The plan was previously revised in 1994. Since that time, significant development has occurred on the Base, mostly as discrete or individual projects. The lack of an overall plan to coordinate the architectural and landscape development has resulted in many different styles, colors and materials being used within a single area.

The BEAP is being developed to provide guidance to improve the visual environment of the Base. Design guidelines are established for architecture, landscape and site elements. These guidelines can help to direct and control the style and quality of new construction and renovation. Existing development and elements that detract from the visual character may be replaced or improved to conform to the guidelines. The standards set by the BEAP will help to ensure that the existing visual character is preserved and enhanced.

### 1.2 Scope

The BEAP was begun by establishing existing conditions on the Base by carrying out a visual survey and functional analysis of the various discrete

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<sup>1</sup> NAVFAC E1

areas or development districts. The general character of the development was recorded along with specific deficiencies noticed. The existing conditions helped to create the overall design guidelines for the Base. The guidelines for architecture, landscape architecture, outdoor lighting and signage are based on those established in previous versions of the MCB Quantico Master Plan. New guidelines were developed for parking and circulation, site elements, utilities and security. Four areas that needed more attention in planning and design were selected as priority projects. The priority project areas have been studied in greater detail and conceptual plans with detail designs for selected areas have been developed.

The BEAP is organized as follows:

- **Section 2.0 - Visual Survey and Functional Analysis** : describes the site characteristics, history of development, boundaries, access points and circulation system of the entire Base, followed by a description of each development district.
- **Section 3.0 - Design Guidelines** : describes guidelines for architecture, landscape architecture, parking and circulation, outdoor lighting, signage, site elements, utilities and security.
- **Section 4.0 - Priority Projects** : identifies a number of areas of the Base that need improvement of the visual environment and describes existing conditions, proposed concept and improvements for four of these areas.
- **Section 5.0 - Implementation** : describes the recommended process for implementing the BEAP and the relationship of the BEAP with other current planning documents of the Base.

## 2 . 0      Visual Survey and Functional Analysis

This chapter describes the existing visual environment and analyzes the functional and perceived relationships between various site elements and conditions. This information was gathered by a visual survey consisting of a facility reconnaissance, review of current planning documents including master plans for various areas of the Base, and interviews with Base personnel from Public Works, Facilities Maintenance and other departments.

### 2 . 1      Site Characteristics

MCB Quantico lies on the west bank of the Potomac River, 35 miles south of Washington, D.C. and 20 miles north of Fredericksburg, Virginia (*Figure 2-1*). The Base is bound on the east by the Potomac River and on the northeast by Prince William Forest Park, a unit of the National Park Service. Various transactions over the years have resulted in a current net land area of 55,620.76 acres. In addition to the land owned by MCB Quantico, another 4,862 acres is located in the vicinity of Breckinridge Reservoir and owned by the Department of the Interior. This property is currently utilized by the Base through a Special Use Permit.

MCB Quantico is located within three counties: Prince William County, Stafford County and Fauquier County. The Base landholdings are divided between these counties with 40% in Prince William County, 55% in Stafford County and 5% in Fauquier County. The majority of the land surrounding the Base is rural residential or suburban in nature, with relatively small urban centers. Each county has experienced significant growth over the past decade, and the suburbanization of each of these counties is expected to continue.

The Base is bisected by U.S. Route 1 and Interstate 95 (I-95), with the area to the east known as Mainside and the areas to the west collectively known as Guadalcanal (*Figure 2-2*). Nearby communities include Triangle, Dumfries, Woodbridge, Dale City, Garrisonville, Stafford and the Town of Quantico. Except for a short stretch of river frontage, the Town of Quantico is entirely surrounded by the Base. CSX/Amtrak train tracks traverse Mainside. Amtrak and the Virginia Railway Express (VRE) both stop in the Town of Quantico.

The Base population consists of MCB Quantico personnel and a multitude of tenants, both military and non-military. On Mainside the major functions include: administrative; academic training; research, development, test and evaluation; housing and community support; storage and public works. Guadalcanal is primarily used for operational

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training and ordnance storage, and is also home to the Federal Bureau of Investigation (FBI) Academy and The Department of Justice's Drug Enforcement Agency (DEA) Office of Training.

The physical environment, development pattern and functional relationships differ considerably between the Mainside and Guadalcanal side of the Base. Mainside is more urban in character and is densely developed and populated. Roads are wider and some intersections are signalized. There is a small volume of pedestrian and bicycle traffic. Most of Guadalcanal is forested with pockets of development. Roads are rural in character and no sidewalks are provided outside the development centers.

## **2 . 2                    History of Development**

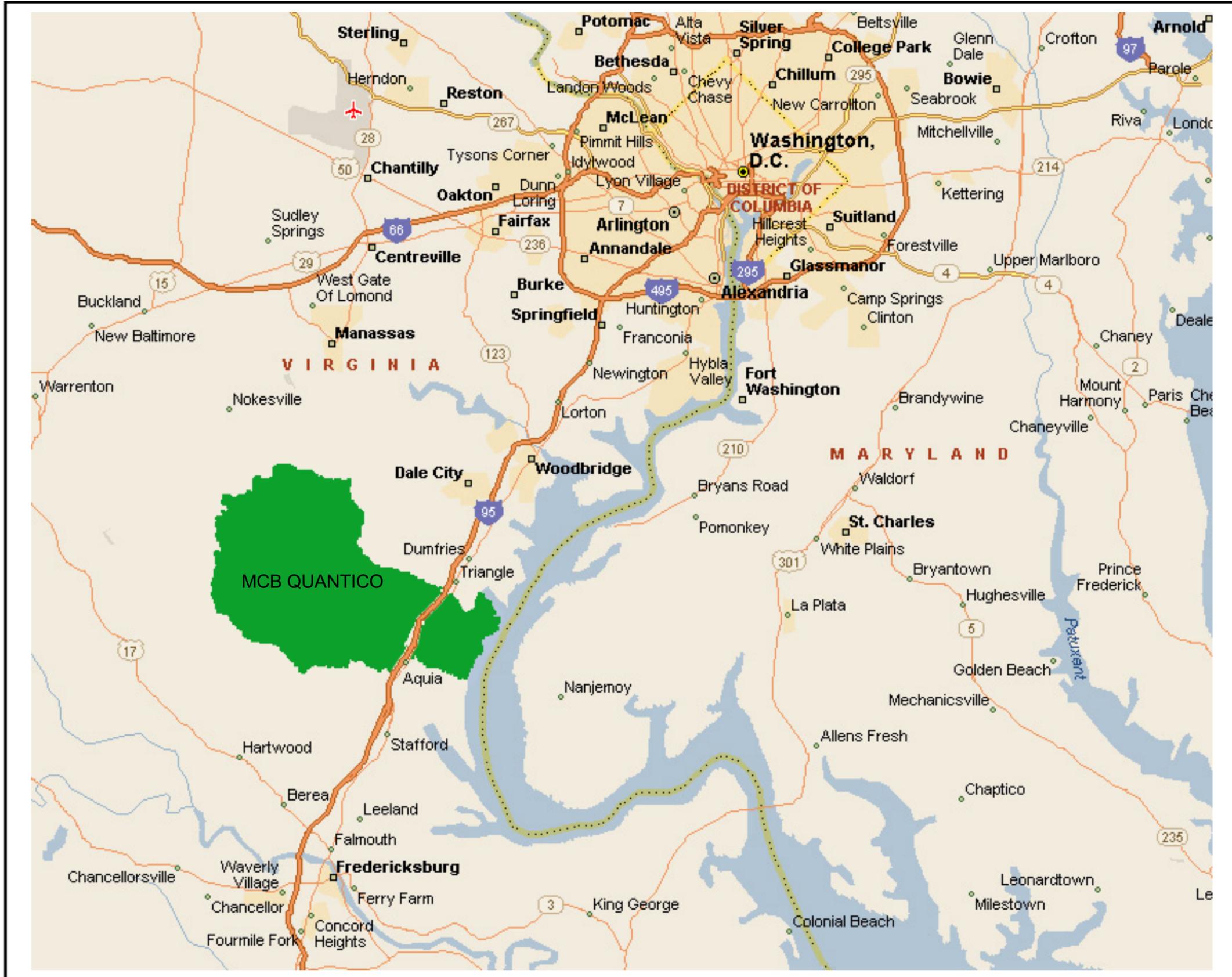
MCB Quantico's military history began in 1917 when 5,300 acres adjacent to the Town of Quantico were leased by the federal government from The Quantico Company. The intent was to provide an area to train Marines for World War I. In July of 1918, Congress authorized the purchase of the land at a cost of \$475,000.

In 1921, the Marine Corps Schools were formally established and provided both vocational and technical training to Marines at various stages of their careers. During the same period, the Schools developed a particular expertise in amphibious warfare techniques that soon became the basis for many of the amphibious operations and techniques executed during WWII.

With the outbreak of WWII, Quantico's mission changed to the training of Marine personnel in addition to amphibious warfare training. Prior to the War, there were only 2,000 active duty Marines at MCB Quantico. By the War's end, that number increased to 37,000.

To accommodate the tremendous increase in required manpower, additional land and facilities were needed at Quantico. In 1943, approximately 51,000 acres of land were acquired west of U.S. Route 1 to provide live-fire-training opportunities. Further development of Guadalcanal occurred during the Korean Conflict when Camps Goettge, Upshur and Barrett were built. Camp Upshur and Barrett still exist. Camp Goettge was dismantled and the site is currently used for training by the Marine Corps Assault Breachers School.

On January 01, 1968, the Marine Corps Base at Quantico officially became the Marine Corps Development and Education Command (MCDEC). On November 10, 1987, the name was changed to the Marine Corps Combat Development Command (MCCDC). These designations reflect the Base's combined mission of training, research and development.



MCB  
QUANTICO



LOCATION MAP

- Interstate Highway
- Limited Access Highway
- Other Highway
- Interstate Highway
- U.S. Highway
- State Highway
- County Highway
- International Airport

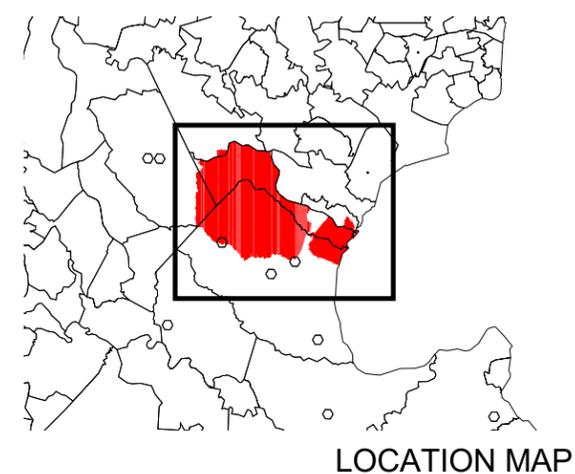
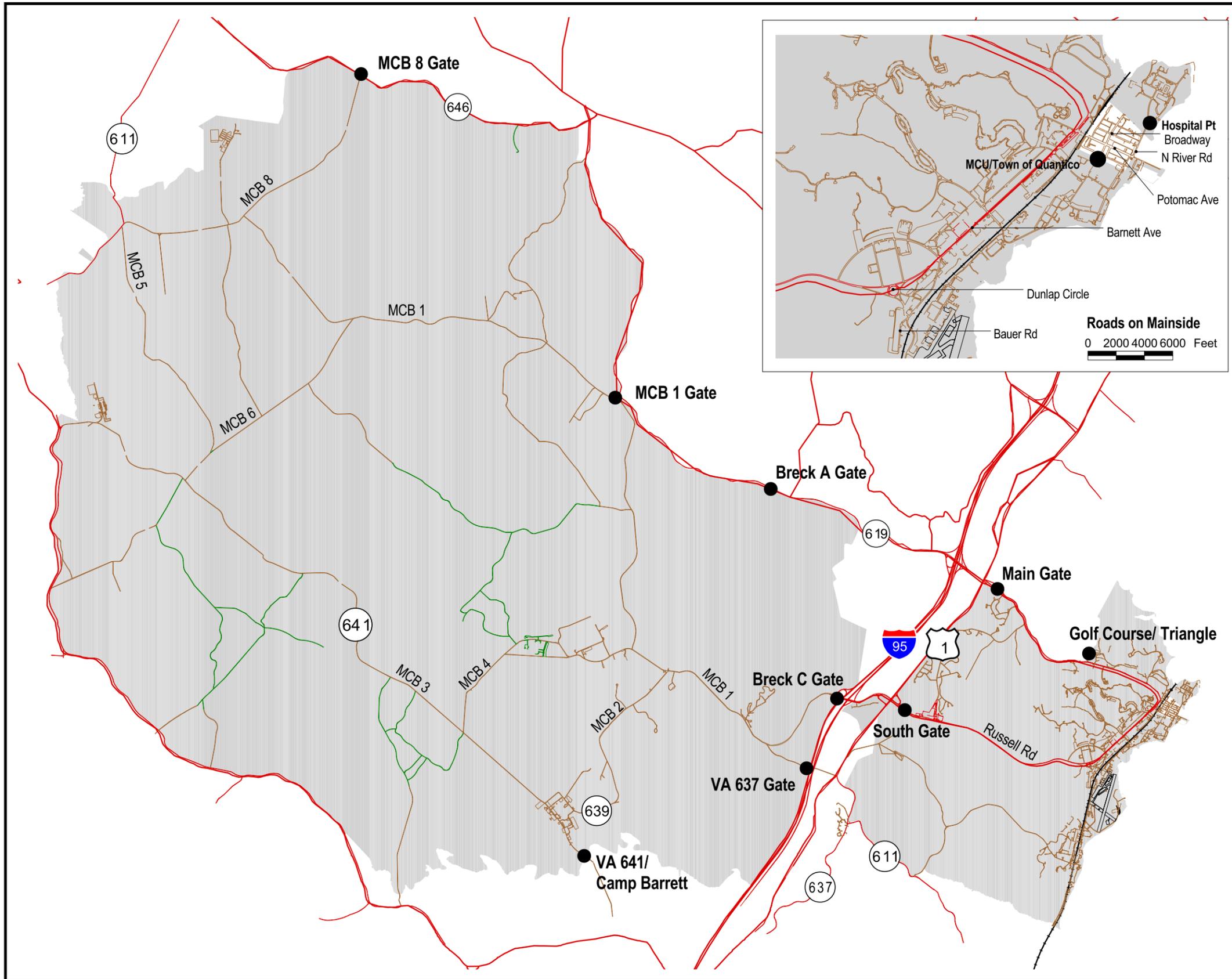
FIGURE 2 - 1

**REGIONAL LOCATION**

Source of Map Data : Microsoft MapPoint 2000 & The Onyx Group

0 20000 40000 60000 Feet





LOCATION MAP

- Access Points
- ▬ Primary Road
- ▬ Secondary Road
- ▬ Tertiary Road

**FIGURE 2 - 2**  
**ROADS & ACCESS POINTS**

Source of Map Data : MCB Quantico, NREA & The Onyx Group



As part of the MCCDC organization, the MCB Quantico command is tasked with providing functional support for the execution of the overall MCCDC mission including the provision of personnel administration, facilities, logistics, financial, security, safety, public information, legal, base operations, training, administration, morale, welfare and recreation support for organic and tenant organizations.

### 2.3 Circulation

The primary mode of transportation on the Base is by private vehicles. There is a small volume of pedestrian and bicycle traffic, but most of it is for exercise or recreation.

The primary vehicular circulation route on Mainside is formed by Fuller Road, Barnett Avenue and Russell Road (Figure 22). Fuller Road and Russell Road are two-lane roads and carry fast moving traffic. The shoulders are used for running/ bicycle lanes. No sidewalks or medians are provided. Barnett Avenue forms the backbone of Mainside. It passes through the administrative core of Mainside and cross streets lead to outlying areas. Some of these streets carry considerable traffic, including Bauer Road leading to the Marine Corps Air Facility (MCAF), Larson's Gym and Officer Candidates School (OCS); Martin Street leading to the Marine Corps University (MCU); Potomac Avenue and North River Road leading to Hospital Point. Purvis Road connects Fuller Road and Russell Road and passes through the residential neighborhoods on Mainside.

Most streets on Mainside are provided with sidewalks and crosswalks facilitating pedestrian and bicycle circulation. Key intersections along Barnett Ave. are signalized and a median is provided for part of the street. Dunlap Circle is another key intersection along Barnett Avenue. It is a node and a monumental landscape feature. Although the circulation pattern here is somewhat confusing, it is valuable as a significant landscape feature.

On Guadalcanal, the various discrete areas of development are too scattered to be easily accessible on foot. Individual areas, including Camp Barrett, Camp Upshur and Weapons Training Battalion (WTBN), have local street systems with sidewalks and street trees. Outside these areas, the road network generally consists of two-lane roads carrying low traffic volumes and running through tracts of forests. Major roads include MCB 1, MCB 2, MCB 3, MCB 4 and MCB 8.

## 2.4 Boundaries and Access Points

Much of the perimeter of Mainside is delineated by chainlink fencing. The community edges are close to the boundaries and often visible through the fence. The boundary between the Town of Quantico and the Base runs along streets or between buildings and is secured by chainlink fencing. Signs are posted to indicate that the area is U.S. Marine Corps property.

### Mainside Boundaries and Gates

The most important access points to Mainside are the Main or North Gate on Fuller Road and the South Gate on Russell Road (Figure 22). These gates are manned and provide access to I-95 and U.S. Route 1.

The Main Gate encompasses a series of discrete areas that extend along Fuller Road, beginning with the Iwo Jima Memorial at the intersection with U.S. Route 1 followed by an arch and then a manned sentry post (as depicted in adjacent photos). Individually, these elements do not make an appropriate impact to signify the main entrance to the Base. They would create a powerful first impression if designed as a single area. A proposal exists to renovate the sentry post structure and to make connections between the various parts of the Main Gate using plantings. The proposed building style is closer to the Georgian style used on Mainside and is more appropriate than the existing building (Figure 2.3). Restriping and realigning the vehicular travel lanes is also proposed.

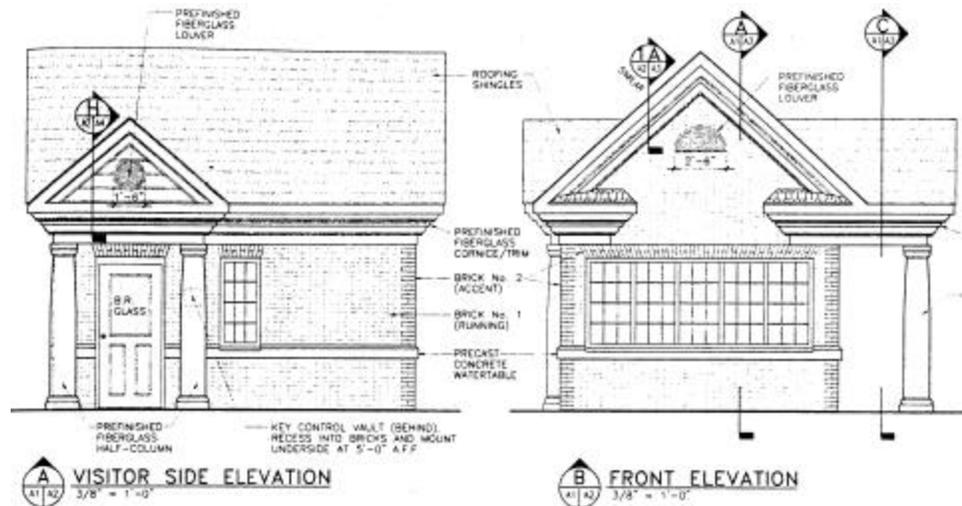


Figure 2-3 : Proposed Sentry Post Design



*Iwo Jima Memorial*



*Entrance Arch*



*Sentry Post*

*Main Gate*

VISUAL  
SURVEY &  
FUNCTIONAL  
ANALYSIS



*South Gate*



*Golf Course / Cardinal Heights Gate*



*Hospital Point Gate*



*MCU / Town of Quantico Gate*



*VA 641 Gate (Guadalcanal,*

*Other Gates*

The South Gate is less elaborate with only a manned sentry post and a signpost area (refer photo). This gate can also be enhanced to give the area an identifiable character. A proposal exists for the South Gate to renovate the sentry post building and add plantings in the area.

A gated entrance between the Base and the Cardinal Heights neighborhood in the adjacent community of Triangle is located off Fuller Road near the golf course (refer photo).

Entrances between the Town of Quantico and the Base are located at Hospital Point and on Broadway leading to the Marine Corps University (MCU). The Hospital Point gateway is an appealing structure in brick with a concrete coping (refer photo). No gate or hinged panels are provided. A chainlink gate serves the entrance to MCU (refer photo). The entrance on Potomac Ave. leads to the on-grade railroad crossing. Gates between the Town of Quantico and the Base are not manned. With the VRE/Amtrak station located in the Town of Quantico, access to the Base by train is through these gates.

#### Guadalcanal Boundaries and Gates

The fencing along the perimeter of the Guadalcanal area consists of barbed wire and signs are posted indicating it is U.S. Marine Corps (USMC) property or U.S. property. The area is densely forested and the boundary between the Base and other forested areas is often unclear. The fencing is not always well-maintained well and has gaps in some locations.

Main access points to Guadalcanal include gates on Russell Road, Marine Corps Base Road No. 1 (MCB 1), Virginia Route (VA) 637, VA 641, VA 646 and VA 619 (refer photo). These gates are not manned and are generally kept open. Signs indicate the end of State maintenance and identify restrictions on entering USMC property. There are a number of other entrances to Guadalcanal which are operated by Range Control and are generally secured due to range activities and proximity to live fire impact areas. Gates on Guadalcanal are less conspicuous than the ones on Mainside and easy to overlook.

Access is also restricted to ordnance storage areas and the FBI and DEA compounds. Although the principal entrances to the Guadalcanal side of the Base are not gated, the use of the roadways by the general public is not encouraged except for official business. This is enforced by periodic road closures at unmanned gates that restrict through access and military police spot checks whereby violators are charged with trespassing.

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## 2.5 Development Districts

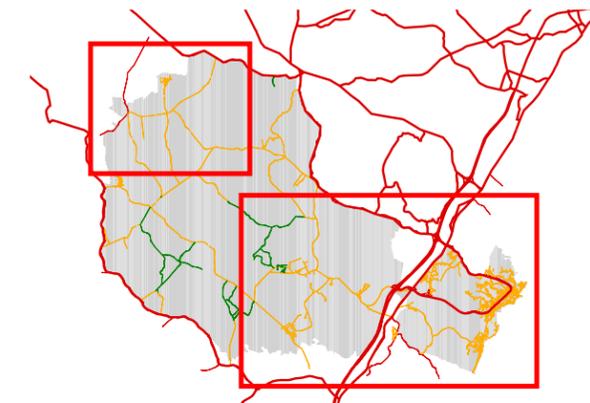
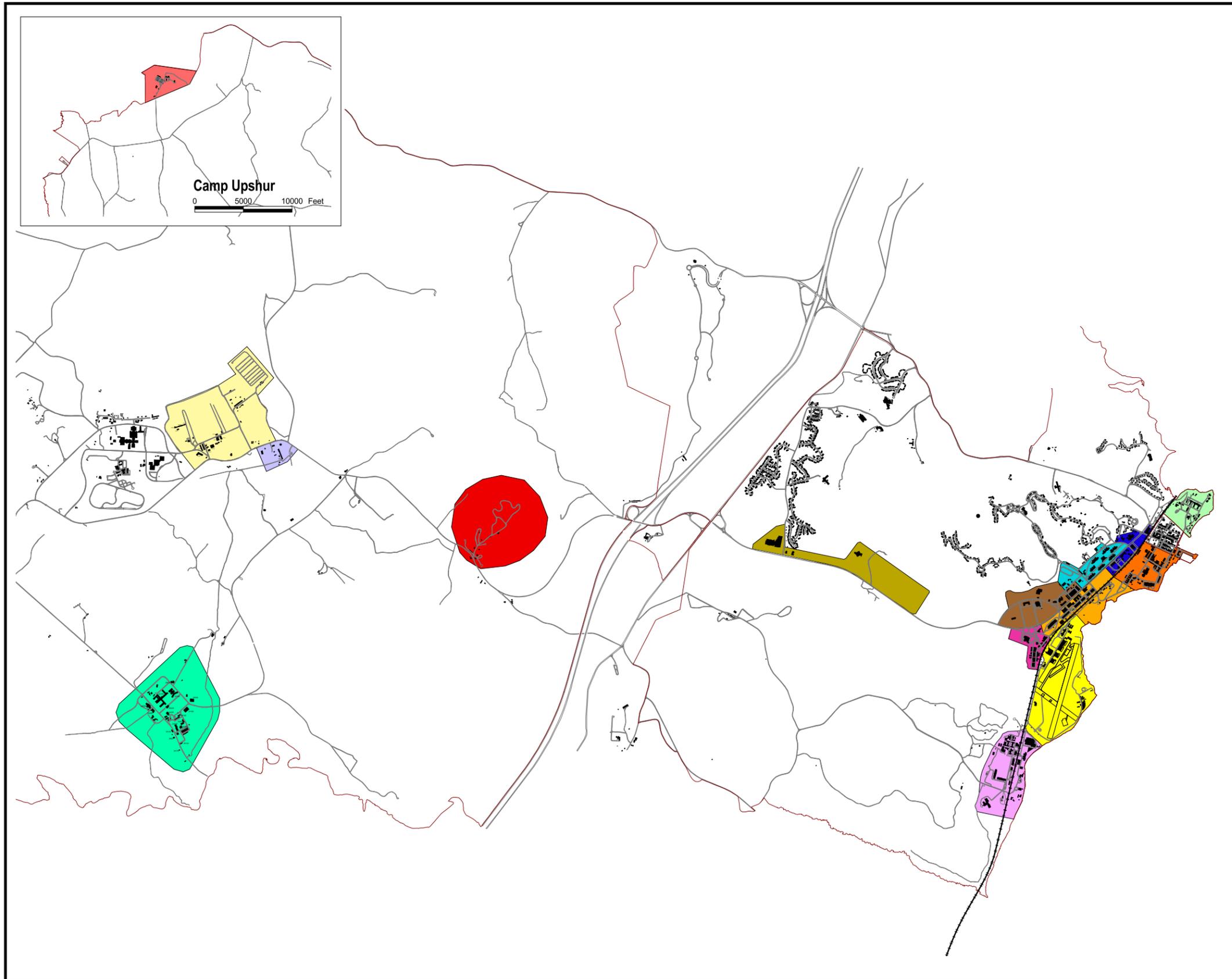
The Base development can be divided into discrete areas of significantly different character and function. A large proportion of MCB Quantico is forested, especially on Guadalcanal. The rest of the Base is defined into districts depending on the general pattern of development, physical environment and function (*Figure 2-4*).

### 2.5.1 Hospital Point

Hospital Point is a peninsula at the northeast tip of Mainside. The Potomac River borders the area to the north and the east. Hospital Point was the site of the Navy Hospital and Clinic from 1939 until the new Medical Clinic was constructed on Barnett Avenue in 1999. The buildings here were constructed to support the medical function, including a mental health facility and staff housing. The area has a unique identity and an appealing physical environment.

#### Architecture and Landscape

- Seven buildings at Hospital Point, including the medical clinic, have been determined to be eligible for inclusion in the National Register of Historic Places as part of the MCB Quantico Historic District. According to the National Register nomination, Buildings 2200, 2202, 2203 and 2204 are reflective of the Colonial Revival style. "Colonial Revival examples at Quantico are based on the hip-roofed type of the Georgian style, most commonly found in the southern colonies." In addition, Building 2201 (a heating plant built in 1940), Building 2201A (an administration building built in 1942, currently used as a warehouse), and Building 2205 (an incinerator built in 1942) are considered contributing resources. These buildings are considered contributing because they retain integrity of function, design, setting, and location, and in most instances, historic materials (refer photo).
- The area is in a stage of transition both functionally and aesthetically. Functionally, the buildings are being converted from a medical clinic to administrative offices for MARCORSYSCOM. Aesthetically, renovations are being done in anticipation of the change. According to the Section 106 process, *any alterations to the exterior of these structures, either directly or through visual impacts, must be achieved through consultation with the Virginia State Historic Preservation Officer (SHPO)*. Hence the renovations will have to be approved as appropriate to the historical design.
- The front of the clinic faces the Potomac River over a sweeping vista, now somewhat marred by the view of a power plant in the distance.



LOCATION MAP

- Development Districts**
- Ammunition Supply Point
  - Barnett Ave. North
  - Barnett Ave. South
  - Barracks Area
  - Camp Barrett
  - Camp Upshur
  - Guadalcanal Maintenance Area
  - Headquarters North
  - Headquarters South
  - Hospital Point
  - MCAF
  - MCU
  - Russell Road
  - South Mainside
  - Weapons Training Battalion

FIGURE 2 - 4

## DEVELOPMENT DISTRICTS

Source of Map Data : MCB Quantico, NREA & The Onyx Group





*Historic Structure : Bldg. 2200*



*Parking in the foreground of the structure*



*Site Furniture : A Gazebo*



*Boundary between pedestrian and vehicular areas*

There are a number of good specimens of mature trees. There is a good variety in the planting and a positive relationship between the landscape and the architecture.

- Two garage structures on the north lawn are incongruous and may be considered for demolition.

#### Parking and Circulation

- Hospital Point is isolated from the rest of the Base. Automobile circulation to Hospital Point is constrained by railroad tracks to the west and wetland areas to the south. Direct traffic enters through the Town of Quantico over an at-grade railroad crossing, and then turns north on River Road to reach Hospital Point. North River Road is a narrow, two-lane street that is owned by the Town of Quantico.
- There is a well-defined gate and entrance driveway that culminates at the main structure. Some modifications will be made to accommodate MARCORSYSCOM but the basic circulation pattern will remain the same.
- On-street parking currently clutters the foreground of these historical structures (refer photo). This is expected to change with the change in function because parking between the building wings and within 80 feet of the structure will not be allowed by Force Protection criteria. As a result, over half of the current on-street parking will get eliminated.
- Sidewalks, crosswalks and pedestrian paths are provided here.

#### Site Elements

- Site furniture includes two gazebos located beside the building (refer photo) and benches and trash receptacles near the front lawn.
- Bollards and chains are used to indicate boundaries for pedestrian and vehicular areas and to preserve the lawn areas (refer photo).
- Outdoor light fixtures are of incompatible style and material.
- Amenities in this area include a children's play area, tennis and basketball courts and a boat dock.

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## 2.5.2 Marine Corps University

The MCU district is situated on the eastern edge of Mainside along the Potomac River, extending from the Hostess House (Bldg. 3072) to Hospital Point. Existing land use patterns here include training, administration, troop and family housing, community support, maintenance and storage. Vehicular circulation around and through the site is limited to the west by the railroad tracks which separates the site from the rest of the Base.

### Architecture and Landscape

- The predominant architectural style is Georgian consisting of red brick, white trim, formal entrances, dormers, double sash paned windows, three- to four-storey heights and simple rectangular building masses. Buildings that best embody this style are Breckinridge, Dunlap, Ellis and Barrett Halls (refer photo).
- A part of this district has historical significance for the Marine Corps. Before women were allowed into the Marine Corps, Bldgs. 3091, 3079 and 3078 were used as barracks, administrative functions and classrooms for women Marines. Bldg. 3080 was a dining facility. The area currently does not signify its historical significance.
- A large, well-designed open space creates a campus center and focal point (refer photo).
- The river views and waterfront are valuable assets.
- The Quantico Marina is located at the east end of Potomac Avenue, on the north end of the district. The area consists of the boat dock and related support buildings. It is isolated from the rest of the Base and access is through the Town of Quantico.

### Parking and Circulation

- The main access points to the MCU area are through a tunnel under railroad tracks on Martin Street, through a chainlink gate between the Town of Quantico and MCU on Broadway and past the sewage treatment plant on Epperson Avenue. The entrances are not marked well but conspicuous due to the physical barriers and change in architectural style and landscape environment.
- An unscreened gravel parking lot is located at the terminus of the entry sequence through the tunnel. This incompatible use is proposed to be replaced with a flag court and a parade field (*Figure 2-5*).
- The large parking lot near the Research Center (Bldg. 2040) is located at the edge of the campus. Screening and landscaping makes the parking lot less noticeable.



*Dunlap Hall - Georgian architecture*



*The campus green - central open space and focal point*

**Breckinridge Site Flag Court**

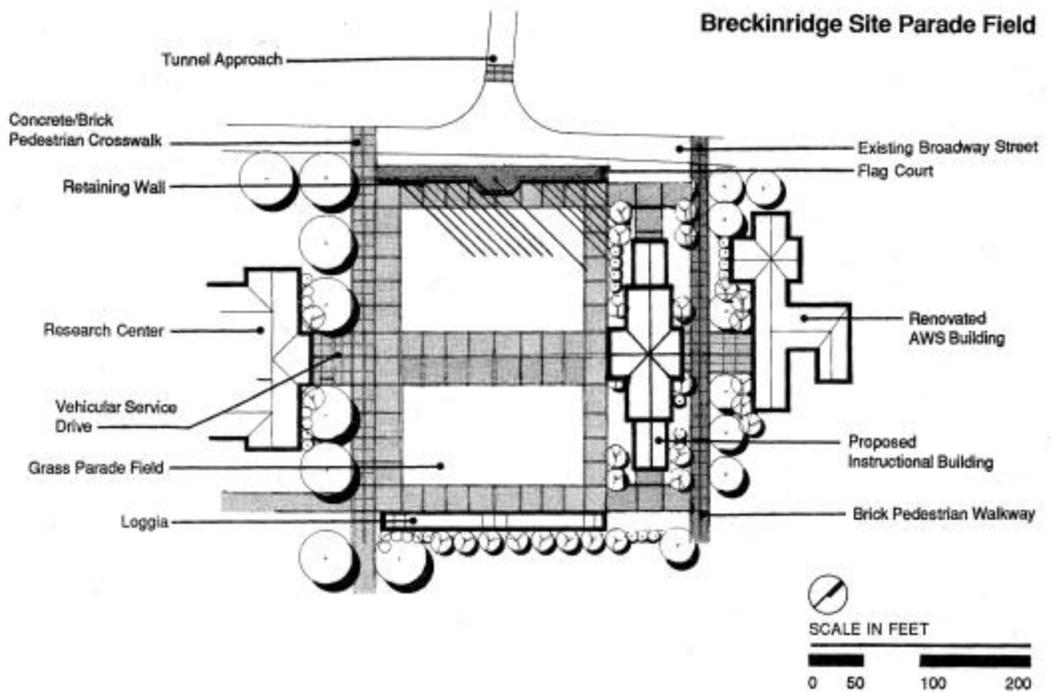
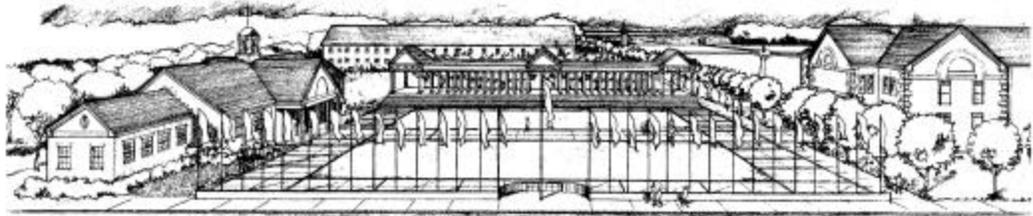


Figure 2-5 : MCU Flag Court and Parade Field

Site Elements

- The central open space or campus green is provided with appropriate outdoor lighting and paved pedestrian paths.
- Sensitive signage and a vegetated traffic island emphasizes the entrance to the Research Center.

**2 . 5 . 3      Barnett Avenue North**

This district is the first part of the administrative core of Mainside a visitor would experience when entering the Base through the Main Gate. Hence the visual environment here is of some importance for the Base identity. The boundaries for this district are defined by railroad tracks to the east and Barnett Avenue to the west, with the exception of Little Hall (Bldg. 2034) which is on the west side of Barnett Avenue. Existing land uses include administration and community support, with a large proportion of area being used for parking.

Architecture and Landscape

- There is no consistent architectural style and the area does not have a cohesive identity.
- Little Hall (Bldg. 2034) and Daly Hall (Bldg. 2079) create a precinct of densely populated administrative offices within easy walking distance of the Town of Quantico (refer photo).
- Bldg. 1001, is one of the oldest buildings on the Base, dating back to 1919 (refer photo).
- Community support services include the Fire Station, an ATM, car wash, food service, a convenience store, the Base theater, bowling center and Family Services Center (refer photo). These buildings have varied architectural styles ranging from compatible (e.g. Fire Station) to highly unsuitable (7 Day Store).
- Barnett Avenue is a historical street and a heavily trafficked route.
- Sidewalks, crosswalks and street trees facilitate pedestrian and bicycle circulation
- Clear zone restrictions associated with air operations at MCAF create open space in the southern section of this district.

Parking and Circulation

- The main access is from Fuller Road to the north and Barnett Avenue to the south. Fuller Road takes a sharp curve near the intersection with Barnett Avenue. The blind curve with a bare retaining wall on one side do not form a suitable entrance to the area.
- Some parking lots are screened from Barnett Avenue with the help of plants and fences.
- This area provides access from the Main Gate to the Town of Quantico, Hospital Point and MCU.

Site Elements

- Street lighting and other light fixtures are incompatible with the architecture and the prominent and historical location.
- Site furnishings such as benches, drinking fountains, bus shelters, information kiosks, phone booths and outdoor art exhibits in this area of considerable pedestrian activity are conspicuous in their absence.
- Signage does not follow a uniform style or size. Signs indicating the direction to other parts of the Base are inconspicuous or missing.

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VISUAL  
SURVEY &  
FUNCTIONAL  
ANALYSIS



*Little Hall and Daly  
Hall precinct*



*Bldg. No. 1001*



*Community  
support facilities*



*Barrack buildings - Barnett Avenue facade*



*The Dining Hall - Bldg. 2000*

#### 2 . 5 . 4      **Barracks Area**

The Barracks Area is one of the oldest parts of the Base. The first major permanent buildings on the Base were three barracks - Bldgs. 2001, 2002 and 2005 - facing Barnett Avenue. Construction was completed in 1929. Construction of barracks continued until the end of 1932. The predominant land use of the area remains troop housing. Some barrack buildings have been converted into administrative offices. The dining hall, a more recent addition, was built to consolidate the dining functions housed by each barracks building into one facility. Butler Stadium and the proposed Fitness Center are located at the southern end of this area.

##### Architecture and Landscape

- The area has a consistent architectural style due to the replication of barrack units. The buildings have a large footprint, but due to the facade being broken up into five sections with two projecting wings, they are less imposing and monolithic (refer photo).
- Each barrack building has a main entrance and two secondary entrances. The open space in front of these entrances are not designed to relate to them. The dining hall (Bldg. 2000) is built in brick, metal and glass, designed to blend with the Georgian style buildings (refer photo).
- The existing and proposed fitness and recreation facilities have a positive relationship with the Barracks Area.
- The community services located across Barnett Avenue do not have a strong visual connection due to lack of continuity in architectural style, site organization, landscape features and plantings.
- A double row of street trees along Barnett Avenue creates a boulevard character.
- Public open space between the buildings is used for passive and active recreation.

##### Parking and Circulation

- Sidewalks, crosswalks and pedestrian paths connect the barracks, parking lots, recreation space and dining facility, facilitating pedestrian and bicycle circulation.
- The demand for parking exceeds the parking spaces provided. On-street parking clutters the foreground of buildings.
- Service vehicles access the barrack buildings from front courts or paved areas.

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Site Elements

- A barbeque area is provided adjacent to the barracks with a volleyball court, picnic benches and trash receptacles.
- Outdoor lighting fixtures are of incompatible style, material and color.
- Signage does not follow a uniform style or size. Signs indicating directions to other parts of the Base are inconspicuous or missing.

**2.5.5 Barnett Avenue South**

The Barnett Avenue South district extends along the south side of Barnett Avenue from the Power Plant (Bldg. 2012) to Dunlap Circle, and to the river's edge between MCU and MCAF . A large proportion of buildings and open space is of industrial character and/or function. Warehouse storage and Base maintenance shops are the major land uses. Administrative office functions are present in various buildings throughout the district.

Architecture and Landscape

- Industrial buildings are built in brick or metal with large windows and metal roll-up doors. Administrative buildings are made of brick or wood with siding. There is a varied mix of flat and sloping roofs, red brick walls, white siding and aluminium facades, all creating a chaotic physical environment (refer photo).
- There are few sidewalks, crosswalks or street trees. The pedestrian realm lacks definition (refer photo).
- The MCB and Virginia Power electrical substations near Butler Stadium are a non-compatible land use and a visual intrusion.
- The south-east part of this area between Barnett Ave and the river is completely paved with asphalt. It is a result of the complex circulation requirements here involving trucks and other commercial vehicles that need access to loading bays / docks and the need for parking lots for vehicles of employees who work in this area. The area is further constrained by railroad tracks that pass between the river and the warehouse buildings.
- The extensive area of black-top in close proximity to the river has a potential to adversely affect the quantity and quality of stormwater runoff. The proportion of impervious surfaces directly affects the volume of runoff flowing into the Potomac River. There is a lack of shade trees and riparian vegetation.



*Industrial buildings are constructed in metal*



*Few sidewalks, crosswalks or street trees exist. The pedestrian realm lacks definition.*



*Dunlap Circle*



*The architectural style of the Chopawamsic Annex area  
is unique to this part of the Base*

- A number of buildings are slated or recommended for demolition due to poor condition or Clear Zone/AICUZ violations. Proposals for renovation and/or conversion of some buildings exist. This is a period of change for the area and can be an opportunity for developing a new identity for this area. The future visual character or function of this area is not clear at this time.
- Towards the north, a part of the district houses the sewage treatment plant. This area is bounded by MCU, the railroad tracks and the river. Overhead steam pipes contribute to the distinctly industrial character. Pedestrian amenities are lacking.

#### Parking and Circulation

- There is a proliferation of parking on all sides of buildings as well as along minor and major streets. Consolidation of parking into lots can provide opportunities for new buildings and public greens.
- The road network does not efficiently access all parts of the area and most traffic moves parallel to Barnett Ave. This movement can be facilitated with the parallel route being designed to take some load off Barnett Ave and to serve as a secondary or emergency route.

#### Site Elements

- Outdoor lighting is provided in selected areas and fixtures and lampposts are utilitarian and lacking in aesthetic appeal.
- No benches, telephone booths, drinking fountains, planters or information kiosks are provided.
- Signage is not uniform and of no particular style, size or color. Road signs indicating direction to other parts of the Base are non-existent.

#### **2 . 5 . 6      Headquarters Area**

The Headquarters (HQ) area is focused around Dunlap Circle and accommodates a mix of administrative and community support functions. The development in the HQ North area is fairly sparse and consists of Lejeune and Newlin Halls, the Chapel, the Medical Clinic and the adjacent open areas. It also includes an area along Barnett Avenue consisting of a cluster of buildings and parking lots. To the south of Dunlap Circle is HQ South. It includes the clubs, swimming pool and the Crossroads Inn bringing in a commercial tone to the area. Beyond these buildings, is a dense cluster of administrative buildings often referred to as the Chopawamsic (or Chop) Annex. The Chop Annex housed African-American troops prior to desegregation of the Marine Corps.

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Architecture and Landscape

- Lejeune and Newlin Halls set up an axial relationship with Dunlap Circle and the Parade Ground. The buildings and open space have a monumental quality. The roofline against the hilly backdrop adds to this quality (refer photo on previous page).
- Headquarters South does not have a defined spatial organization.
- The architectural style in the Chop Annex is unique to this part of the Base (refer photo on previous page). The administrative buildings are one story clay tile structures with sloping roofs and aluminium chimneys, and rear entrances are accessed over a bridge across open stormwater drains. Diamond Hall (Bldg. 3095) was the club associated with the barracks. It has a portico with brick piers.
- Additions such as awnings and window grills are incompatible with the facade and architectural style (refer photo).
- Open space between the arms of the HQ South administrative buildings are used for recreation and as seating areas.
- The open space is not designed in any particular pattern or to take advantage of the river view in the distance. Few landscaped areas or street trees are evident.

Parking and Circulation

- The access to and circulation within HQ South is awkward. Entrances are inconspicuous and there is a lack of proper signage to direct traffic (refer photo).
- Although the community support facilities encourage pedestrian circulation, few pedestrian amenities exist, such as sidewalks and crosswalks. Within HQ South, road and parking lot are not differentiated due to an absence of curbs.
- The traffic pattern around Dunlap Circle is confusing.
- The north-east part of this area is at a higher elevation with good views of the adjacent development and the river beyond. This creates a natural connection between both sides of Barnett Avenue and the river. This condition may be embellished by creating pedestrian circulation and visual axes along certain corridors. Changes in ground level will need to be negotiated appropriately. They are currently treated as grassed embankments.



*Awnings and window grills are incompatible additions*



*The entrance to the Chopawamsic Annex is inconspicuous*



*Headquarters Building*



*A remarkable river  
birch specimen*



*Central avenue - OCS campus.*



*Pedestrian bridge across railroad tracks*

Site Elements

- The flagpole and outdoor exhibits in HQ North enhances the monumental character of the area.
- In HQ South, utilities are not screened or buried. Overhead power lines and elevated steam pipes are part of the character here.
- Outdoor seating (a picnic table under a gazebo or semi-covered area) and recreational areas are provided in HQ South.
- Chainlink fencing is used around the Motor-T parking lot. Chainlink with aluminium lattice is used to fence and screen an industrial storage area between MCAF and Dunlap Circle. Chainlink fencing is inappropriate in this district due to its location in a prominent part of the Base, surrounded by administrative and barrack areas.

**2 . 5 . 7      South Mainside**

This district is the southern-most developed area on Mainside. Railroad tracks running through the area split it in half. The Officer Candidates School (OCS) campus is located on the west side of the tracks. An at-grade railroad crossing and a pedestrian bridge connect the OCS campus to other areas. The east side houses a wide range of functions including Larson's Gymnasium, Morale, Welfare and Recreation (MWR) Division maintenance shops, HMX-1 Ground Equipment Maintenance Shop, an HMX-1 Warehouse, the Fire Station, the Auto Hobby Shop, a Command Control Systems School (CCSS) communications equipment shop, MARCORSYSCOM research and development facilities, Marine Corps Air-Ground Museum facilities and the Quantico Brig.

Architecture and Landscape

- The OCS campus lacks a distinct identity and clear demarcation. Museum buildings, storage, Public Works structures and the Brig are in close proximity to OCS functions.
- Permanent OCS structures are well designed and landscaped, especially the headquarters building and the new barracks (Bldg 5000, 5001). The barracks are more recent construction and designed in the style of existing buildings, in red and brown brick with metal sloping roofs (refer photo).
- Temporary structures, warehouses and museum buildings are architecturally incompatible and located along the edge of the OCS campus. Some of these are substandard or inadequate and slated for demolition.

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- Although of appropriate style and size, the blue and white awning of the Navy Medical Clinic is not compatible with the more muted tones of the surrounding structures.
  - The central avenue in the northern part of the OCS campus has full-grown street trees on one side and overhead power lines on the other. Some structures along the avenue are slated for demolition (refer photo).
  - Obstacle courses and training areas create an interesting and appropriate landscape environment.
  - The parade ground, the site of the first airfield on the Base, is a sea of asphalt in the center of the campus. Surrounding structures, landscaping and trees do not have a relationship with the parade ground and do not provide any relief to the eye.
  - The residential area of the OCS campus lacks designed domestic or individual scale open spaces.
  - Large underutilized areas and fenced in storage yards create a drab landscape in the south-west part of the OCS campus.
  - Other significant structures : Larson's Gymnasium is a former aircraft hangar that has been adapted for its current functions. The hangar doors form a distinctive front facade to this historically significant building. The dining hall (Bldg. 2000) is recent construction in brick, metal and glass and designed to take in the views across the Potomac river. A boathouse was converted to house the Auto Hobby Shop (Bldg. 4)
  - The view of Chopawamsic Creek from the north side of the campus is not highlighted to its best advantage.
  - There are some remarkable mature river birch (*Betula nigra*) specimens near the creek in the OCS area (refer photo).
  - The Brig, CCSS Communications Equipment Shop and MARCORSYSCOM facilities form individual enclaves or compounds separated from other functions by site location and security fencing. There is no cohesiveness in architectural style, landscaping or circulation system to link the various functions in the South Mainside district together.

#### Parking and Circulation

- The OCS Campus has no defined entrance point or boundary.
- Railroad tracks cut the district into two and restrict circulation to the at-grade crossing and pedestrian bridge (refer photo).
- Sidewalks, crosswalks and pedestrian paths are provided on the OCS campus and near Larson's Gym. Outside the OCS campus, the pedestrian environment is not appealing.

- A landscaped parking lot is provided near the Barrack buildings (Bldg. 5001, 5002).
- Larson's Gymnasium will change in function when the new Fitness Center opens on Barnett Avenue. A number of buildings, including Larson's Gym are AICUZ violations and are proposed for future demolition. Depending on the new functions of the area, vehicular, pedestrian and bicycle traffic volumes may change.

Site Elements

- Timber curbs are used for lawns and tree protection along the central avenue in the northern part of the OCS campus. These curbs are not durable and inappropriate due to their prominent location.
- The headquarters building has a flagpole and a brick sign, giving the building more prominence.
- Telephone stalls are provided in the northern part of the OCS campus.
- Outdoor lighting fixtures provided in the OCS Barracks area are of suitable style, height and material. Utilities and services are screened.
- Outdoor museum exhibits are not placed in appropriate settings.
- Chainlink fencing runs along both sides of the railroad tracks and is used to fence off museum areas and storage areas.

### 2 . 5 . 8      **Family Housing District**

A detailed study of this area was carried out in the Comprehensive Neighborhood Plan<sup>1</sup> (CNP), 1998. The plan provides a comprehensive view of the Military Family Housing (MFH) areas of the Base, including identifying specific deficiencies and proposing necessary improvements to bring the entire housing area up to Whole House and contemporary Department of Defense (DOD) standards, subject to Congressional limits.

The Community Analysis section includes a description of the existing community character and identity, streetscapes, open space development, utility systems and surrounding development. Specific recommendations are made for each neighborhood in the Community Development Plans which include illustrations and cost estimates.

For additional information regarding recommended improvements for family housing areas on Base, the reader is referred to that study.

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**NOTE :**

<sup>1</sup> Greenhorne & O'Mara, Inc., *Marine Corps Base Quantico Comprehensive Neighborhood Plan*, April 1998.

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### 2.5.9 Russell Road District

The Marine Corps Exchange/ Commissary (MCX Center) located along Russell Road serves as the retail center and community support area providing services such as food, gas and banking. The Marsh Center, Combat Development Center and the Marine Federal Credit Union (MFCU) located at short intervals along Russell Road form their own precincts.

#### Architecture and Landscape

- The MCX Center has large structures and vast parking lots. The Commissary is a white and dark brick structure. The entrance is denoted by a sign and a barrel vault. The Exchange building is a metal and textured CMU structure and is less aesthetically pleasing. Indiscriminate signage on the building and vast, blank walls further detract from the aesthetic appeal of the facade (refer photo).
- Trees planted along the Commissary structure will provide relief from stark walls when they are established.
- Few street trees are planted in the buffer strips along Russell Road and hence parking lots and buildings are not screened. Shrubbery screens are planted between the parking lots and the residential area.

#### Parking and Circulation

- The MCX Center is located with easy access to the South Gate to reduce traffic impacts to the rest of the Base.
- The MCX Center parking lot has few trees and greenery. Islands provide little relief from the vast asphalted area.

#### Site Elements

- Outdoor light fixtures in the MCX Center parking lot are not appealing.
- The manicured landscape at the foot of the MCX and McDonald's signposts along Russell Road contrast sharply with the dense forest all around the area (refer photo).
- Placement and style of advertisements and signs can be designed more sensitively.
- Outdoor seating outside the Exchange has benches, picnic tables, shade trees and trash receptacles.



*The MCX Center - the Exchange and the Commissary*



*McDonald's at the Purvis Road/ Russell Road intersection*

VISUAL  
SURVEY &  
FUNCTIONAL  
ANALYSIS



*O'Bannon Hall facade*



*Landscaped recreation area*



*Swales used for storm water drainage*



*The rear of the campus is visually unappealing*



*A water storage tank, chain link fencing and cobra-headed lights*

## 2 . 5 . 10      **Camp Barrett**

Camp Barrett consists largely of The Basic School (TBS). It is a discrete campus located in the Guadalcanal area. The campus houses training and related facilities including barracks, administration and an armory.

### Architecture and Landscape

- Most permanent structures are in the modern style. Building materials include poured-in-place concrete, CMU blocks, red or dark brick and metal on both good, well-maintained and unattractive, incongruous buildings. Most permanent buildings are low and sprawling.
- The textured CMU blocks used are brittle and construction is of low quality.
- O'Bannon Hall (Bldg. 24165) is a large sprawling building. The surrounding areas have been designed to break up the facade and make the building less imposing (refer photo).
- A gathering space is designed in one of the interstitial spaces between the arms of Bldg. 24165 (refer photo).
- Large mature trees help to break up the immense facade.
- Window frames of Bldg. 24165 are painted in Marine colors of red and yellow and some window bays are arched. These elements are incongruous with the facades of this and other buildings around.
- Landscaping schemes are simple but well-designed for most areas, especially near the barracks. Many mature trees have been preserved. A good combination of evergreens and deciduous trees provides year-round cover with splashes of color and texture.

### Parking and Circulation

- The entrance on MCB 2 leads to the central open space or campus green which is a focal point for the campus. The campus green doubles as a landing zone as well as a suitable foreground for the buildings around it.
- MCB 3 leads into the rear of the campus into a visually unappealing area with an abundance of parking and temporary metal structures (refer photo).
- Some parking areas are screened from view from the building and sidewalks.

### Site Elements

- The existing practice of building a grassed swale for stormwater drainage along the streets should be encouraged (refer photo).

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- Inappropriate elements located at the rear of the campus include cobra-headed outdoor lights and chainlink and barbed wire fencing for service and military vehicle parking lots.
  - A water storage tank with aviation obstruction markings in checkerboard pattern towers over the campus (refer photo).
  - The area near Bldg. 24165 has outdoor lights with appealing lampposts and fixtures.
  - CMU blocks have been used as a screen to break up open areas and also to screen services and utilities. These architectural screens blend in well with the surrounding structures.
  - An ATM booth is tucked away along one of the arms of Bldg. 24165.

#### **2 . 5 . 11      Weapons Training Battalion**

The Weapons Training Battalion (WTBN) is consolidated in a pocket of development in the Guadalcanal area. All buildings and facilities in this area support WTBN functions. WTBN runs the rifle ranges and associated schools located in this complex.

##### *Architecture and Landscape*

- A varied range of building materials including red brick, metal and wood framed structures, CMU blocks and Butler buildings are seen here. Finishes include stucco, paint and exposed brickwork or metal. Sloping roofs and flat roofs are evident. There is no coherent style or character throughout the campus (refer photo).
- The street alongside the rifle ranges is designed as a boulevard and has mature street trees.
- Rifle ranges create interesting landscapes and backdrops. Trees planted as buffers between ranges create vistas.
- Sidewalks and crosswalks are provided in most parts of the campus.

##### *Parking and Circulation*

- The campus circulation system is awkward, with the headquarters building located on the opposite end of campus from the entrance. The entrance is not well-defined with inadequate signs and directions.
- An ATM structure is placed at a conspicuous point at the entrance to the campus, remote from other structures.
- Parking adjacent to individual buildings may be consolidated into the central lot.

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VISUAL  
SURVEY &  
FUNCTIONAL  
ANALYSIS



*Barrack building  
in red brick*



*Main Street -  
a boulevard*



*Rifle ranges in  
the background*

VISUAL  
SURVEY &  
FUNCTIONAL  
ANALYSIS



*A pheasant roams  
the campus*



*Well-maintained  
quonset huts*



*A maintenance bay in  
disrepair*

Site Elements

- A wood trellis is used for screening utilities adjacent to buildings.
- An outdoor messing area is provided under a semi-covered area.

**2 . 5 . 12      Camp Upshur**

Camp Upshur is the most remote district and is located in the north-west corner of the Base. The main vehicular access is a two-lane road off MCB 8 that passes through the Upshur Gate and a bridge over the Cedar Run water course. Existing land uses include administration, reserve troop housing, maintenance shops and storage. The FBI and DEA lease some space here, but are expected to leave when their lease expires in a couple of years. The area does not see much traffic and its population fluctuates from day to day. The surrounding area is forested and rife with wildlife and natural scenic beauty.

Architecture and Landscape

- There are a number of poorly maintained sections, giving the place an unkempt and scruffy look.
- Most structures at Camp Upshur are quonset huts. Some of these are well-maintained but others are in a shabby state of dilapidation. They are designed to be used as temporary storage and reserve billeting facilities but some have been converted into offices or other permanent functions.
- A large paved parade ground seems unused and is in a state of disrepair.
- Landscape and open areas in between structures is well-kept for areas currently in use and overgrown in others.
- Cedars are used as screen plantings and to line streets or axes.

Parking and Circulation

- There is only one major vehicular entrance. The gate or entry point lacks character.
- With very few permanent structures here, the area has a cohesive architectural style. The repetition of units sets up a regular street system and landscape, making it easy to orient oneself.
- There are no major parking lots due to low demand.

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Site Elements

- A semi-covered outdoor maintenance bay at the entrance to Camp Upshur is in serious disrepair.
- A water storage tank with aviation obstruction markings in checkerboard pattern towers over the campus.

**2 . 5 . 13      Guadalcanal Maintenance Area**

The Guadalcanal Maintenance Area houses the maintenance and repair functions for the west side of the Base. Most structures are used for storage of materials and equipment.

Architecture and Landscape

- Metal buildings house administrative functions and maintenance equipment. A building materials storage dome is located near the entrance gate.
- No clear site planning scheme is evident.
- Outdoor recreation areas include a picnic bench, volleyball court and basketball hoops.

Parking and Circulation

- A parking lot is located between the entrance gate and the road.
- The buffer strip between the parking lot and road has no vegetative screens.

Site Elements

- Chainlink fencing runs along the boundaries of the area.
- The sign along the road is not easily visible and lettering is too small to read from a reasonable distance to make the turn.

**2 . 5 . 14      Ammunition Supply Point**

Architecture and Landscape

- The structures visible from the entrance and MCB 1 are brick building with metal sloping roofs.
- Magazines are covered over with grass which makes them less conspicuous in the landscape.

### Parking and Circulation

- The area has restricted access. Few private vehicles travel through the area and no formal parking or circulation system exists.
- Truck access and loading areas are provided to transport ammunition and other ordnance items.

### Site Elements

- Chainlink fencing encloses the area. No buffer area or screening is provided between the road and the fencing for security reasons.

## **2.6 Range and Training Areas**

Range boundaries are established based on the safety-danger zones related to the weaponry used at the ranges and the locations of the firing points and target areas. Some ranges have temporary and permanent structures to accommodate their needs. Most buildings on the ranges are strictly utilitarian. There is little permanent construction and common building materials are metal and wood. The buildings on the ranges are occupied intermittently and many are used for field classrooms, storage of equipment, ammunition or as ammunition control points. Restrooms, control towers and other support buildings are often primitive because few ranges are provided with electric, water or sewer lines.

Range No. 9A is an exception because it is provided with electricity, lights, water, and phone lines. The recent permanent construction, including a tower, an ammunition breakdown area, sheds, classrooms and male/female restrooms, were designed to be both functional and aesthetically appealing. The buildings have a consistent theme in design and building materials. This range can serve as a model for range facilities.

The range and training areas are controlled using swing-arm gates at all access points. These gates are actively operated by Range Control when there is movement through the ranges. Vehicular traffic accessing the ranges includes both combatant and non-combatant vehicles. Gates are secured when the range is not in use. Gates providing access to the active or "hot" ranges are required to be manned and denoted by a red flag and a flashing light. Most ranges are available for use 24 hours of the day.

Some ranges are clearings in the forested area where the firing points and impact areas are visually linked. In other cases, impact areas may be some distance away from the firing points. Impact areas are required to be fenced, but the fencing is sometimes missing or is in serious disrepair

with gaps in it. Existing fencing consists of three strands of barbed wire on metal posts. Warning signs are posted at frequent intervals. The fencing is not visually prominent but acts as a physical barrier and boundary marker. Most of the fencing runs through thickly forested area and cannot be easily accessed for maintenance.

## 3 . 0      Design Guidelines

This section outlines design guidelines for various elements that contribute to the visual environment of the Base. The objective of the guidelines is to coordinate each element with others in the vicinity and achieve a unified appearance of each development district and of the Base as a whole. The design guidelines build on the positive elements documented in the previous chapter and indicate the nature of improvements to be carried out for elements that detract from the visual environment.

### 3 . 1      Architecture

The architectural design of new facilities should present a consistent and unified appearance. Buildings should not compete with each other for attention. Although they should be designed to work together visually within their setting, buildings should not be designed to look identical to each other; this would create visual monotony. Each structure should be designed to have a unique character, yet employ qualities in common with the others.

Since the general architectural style used in most of Mainside is Georgian, common architectural design guidelines are outlined for new construction and renovation projects here. Architectural design guidelines for districts that have a distinctly different character are defined in separate sections. These include Headquarters South (Chopawamsic Annex), the Family Housing area, and the Guadalcanal side of the Base.

#### 3 . 1 . 1      Mainside

The new architecture should be harmonious with the best of the existing Quantico architecture, the Georgian style buildings such as Breckinridge and Singleton Halls (and similar barracks) and the hospital (Bldg. 2200). This will ensure the integration of the new architecture with that of the existing campus buildings.

##### *Building Massing, Height, and Bulk*

Buildings should have simple forms and shapes, typically rectangular or circular forms, compatible with the Georgian style. The massing, height, and bulk of individual buildings should be compatible with that of adjacent structures (*Figure 3-1*). The height of individual buildings should be determined by their location within the district. Variations in height should be used to emphasize important buildings and significant elements of individual buildings and/or public spaces.

**RECOMMENDED**

Feature Marks Center & Defines Symmetry

Dormers

Gable Roof

Brick Walls

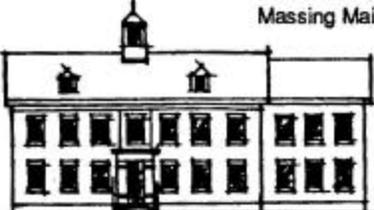
Punched Windows

Base



**ORIGINAL BUILDING**

Separate But Compatible Massing Maintains Symmetry



**ONE-SIDED ADDITION**

Identical Additions Maintain Symmetry  
Details Match Existing  
Continuous Base



**TWO-SIDED ADDITION**

Style Matches Existing



**WING ADDITION**

**NOT RECOMMENDED**

Entrance at center

Ornamental Cornice

Window Pattern



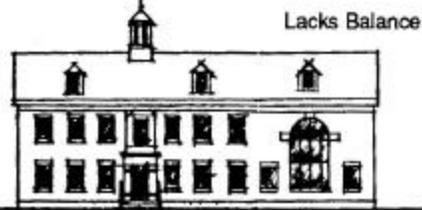
**ORIGINAL BUILDING**

Incompatible Style & Massing



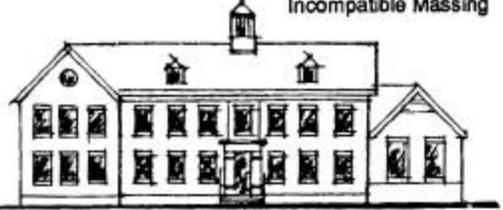
**ONE-SIDED ADDITION**

Compatible Massing  
Compatible Style, But Rhythms and Patterns Altered  
Lacks Balance



**TWO-SIDED ADDITION**

Lopsided Appearance  
Incompatible Massing



**WING ADDITION**

Dissimilar Base

Figure 3-1 : Additions to Existing Buildings

Buildings should have projections and recesses to break up large, monotonous surfaces; to define important parts of the building such as entrances; and to contribute to the definition of public spaces.

### Facade Composition

The facades of buildings define exterior spaces and give them character. They contribute to creating a sense of place. Building facades can communicate much useful information to the user, such as the location of entrances, the importance of the building, and the building's purpose or function. The rules of composition for new facades should be compatible with the existing Georgian architecture (Figure 3-2). For this reason, all building facades should be composed of a base (pedestrian level), a middle (wall), and a top (skyline). Composing facades in this manner will create buildings which, while different from each other, will properly define the public spaces and exterior environment.

- **The Base (Pedestrian Level)** : All buildings should have a base at ground level. Pedestrian oriented details should be concentrated at the base and first two above grade floors. The use of colonnades, porticos, and other street level elements is encouraged.

Bases should possess the following characteristics :

Physical qualities - Monolithic, durable, strong, heavy.

Colors - In contrast with wall, uniform appearance.

Recommended materials - Cast stone in warm grey tones, precast concrete, limestone.

- **The Middle (Wall)** : The middle, or wall, surfaces of buildings should be designed with a consistent architectural vocabulary. Walls are composed of windows, entrances, signage, and other architectural elements. Accent bands, constructed of contrasting materials, should be used to define and clarify composition and proportion of wall surfaces. The use of quoining or other details to define corners is also encouraged.

Wall surfaces should possess the following characteristics :

Physical qualities - Durable, strong, compatible with existing Georgian structures, easily available.

Colors - Old Virginia brick reds, integral to material, compatible with existing Georgian structures or dominant adjacent structures.

Recommended material - Brick.

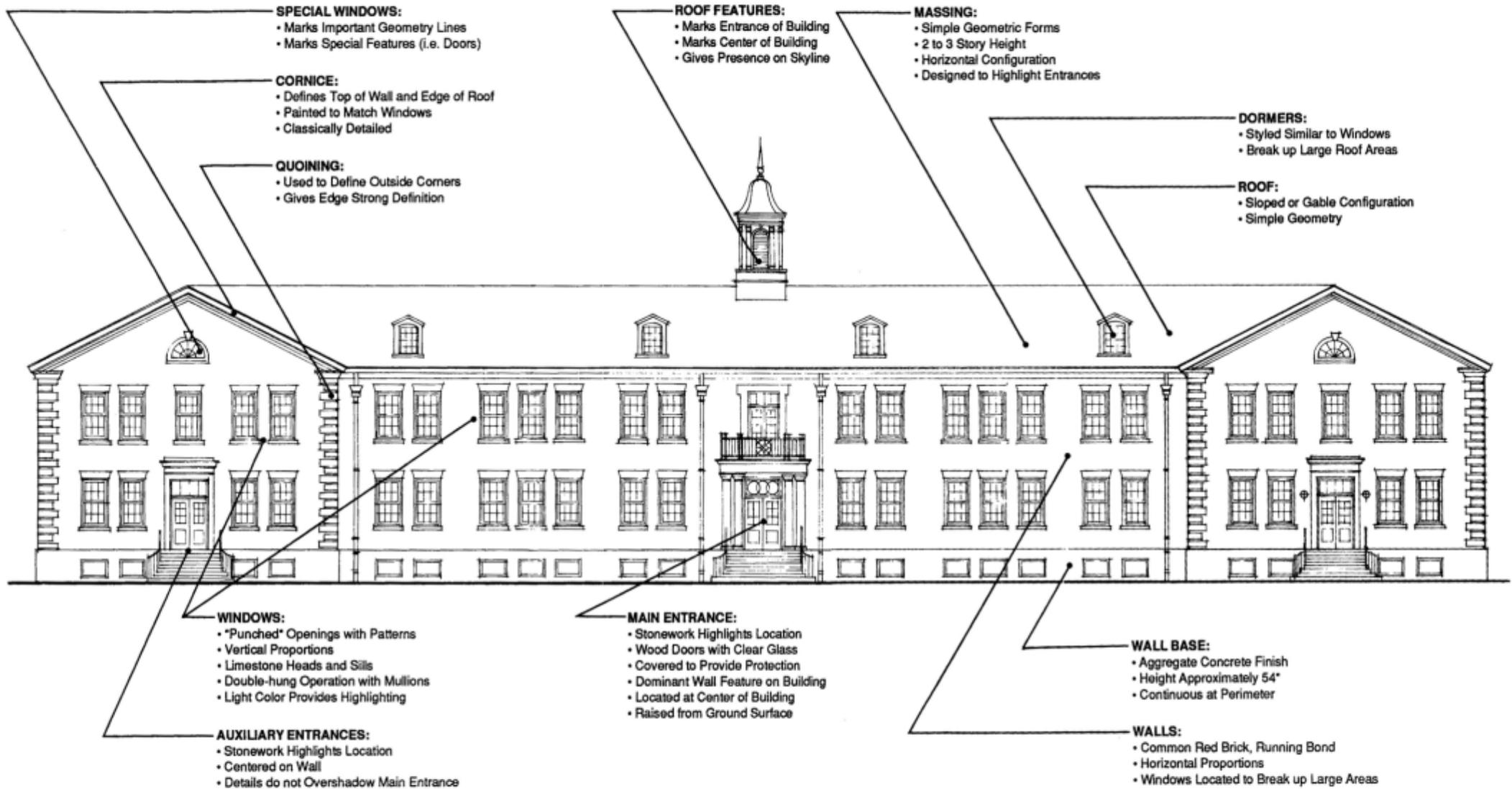
- **The Top (Skyline)** : Each building should have a well defined top. Building tops define the skyline. They give a group of buildings a character that can be recognized from afar. The use of gables, domes, or hips is encouraged. Large, monotonous roof surfaces should be accented with elements such as dormers or skylights (*Figure 3-3*). The composition and massing of the roof should be designed to emphasize the important buildings and the entrance to the building and the adjacent public spaces. The use of special roof elements to achieve these goals, such as cupolas and domes, is recommended (*Figure 34*). Every building should have some type of cornice line, whose materials are distinct from those of the wall. The cornice should be detailed to be visually interesting.

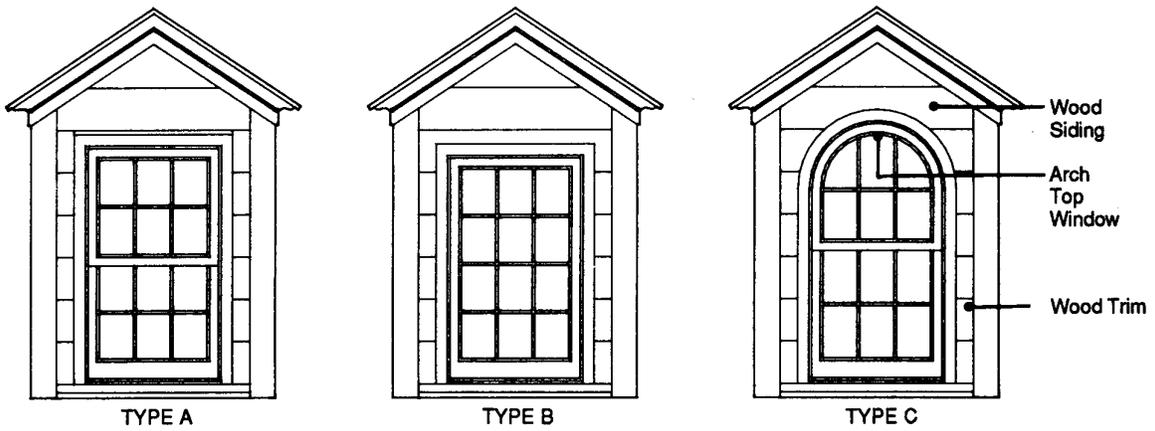
Building tops, roofs, and roof elements should possess the following characteristics :

Physical qualities - Durable, strong, easily available, compatible with Georgian detailing.

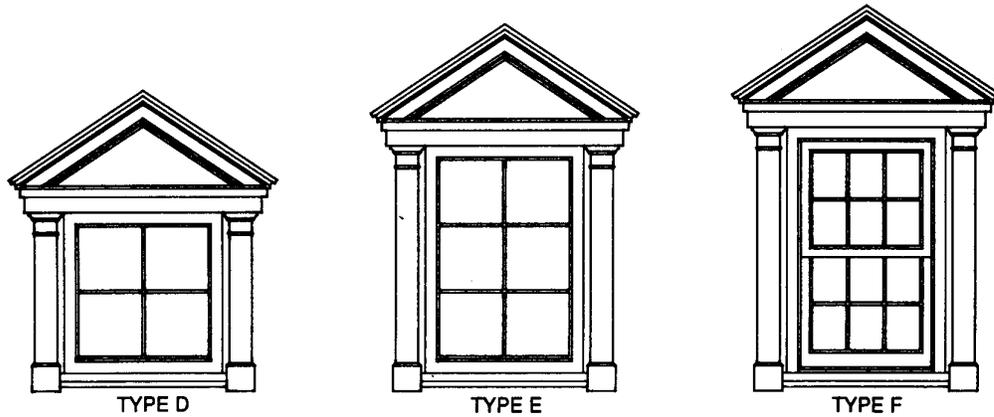
Colors - Integral to the material, in contrast with wall and cornice, compatible with existing structures.

Recommended materials - Slate, slate look alike materials, finished metals and copper in earth colors.

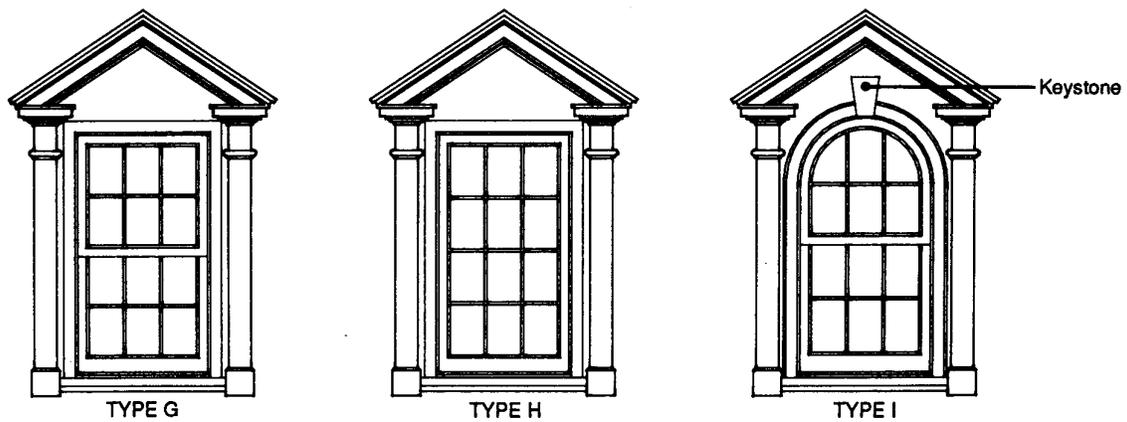




**COLONIAL GEORGIAN DETAILING**



**ORNAMENTAL COLONIAL DETAILING**



**NEOCLASSICAL DETAILING**

*Figure 3-3 : Dormers*

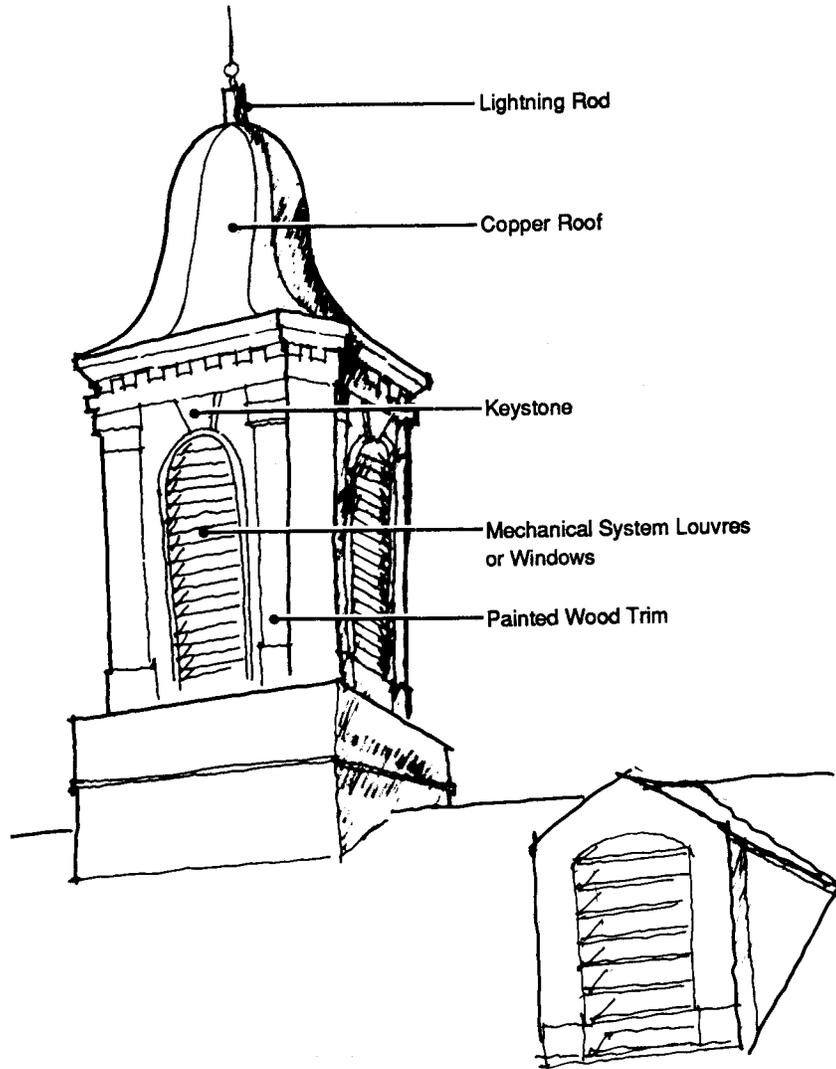


Figure 3-4 : A Cupola

Architectural Elements

The architectural style of a building will dictate the placement and detailing of building elements. Building elements help to reinforce the architectural style and complement the overall massing and facade composition.

- **Entrances** : Each building should have a well defined and easily locatable entrance. The entrance should convey the feeling that the building is a special place. It should be covered to provide protection from the elements upon entering or exiting (Figure 3-5). Entrances should be detailed to be distinctive with respect to the wall,

symbolizing their importance (Figure 3-6). Entrances should be located to reinforce and define the adjacent public spaces. The name and/or building number of the building should be incorporated into the entrance composition.

Building entrances should possess the following characteristics :

Physical qualities - Well defined, distinct from adjacent walls, strong, durable, well detailed to pedestrian scale.

Colors - Distinct from adjacent walls, compatible with Georgian structures.

Recommended materials - Cut stone or cast stone in warm greys, wood, concrete.

Door materials - Natural or painted wood, well detailed metal, clear glass.

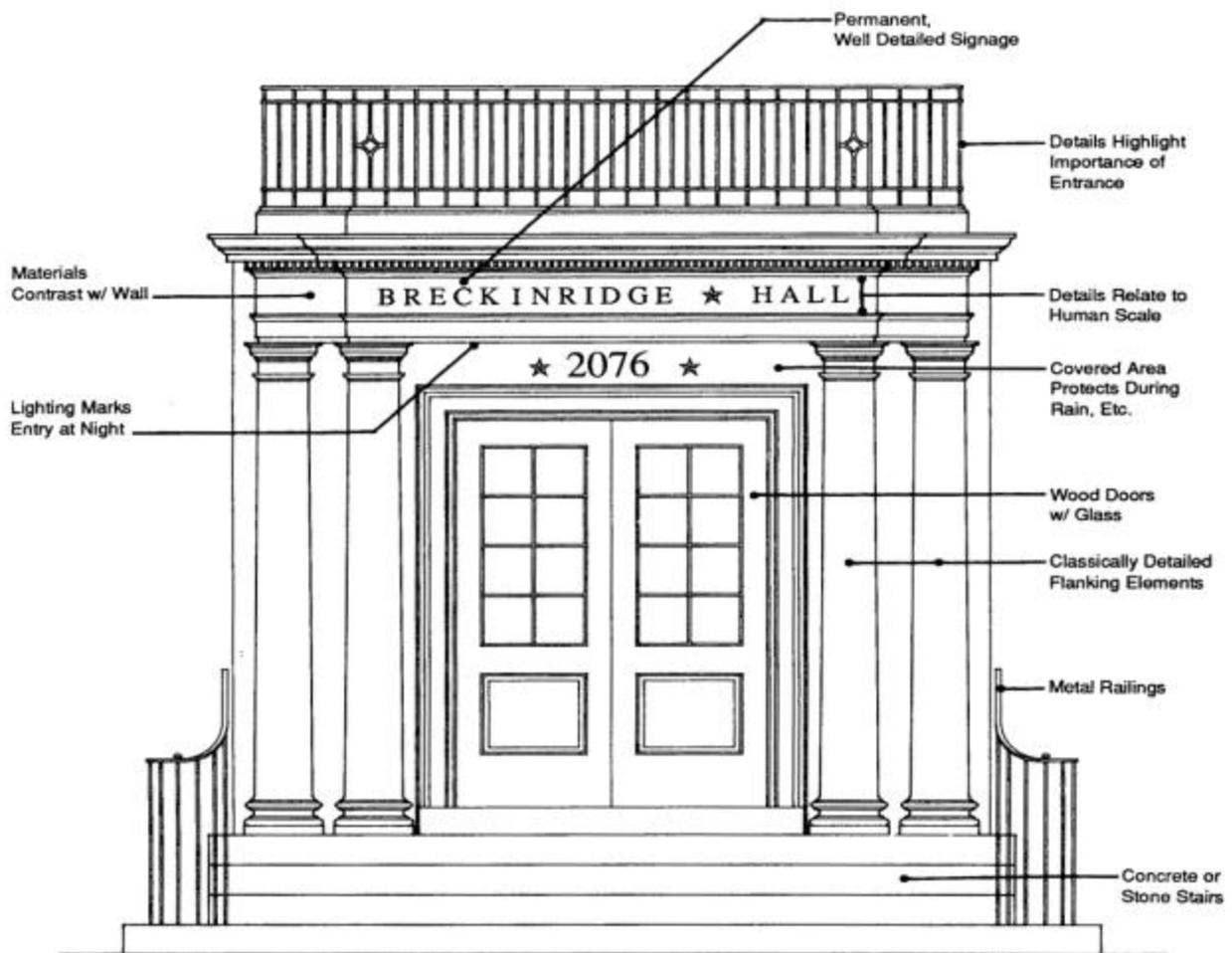


Figure 3-5: Primary Entrance

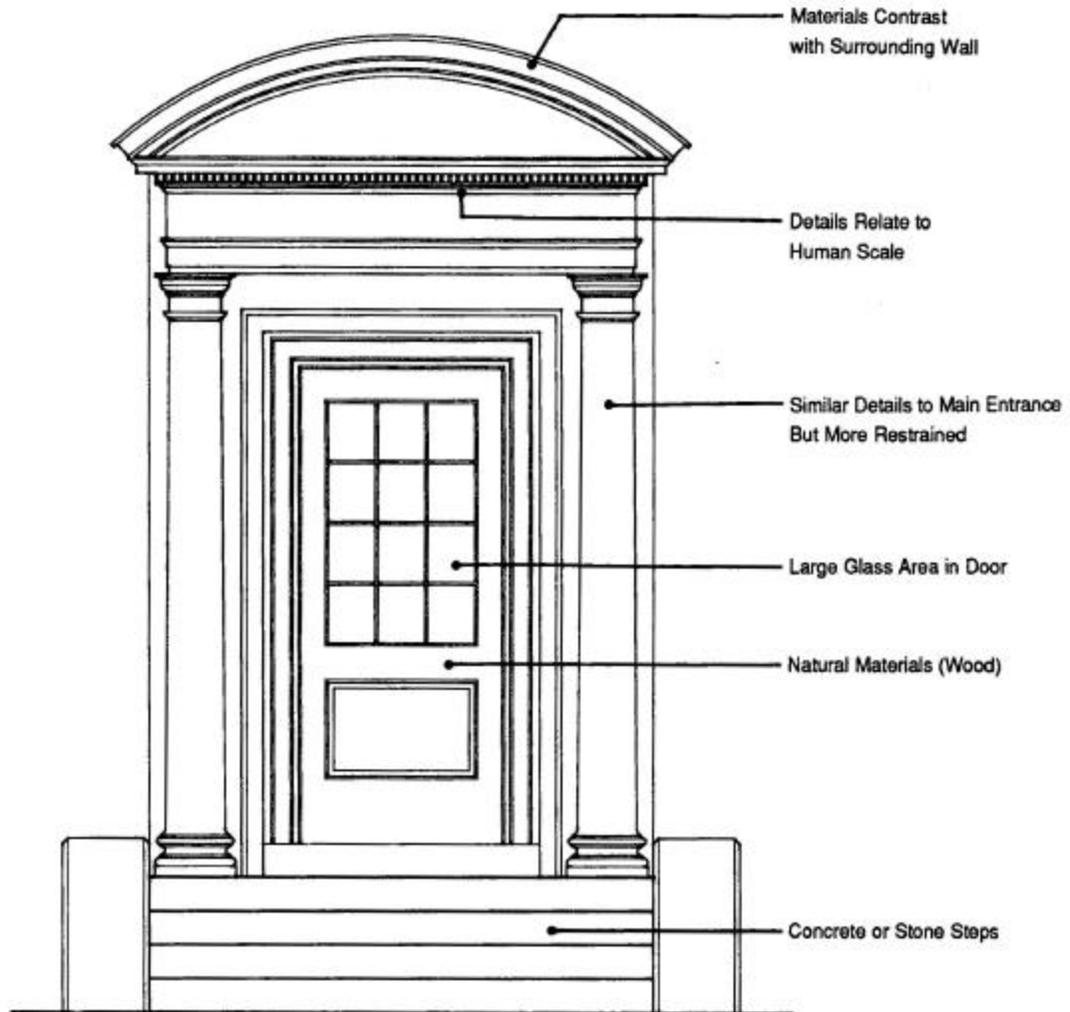
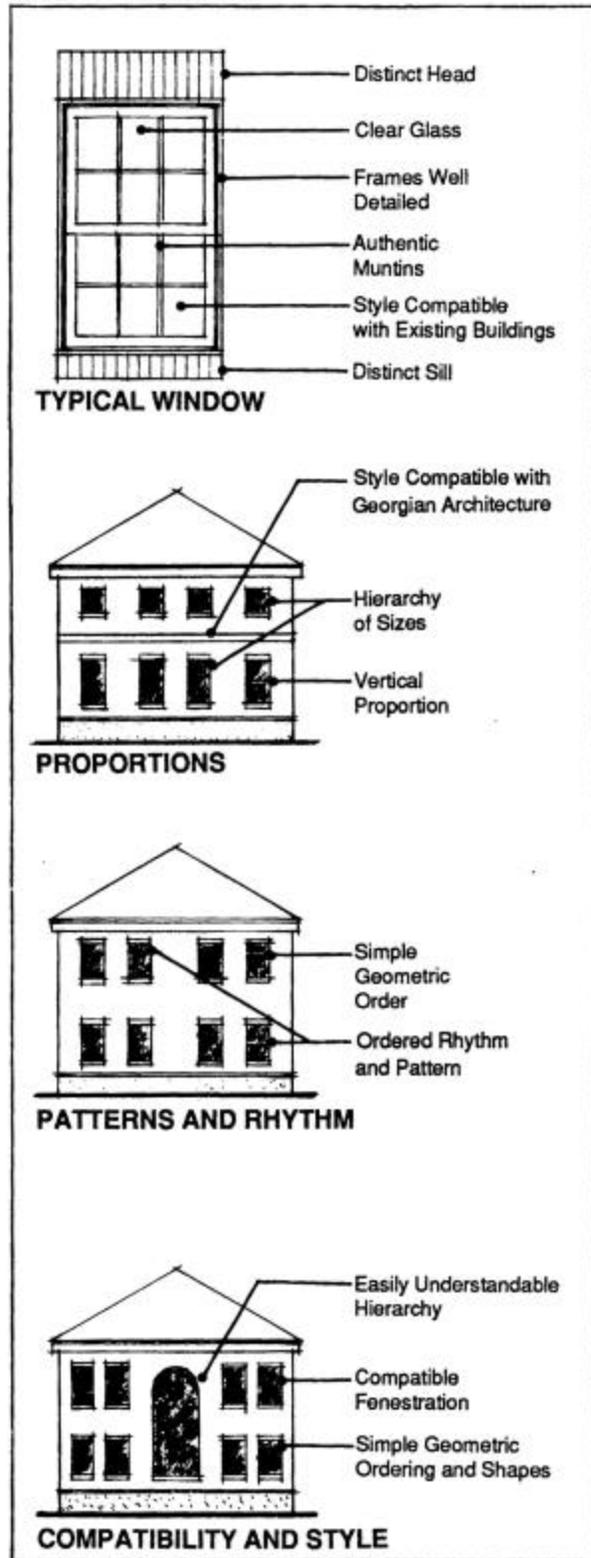


Figure 3-6: Secondary Entrance

- **Windows** : Windows should be of the punched variety with a vertical proportion. Sizes and shapes should be varied. Windows should have distinct heads and sills, preferably of materials that contrast with the dominant facade materials. The use of keystones, authentic muntins and mullions, clear glass, and other quality details are encouraged, especially at the pedestrian level. The percentage of window area to wall area should be carefully studied to be compatible with the existing Georgian structures (Figure 3-7). Special shapes and sizes should be used to emphasize special or important characteristics of the building.

**RECOMMENDED**



**NOT RECOMMENDED**

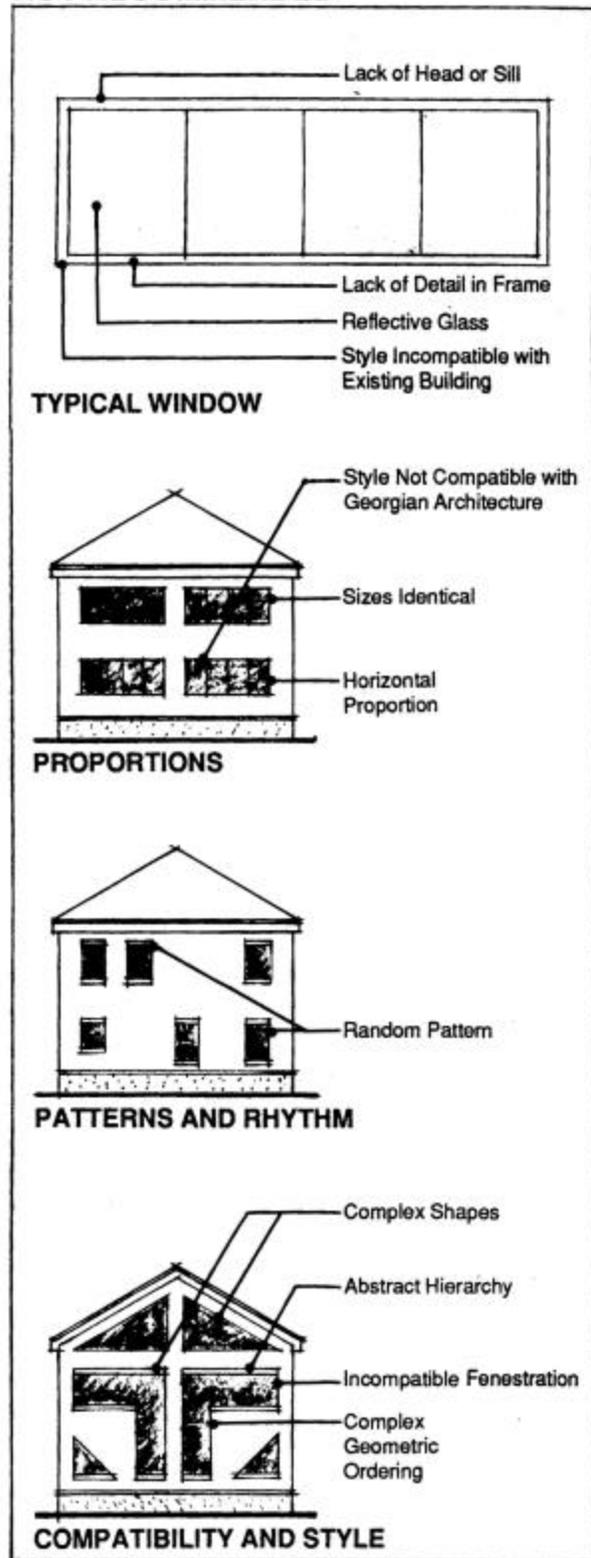


Figure 3-7 : Facade Composition using Windows

Physical qualities - Human scale detailing, quality materials and workmanship, clear glass, durable, distinct from wall, style compatible with Georgian structures or other dominant structures (*Figure 3-8 and 3-9*).

Colors - In contrast with wall color, compatible with adjacent structures.

Recommended types - Double hung, awning, casement, or fixed varieties as appropriate; operable wherever feasible.

Recommended materials - Painted wood, metal, metal clad wood, or manmade materials.

- **Ornamentation and Decoration** : Ornamentation plays an important role in Georgian architecture. The purpose of ornamentation is to clarify proportion and organize the various elements of a facade. Ornamentation adds a level of detailing compatible with the pedestrian scale. Details should be simple, geometric and linear. The use of ornamentation on buildings is encouraged.

Ornamental decoration should possess the following characteristics :

Physical qualities - Durable, well detailed, contrast with surrounding wall.

Colors - In contrast with surrounding wall.

Recommended materials - Painted wood or metal, concrete, stone or stone like materials, molded brick shapes.

- **Architectural Lighting** : Lighting plays an important role in architecture because it defines a building's nighttime character. Skillful lighting can strengthen an already excellent piece of architecture and add drama to public spaces. Exterior lighting should be carefully designed for all buildings. All entrances should have a lighting component (*Figure 3-10*). Every effort should be made to conceal building lighting. Exposed fixtures, such as those that may be used as an aesthetic detail, should be constructed of quality materials and have careful detailing which is harmonious with the architecture. Exterior lighting of important buildings and places is encouraged.
- **Architectural Signage** : Signs will be required to tell people where to go. Signage should be of high quality in a style that is harmonious with the architecture. Signage should not be backlit, but surface lit. It should be informative and discreet. All signage should conform to a set standard. Each building should have a name and a number designation. All buildings should have cast or carved names incorporated into their entrance designs.

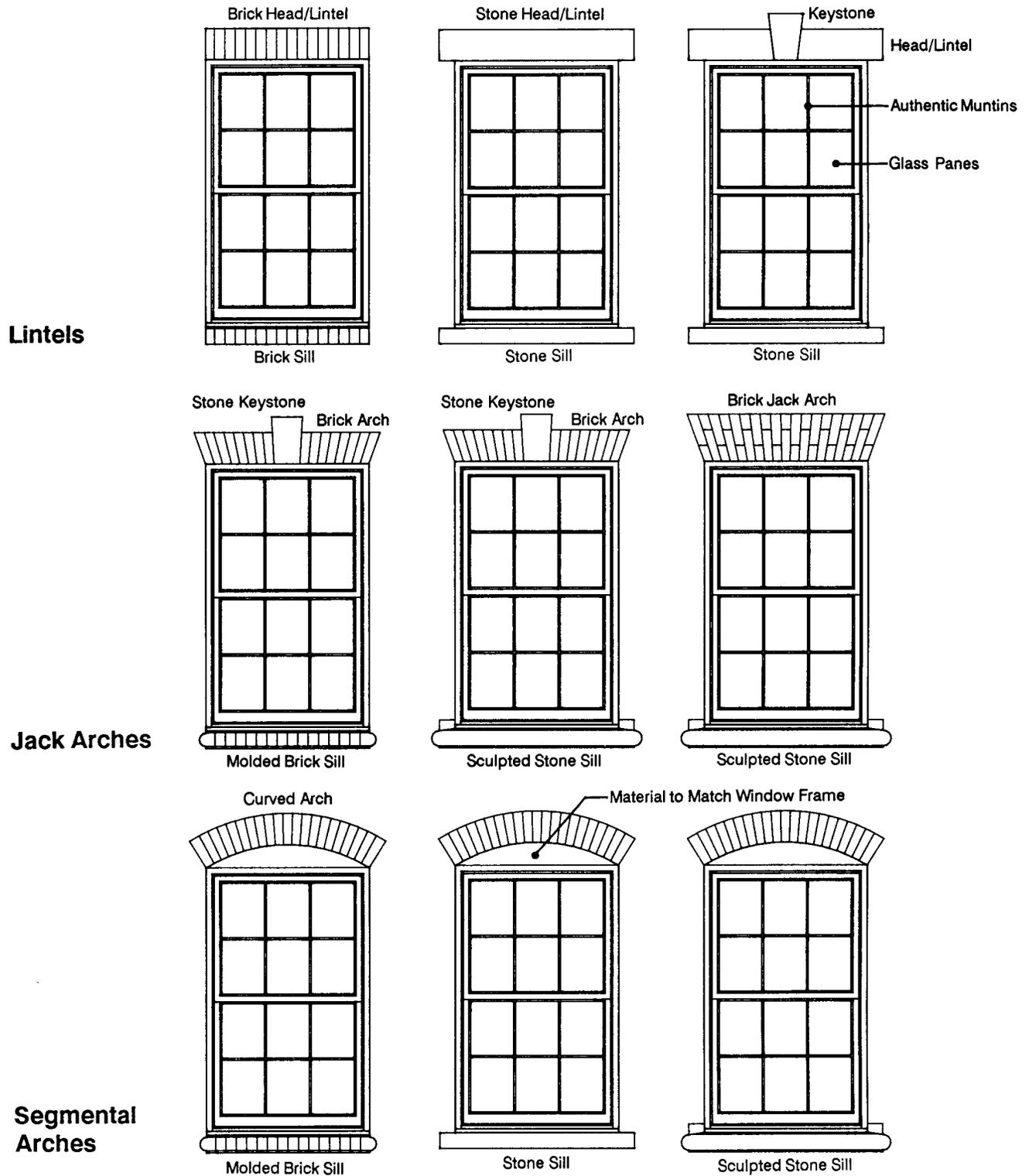
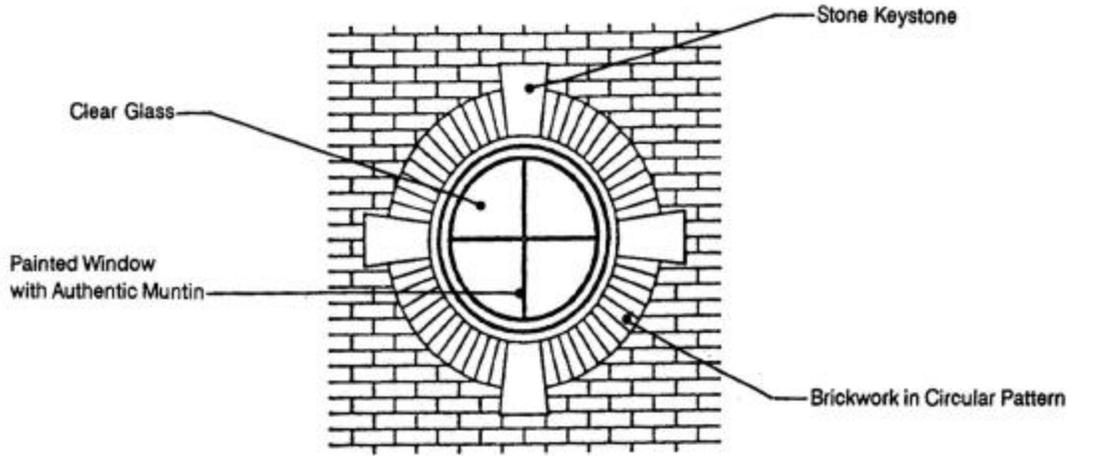
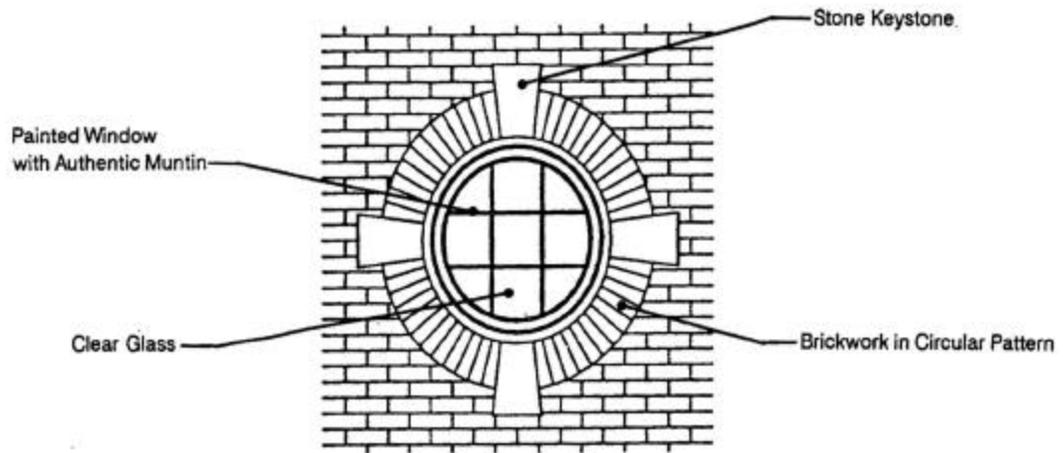


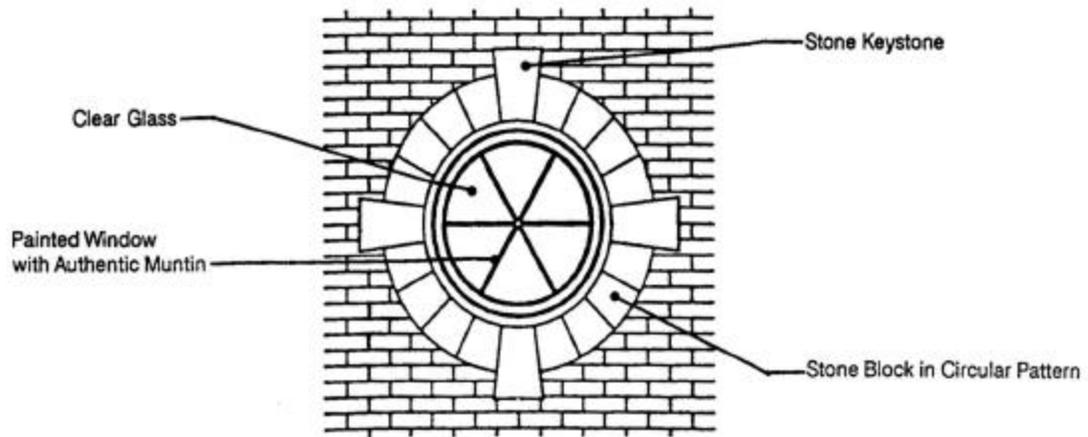
Figure 3-8: Arched Windows



**Circular Accent Window – Type 1**



**Circular Accent Window – Type 2**



**Circular Accent Window – Type 3**

*Figure 3-9: Circular Windows*

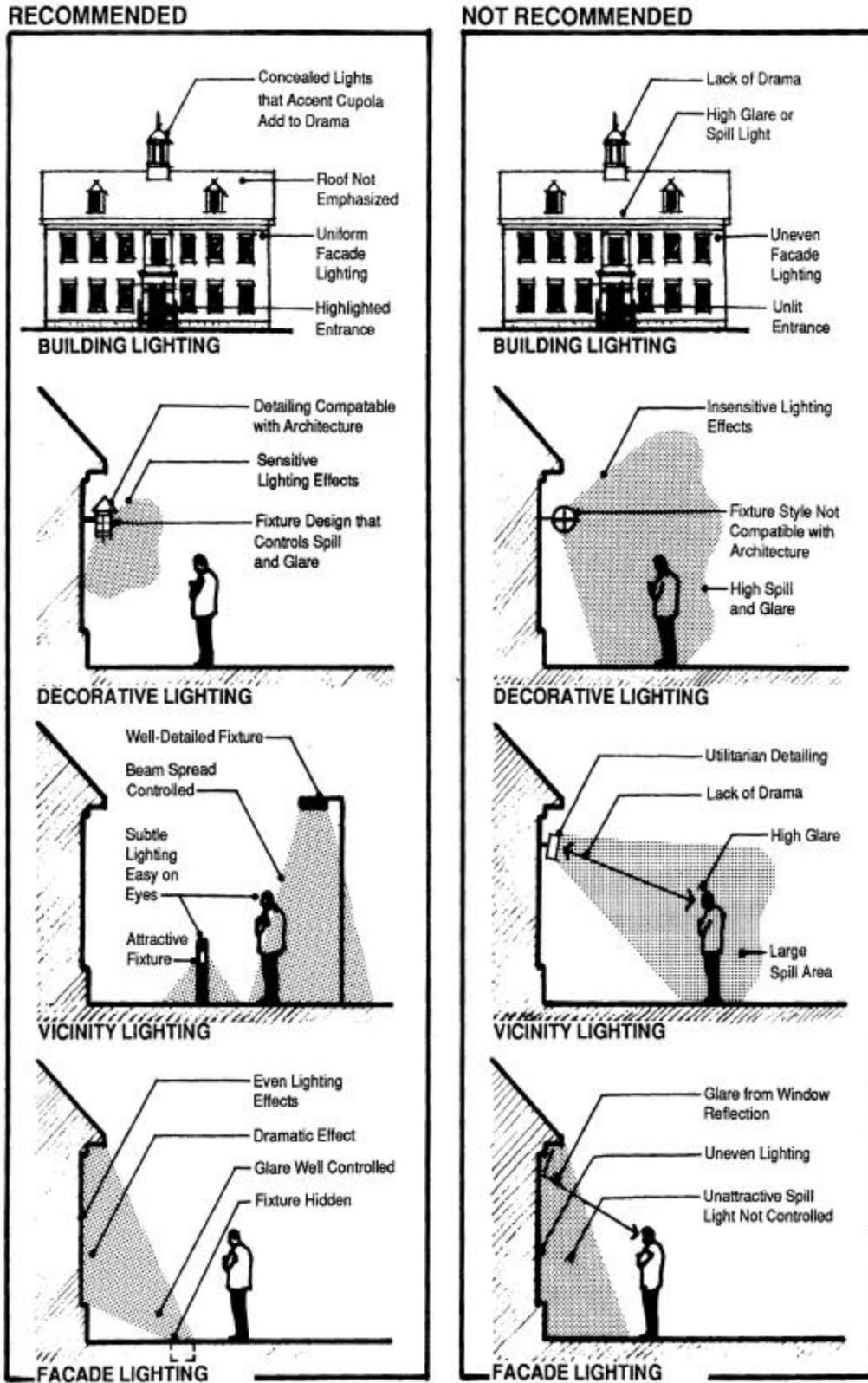


Figure 3-10 : Architectural Lighting

### 3.1.2 Other Districts

Some development districts of the Base have unique architectural styles, generally due to their period of development and the original function they were designed for. New construction and renovation projects in these districts should be in keeping with and try to emphasize the special character of the district to highlight its uniqueness.

#### The Chopawamsic Annex

This complex of buildings originated in the time of a segregated Marine Corps. The barracks and support facilities, originally built to house African-American troops, have been converted into administrative and other functions. The buildings have been renovated with inappropriate additions including the awnings and windows. The buildings in this district could potentially be included in the National Register of Historic Places. If included, any alterations to the exterior of these structures, either directly or through visual impacts, must be achieved through consultation with the Virginia State Historic Preservation Officer (SHPO).

Since the existing style and quality of construction is not appropriate for new construction projects, new buildings can be designed in a contemporary style but must resonate the style of the existing structures. Buildings should be more durable and sturdy than the barrack buildings. Selected building elements or qualities can be incorporated to achieve a positive visual relationship between new and existing structures.

A dominant feature of these buildings is the brick red color on the exterior. A unique feature is the sharp contrast between the front and rear faces of the buildings. Buildings are built to the human-scale and though they have large footprints, they look deceptively small due to the numerous wings or projecting arms and the low height. The relationship between the built and unbuilt (open) space between the buildings helps to provide a number of windows for natural light and ventilation. One of the buildings is provided with a veranda (semi-covered porch area) with a colonnade. This transitional relationship between the covered, semi-covered and open areas can be maintained in future construction.

#### Camp Barrett

Permanent development on Camp Barrett is a varied mix of contemporary styles and materials. Visually appealing buildings are generally masonry structures with a balanced massing and facade composition. New construction or renovation projects must take cues from visually appealing buildings in the vicinity, while minimizing the negative effect of buildings that detract from the visual quality of the area.

- Large, monotonous facades must be avoided. Buildings with large footprints can be divided into wings. Elements such as windows and entrances can be composed to make facades more interesting.
- Each building should have horizontal demarkations e.g. on every floor, and vertical sections e.g. columns, balcony walls or wings of the building.
- Building materials chosen should be durable as well as aesthetically appealing.
- Existing buildings of contrasting styles and materials within each area must be unified by similar colors and building elements.
- The CMU screen and the CMU colonnade have been successfully used here and can provide a precedent for future construction.
- Landscape and hardscape elements including special paving, flagpoles and planter boxes can be used to tie buildings together and highlight important buildings.
- Temporary buildings should be maintained in good condition and, where feasible, painted to follow the designated color scheme of the area. This will render them less conspicuous and help to blend in with permanent structures.

#### Weapons Training Battalion or Lloyd Range

WTBN of Lloyd Range is another area which has a wide range of architectural styles and materials used in the same vicinity. Common traits between the various buildings must be reinforced by future construction.

- The flat-roofed, two-storey, red brick barrack building (Bldg. no. 27266) is unique in this district. Barracks and related buildings must follow the example set by this building so that they may be visually related. Administration and training facilities are low in height with flat or sloping roofs. They are finished in white or light colors. Future construction should fit in with these buildings. In this way, the function of the buildings can be indicated by visual clues.
- Both temporary and permanent construction should be durable, functional and aesthetically appealing.
- Building elements should be well-articulated. e.g. windows should have a frame and sill of adequate thickness to contribute to the facade composition, large window panes should be subdivided using muntins similar to the windows of Georgian style buildings.
- Trelliswork should be used to screen utilities adjacent to buildings. Wood has been used for the existing trelliswork, but other materials may be explored as appropriate to the buildings in the vicinity. Vines and climbers may be grown on the trellis.

Camp Upshur

The architectural style on Camp Upshur is unique to this area due to the large number of quonset huts built here. The repetition of units is an integral part of the character. But the quality of the construction is not acceptable for future buildings and permanently occupied structures. Deteriorating structures should be demolished. New construction should be in keeping with the street layout and scale of structures existing here. Colors used here range from dark to light greys and white. CMU structures would blend in with existing colors while red brick could be used to highlight a building and give it prominence.

Family Housing District

The CNP<sup>1</sup> identifies specific deficiencies and proposes necessary improvements to bring the entire housing area up to Whole House and contemporary Department of Defense (DOD) standards, subject to Congressional limits. The CNP includes recommendations and guidelines for the architecture and exterior design of new or replacement units and also for improvements that will help to enhance the community character and identity, streetscapes, open space development, utility systems and surrounding development.

The reader is referred to that report for additional information.

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**NOTE :**

<sup>1</sup> Greenhorne & O'Mara, Inc., ibid

### 3.2 Landscape Architecture

The design process for landscape architectural projects involves a series of steps, including site inventory and analysis, program development, and conceptual design, which culminate in the final plan. All future projects at MCB Quantico should utilize this process, which is summarized as follows.

First, a complete inventory of existing conditions, including environmental and physical factors, should be conducted. Existing site factors affect the preservation of existing plant materials and the introduction of new plant materials. Factors to be documented include:

- Visual factors: Desirable and undesirable views of the site from outside as well as from within the site.
- Climatic data: Climatic conditions including temperature, wind, and rainfall that affect the site.
- Existing vegetation: Location of existing trees, shrubs, and grass areas.
- Soils: Physical characteristics and chemical properties of soils on the site.
- Hydrology: Distribution of surface drainage and flow of water on the site.
- Topography and slope analysis: Elevation differences on the site, showing high points, low points, and percent of slope.
- Spatial analysis: Existing architectural and natural features in relation to the human scale.
- Program analysis: All facilities and activities and how they relate or function individually and with each other.
- Circulation: Patterns of vehicular and pedestrian movement on and around the site.
- Noise factors: Areas on or around the site where noise can affect the design.
- Security requirements: Areas where security factors should be considered.
- Maintenance requirements: The degree of maintenance required or which can feasibly be provided.

A program should be developed before a design is started. Goals and design objectives, as well as the users' requirements, will direct the program's development.

After the site analysis and program have been completed, a conceptual design can begin. This involves the arrangement and massing of plant material in a design according to the site analysis and program. The objective of the conceptual design is to provide solutions for the site requirements, from which planting and preliminary costs can be determined. At this stage, plant materials are indicated according to the particular design objective or function (form, color, texture, and size) rather than by a particular species.

Once a satisfactory conceptual design has been developed, a final planting plan is prepared. This involves specifying the plant specie, size, and form. A thorough knowledge of native or adapted plant materials and their functional characteristics is required.

### 3 . 2 . 1 Plant Palette

Updated March 5, 2008

Plant survival is dependent upon the natural ability of a plant to withstand environmental variations in temperature, rainfall and soil quality. The following plant palette was selected based on its suitability to conditions in the Quantico Area, which is in the Arnold Arboretum Hardiness Zone 6/7. All plants included in the plant palette are hardy within at least the minimum temperature range, 10 to 5 degrees F, of this zone. A large number of native plants have been included. The plant palette complies with the *Presidential Memorandum on Environmentally and Economically Beneficial Practices on Federal Landscaped Grounds, April 26, 1994*. It is also in compliance with Executive Order 13112 of February 3, 1999, which directs Federal Agencies to prevent the introduction and spread of invasive species. Plants should be selected after studying the microclimate of the specific site on which they will be planted. A wide variety of plants are provided encompassing a diverse range of plant uses and characteristics. Plants of different sizes, shapes, foliage colors, flowers and fruits provide visual changes year round. The use of plant materials from this palette will contribute to the visual unity of the landscape throughout the campus.

*(Refer Table 3-1 : Plant Palette)*

#### Grasses

Mixture: 60 percent Bluegrass (mix of three improved varieties, 20:20:20):40 percent Perennial Ryegrass (mix of two improved varieties, 20:20)

TABLE 3-1  
PLANT PALLETTE

Species  Botanical Name (Common Name)	Height Range	Outstanding characteristics					Special Uses						Applications				
		Winter Form	Foliage	Bark	Fruit/ Flowers	Fall Color	Wet-Soil Tolerant	Poor-Soil Tolerant	Drought Tolerant	Pollution Tolerant	Full-Sun Tolerant	Shade Tolerant	Screen	Foundation	Street/Parking Lot	Large Openings	Native
<b>Large Deciduous Trees (over 50 feet)</b>																	
<i>Acer rubrum</i> "October Glory" (Red Maple)	40-60'					•					•				S	•	•
<i>Acer saccharum</i> (Sugar Maple)	60-75'					•					•					•	
<i>Betula nigra</i> (River birch)	40-70'			•			•										•
<i>Cercidiphyllum japonicum</i> (Katsuratree)	40-60'		•			•					•				S	•	
<i>Quercus palustris</i> (Pin Oak)	60-80"					•				•	•					•	•
<i>Quercus phellos</i> (Willow Oak)	60-90'					•	•			•	•					•	•
<i>Quercus rubra maxima</i> (Eastern Red Oak)	60-85'					•				•	•					•	•
<i>Taxodium distichum</i> (Bald Cypress)	50-70'		•	•			•				•						
<i>Tilia cordata</i> "Green Spire" (Green Spire Linden)	60-70'		•			•					•	•			S	•	
<i>Zelkova serrata</i> (Village Green Zelkova)	50-80'	•		•		•				•					S	•	
<b>Medium Deciduous Trees (30 to 40 feet)</b>																	
<i>Carpinus betulus</i> "Fastigata" (Upright European Hornbeam)	40-60'					•						•				•	
<i>Gleditsia triacanthos inermis</i> "Shademaster" (Thornless Honeylocust)	30-70'					•			•		•					•	
<i>Ulmus parvifolia</i> (Chinese Elm)	40-50'	•		•		•										•	
<b>Small Deciduous/Ornamental Trees (15 to 25 feet)</b>																	
<i>Acer palmatum</i> (Japanese Maple)	15-25'	•	•			•						•					
<i>Cercis canadensis</i> (Eastern Redbud)	20-30'				•						•				SP		•
<i>Cornus kousa</i> (Kousa Dogwood)	20-30'			•	•	•				•				•	SP		
<i>Chionanthus virginicus</i> (White Fringetree)	12-20'		•		•						•			•	SP		•
<i>Lagerstroemia indica</i> (Common Crape myrtle)	15-25"	•	•	•						•	•			•	SP		
<i>Magnolia x soulangiana</i> (Japanese Magnolia)	20-30'	•			•						•	•					
<i>Magnolia stellata</i> (Star Magnolia)	15-20'				•												
<i>Prunus cerasifera</i> "Thundercloud" (Purple leaf Plum)	15-30'		•		•									•	SP		

TABLE 3-1 (contd)  
PLANT PALETTE

<i>Species</i>	Height Range	<i>Outstanding characteristics</i>					<i>Special Uses</i>						<i>Applications</i>				
		Winter Form	Foliage	Bark	Fruit/ Flowers	Fall Color	Wet-Soil Tolerant	Poor-Soil Tolerant	Drought Tolerant	Pollution Tolerant	Full-Sun Tolerant	Shade Tolerant	Screen	Foundation	Street/Parking Lot	Large Openings	Native
<i>Botanical Name</i> (Common Name)																	
<b>Evergreen Trees</b>																	
<i>Cedrus deodara</i> (Deodar Cedar)	40-70'	•	•						•		•						•
<i>Ilex cornuta</i> "Burfordii" (Burford Holly)	10-15'	•	•		•						•	•	•				
<i>Ilex x fosteri</i> (Foster's Holly #2 or #3)	15-20'	•	•		•						•	•	•				
<i>Ilex x "John Morris"</i> (John Morris Holly)	12-20'	•	•		•						•	•	•				
<i>Ilex x "Lydia Morris"</i> (Lydia Morris Holly)	12-20'	•	•		•						•	•	•				
<i>Ilex opaca</i> (American Holly)	15-30'	•			•					•	•		•				•
<i>Magnolia grandiflora</i> (Southern Magnolia)	30-50'	•	•		•					•	•	•	•				•
<i>Picea abies</i> (Norway Spruce)	40-50'	•	•										•				•
<i>Pinus bungeana</i> (Lace Bark Pine)	30-50'	•	•	•									•				•
<i>Pinus nigra</i> (Austrian Pine)	50-60'	•	•	•									•				•
<b>Deciduous Shrubs</b>																	
<i>Cornus racemosa</i> (Gray Dogwood)	10-15'	•			•	•		•					•				
<i>Cornus sericea</i> (Redosier Dogwood)	7-9'				•		•			•			•				
<i>Cotoneaster apiculata</i> (Cranberry Cotoneaster)	3'				•	•		•		•				•			
<i>Forsythia intermedia</i> (Border Forsythia)	8-10'				•												
<i>Myrica pennsylvanica</i> (Northern Bayberry)	5-12'	•	•		•			•					•				
<i>Rhododendron calendulaceum</i> (Flame Azalea)	4-6'		•		•								•		•		
<i>Rhododendron roseum</i> (Roseshell Azalea)	2-8'				•	•							•		•		
<i>Viburnum plicatum tomentosum 'Mariesii'</i> (Marie's Doublefile Viburnum)	8-10'				•	•											

TABLE 3-1 (contd)  
PLANT PALETTE

Species  Botanical Name (Common Name)	Height Range	Outstanding characteristics					Special Uses					Applications				
		Winter Form	Foliage	Bark	Fruit/ Flowers	Fall Color	Wet-Soil Tolerant	Poor-Soil Tolerant	Drought Tolerant	Pollution Tolerant	Full-Sun Tolerant	Shade Tolerant	Screen	Foundation	Street/Parking Lot	Large Openings
<b>Broadleaf Evergreen Shrubs</b>																
<i>Azalea hybrida</i> "Glen Dale" (Glen Dale Azalea)	4-6'				•						•		•			
<i>Azalea hybrida</i> "Satsuki" (Satsuki Azalea)	2-4'				•						•		•			
<i>Ilex cornuta</i> "Burfordii Nana" (Dwarf Burford Holly)	3-8'	•	•		•					•	•		•			
<i>Ilex cornuta</i> "Carissa" (Carissa Holly)	3'	•	•										•			
<i>Ilex crenata</i> "Helleri" (Helleri Japanese Holly)	3-5'		•										•			
<i>Ilex glabra</i> "Compacta" (Compact Inkberry)	3-5'		•										•			
<i>Itea virginica</i> (Virginia Sweetspire)	3-5'				•	•	•		•	•	•	•				•
<i>Prunus laurocerasus</i> "Zabeliana" (Cherry Laurel)	10-18'											•	•			
<i>Rhododendron catawbiense</i> (Catawba Rhododendron)	6-10'		•								•					
<b>Narrowleaf Evergreen Shrubs</b>																
<i>Juniperus chinensis sargentii</i> "Glauca" (Glauca Sargent Chinese Juniper)	3-6'	•	•							•	•		•			
<i>Juniperus chinensis</i> "Sea Green" (Sea Green Juniper)	3-6'	•	•							•	•		•			
<i>Pinus mugo</i> (Mugo Pine)	4-8'	•	•							•	•		•			
<i>Taxus cuspidata</i> "Nana" (Dwarf Japanese Yew)	5-10'	•	•						•	•	•	•	•			
<i>Taxus media</i> "Densiformis" (Dense Yew)	4-8'	•	•							•	•	•	•			
<b>Groundcovers and Vines</b>																
<i>Juniperus horizontalis</i> 'Plumosa' (Plumosa Creeping Juniper)	12-24"	•	•							•		•	•	•	P	
<i>Juniperus horizontalis</i> 'Wiltoni' (Blue Rug Juniper)	4-6"	•	•							•		•	•	•	P	
<i>Juniperus horizontalis</i> 'Bar Harbor' (Bar Harbor Juniper)	8-18"	•	•							•		•	•	•	P	
<i>Pachysandra terminalis</i> (Pachysandra)	6-12"		•		•						•				P	
<i>Parthenocissus quinquefolia</i> (Virginia Creeper)	vine		•			•	•	•		•	•	•				•
<i>Parthenocissus tricuspidata</i> (Boston Ivy)	vine		•			•				•	•	•				

TABLE 3-1 (contd)  
PLANT PALETTE

Species  Botanical Name (Common Name)	Height Range	Outstanding characteristics					Special Uses					Applications					
		Winter Form	Foliage	Bark	Fruit/ Flowers	Fall Color	Wet-Soil Tolerant	Poor-Soil Tolerant	Drought Tolerant	Pollution Tolerant	Full-Sun Tolerant	Shade Tolerant	Screen	Foundation	Street/Parking Lot	Large Openings	Native
<b>Additional Native Alternatives</b>																	
<b>Trees</b>																	
<i>Amelanchier arborea</i> (Shad Bush or Downey Serviceberry)	15-25'				•	•	•		•		•	•			P		•
<i>Amelanchier canadensis</i> (Thicket Serviceberry)	6-20'				•	•	•		•		•	•			P		•
<i>Cornus florida</i> (Flowering Dogwood)	20-30'				•	•					•	•		•	P		•
<i>Diospyros virginiana</i> (Common Persimmon)	50-75'				•	•		•			•					•	•
<i>Malus coronaria</i> (Sweet Crabapple)	20-30'				•	•					•			•	P		•
<i>Ostrya virginiana</i> (American Hophornbeam) "Ironwood"	25-40'								•		•	•			SP		•
<i>Prunus americana</i> (Wild Plum)	15-25'				•				•		•				P		•
<i>Viburnum prunifolium</i> (Blackhaw)	12-15'				•				•		•	•			P		•
<b>Shrubs</b>																	
<i>Aronia melanocarpa</i> (Black Chokeberry)	3-5'				•	•	•	•	•		•	•			P		•
<i>Lindera benzoin</i> (Spice Bush)	6-12'					•	•				•	•					•
<i>Symphoricarpos orbiculatus</i> (Coralberry)	2-5'				•							•					•
<i>Vaccinium corymbosum</i> (Highbush Blueberry)	6-12'				•	•					•						•
<b>Groundcovers and Vines</b>																	
<i>Asarum canadense</i> (Canadian Wild Ginger)	6-12"	•			•							•					•
<i>Campsis radicans</i> (Trumpet Creeper)	vine				•		•	•	•	•	•	•		•			•
<i>Carex pennsylvanica</i> (Pennsylvania Sedge)	4-18"		•		•				•		•	•					•
<i>Schizachyrium scoparium</i> (Little Bluestem)	6-12"							•	•								•

TABLE 3-1 (contd)  
PLANT PALETTE

Species  Botanical Name (Common Name)	Height Range	Outstanding characteristics					Special Uses					Applications					
		Winter Form	Foliage	Bark	Fruit/ Flowers	Fall Color	Wet-Soil Tolerant	Poor-Soil Tolerant	Drought Tolerant	Pollution Tolerant	Full-Sun Tolerant	Shade Tolerant	Screen	Foundation	Street/Parking Lot	Large Openings	Native
<b>Invasives (Do Not Plant)</b>																	
<b>Trees</b>																	
<i>Acer ginnata</i> (Amur Maple)	15-18'																
<i>Acer platanoides</i> (Crimson King Maple)	40-50'																
<b>Shubs</b>																	
<i>Berberis thunbergii atropurpurea</i> "Crimson Pigmy" (Crimson Pigmy Barberry)	2'																
<i>Berberis thunbergii atropurpurea</i> (Japanese Barberry)	3-6'																
<i>Euonymus alatus</i> (Winged Euonymus)	10-20'																
<i>Euonymus alatus "Compactus"</i> (Dwarf Winged Euonymus)	7-10'																
<b>Groundcovers and Vines</b>																	
<i>Euonymus fortunei "Coloratus"</i> (Wintercreeper Euonymus)	4-6'																
<i>Vinca minor</i> (Common Periwinkle)	3-6"																
<b>Grasses and Seed Mix (Do not Plant)</b>																	
<i>Sericea lespedeza</i> (Chinese Bush Clover)	2-5'																
<i>Festuca arundinacea</i> (Tall fescue)	3-4'																
<i>Miscanthus sinensis</i> (Chinese Silver Grass)	10-12'																
<i>Eragrostis curvula</i> (Weeping Lovegrass)	12-24"																

### Plant Materials

Trees, shrubs, and groundcovers shall be in compliance with American Standard for Nursery Stock (ANSI Z60.1 publication). All plants shall be sound, healthy, and free from disease and insect pests or their eggs, and shall have normal, healthy root systems. Plants shall be dug with firm, natural balls of earth of sufficient diameter and depth to encompass the fibrous and feeding root systems necessary for full recovery. Balls shall be securely wrapped with burlap and bound with cord. No balled and burlapped plant shall be planted if the ball is cracked or broken. Bareroot plants shall be handled in a manner that protects the roots at all times. No plant shall be bound with rope or wire in a way that will damage the bark or break the branches.

To assure the quality of landscape materials, plants shall be provided with certificates of inspection required by the local jurisdiction. Submittals shall be made by the contractor to the Base's designated representative for all materials to be furnished. This may include such items as a certificate of inspection for plant materials; submittals of manufacturer's data or literature for tree wrap, antidesiccant, and steel edging; topsoil analysis report; planting schedule; soil amendments; fertilizers; and maintenance instructions. MCB Quantico shall reserve the right to inspect and reject plants prior to planting.

### **3.2.2 Planting Guidelines**

Guidelines for planting operations are outlined below. Once a planting scheme is selected, the installation of plant material should be carried out in keeping with these planting guidelines.

### Planting Seasons

Generally, the planting seasons in the Quantico area extend from September 1 to July 1. Most trees, shrubs, groundcovers, and vines should be planted between these times. Lawn grasses should be seeded between mid March and mid June or between September 1 and November 1. No planting shall be performed while the soil is excessively wet or frozen.

### Preparation For Planting

- **Topsoil** : Provide good quality topsoil that has been selectively excavated; is representative of soils in the vicinity that produce heavy crops, grass, or other vegetation; and is free from stones, underlying subsoil, clay lumps, objectionable weeds, litter, brush, matted roots, toxic substances, or any material that would be a hindrance to grading, planting, or maintenance operations.

Test all topsoil prior to use for organic content, percent of silt, sand, clay, and other foreign materials, such as rocks, roots, and vegetation.

Additional soil testing (agricultural soil test) should be performed to determine soil pH and phosphate and potash content. The landscape contractor is responsible for furnishing these tests in report form. The report should also indicate the amount and type of soil amendments necessary to bring the topsoil to specified levels. All laboratory tests are to be submitted to the Base's representative for review.

- **Soil Preparation and Soil Mixes** : Soil preparation and mixes should be provided in accordance with the results of soil test data. The landscape contractor is to furnish the specified soil amendments, fertilizers, and conditioners as required by the agricultural soil test. Guidance as to the type of the above mentioned elements to be used are identified below.
- **Amendments**  
Lime: Provide raw ground limestone.  
Bonemeal: Provide commercial, finely ground, raw bonemeal.  
Gypsum: Furnish U.S. Grade Fine Gypsum.  
Superphosphate: Provide soluble mixture of treated minerals.
- **Fertilizers**  
Commercial mixed fertilizer: Provide a commercial fertilizer that is uniform in composition and free flowing.
- **Soil Conditioners**  
Peat: Provide a natural product.  
Sand: Provide clean sand that is free of toxic materials.

#### Planting Operations

- **Planting Procedures** : If the plant is balled, cut burlap away from the top of the ball and roll back into the top of the backfill. If the plant is in a container, cut the container away and discard. Set plant upright on a compacted cushion of topsoil mixture so that the top of the roots or ball will bear the same relation to grade as before transplanting. No filling will be permitted around the trunk or stems. Roots of bare root plants shall not be allowed to mat together, but shall be spread and arranged in their natural position and have the planting mixture worked in among them. All broken or frayed roots shall be cut off.

When the plant has been properly set, the pit shall be backfilled with planting mixture, and gradually filled, tamped, and settled with water. Complete the backfill, wetting lightly and tamping to remove all air pockets so that the plant is firmly and completely bedded. Construct

a shallow rim of earth (watering saucer) around the outer edge of the hole. Build the rim up so that the saucer will retain water.

- **Mulching** : Mulch within 48 hours after planting operations are complete. Fill plant saucer with shredded hardwood bark mulch, peat moss, bark chips, or other approved material to a depth of 2 to 3 inches. In groundcover areas, mulch bed to a uniform depth of 2 inches.
- **Fertilizing** : Newly transplanted plant materials generally do not require fertilizing.
- **Watering** : All plants shall be thoroughly soaked after planting. Newly planted areas should be watered, depending on the weather, at least once a week to provide necessary moisture for development of the new root system. After each watering, all beds should be raked and left in a finished manner.
- **Pruning and Repair** : The following standard pruning procedures should be followed. When planting has been completed, all dead and broken branches shall be removed by pruning and the injuries repaired. The amount of pruning should be limited to the minimum necessary to remove dead or injured twigs and branches and to compensate for the loss of roots from transplanting. Pruning shall be done in a manner that will not change the natural habit or shape of the plant. All cuts should be made flush, leaving no stubs.
- **Clean Up** : After planting operations have been completed, remove all excess soil, debris, and waste materials, and leave the planted area in an orderly fashion.

### 3.2.3 Maintenance

Maintenance is a primary concern for any landscaped environment. The quality of maintenance determines the ultimate success or failure a design. The landscaped environment is not static and requires ongoing maintenance to both the plant materials and structural components to fulfill its desired goal. The following maintenance schedule has been formulated to assist in planning the Base landscape maintenance program.

#### Winter

- **Flowers**: Plan seasonal flower areas for the upcoming season. Ensure that perennial beds are properly protected with mulch.
- **Lawn**: Plan lawn program for the upcoming year. Repair tools and equipment.

- Groundcovers and vines: Prune dead, woody vines during dormant season. Protect plants with mulch during freezing weather if no snow cover is present.
- Trees and shrubs: Protect easily damaged plants from the weight of snow. Water plants if the season has been dry and the ground is not frozen. The best watering practice is a slow soak. Prune summer and fall blooming plants while they are still dormant.

### Spring

- Flowers: Conduct soil tests on all flower beds. Divide crowded perennials after the end of flowering. Plant annuals in late spring, fertilize with a water soluble fertilizer (5 10 5), and begin weed control after planting.
- Lawn: Begin major lawn care program - mow to remove excess old growth; test soil, adjust pH to 6.5, rake, top dress, and seed bare spots. Overseed if this was not done the previous fall; dethatch and aerate lawn areas at 3 to 4 year intervals. Mowing schedule is as follows. Improved grounds: minimum height 2 inches, maximum height 4 inches. Semi improved grounds: minimum height 3 to 4 inches, maximum height 6 to 8 inches. Mow on an average of once every 2 to 4 weeks during rapid growth periods or when a height of 6 to 8 inches has been reached; never remove more than one fourth of the height at one time, since this will damage the leaf blade. Unimproved grounds: mow a minimum of twice a year. Weed and pest control - Apply pre-emergent control for knotweed and crabgrass; check for chickweed growth; control wild garlic, onion, plantains, and dandelion; apply chemicals for grub control.
- Groundcover and vines: Remove winter damaged foliage. Fertilize plants. Apply new 3 to 4 inch layer of mulch.
- Trees and shrubs: Finish pruning plants that bloom after June 30. Fertilize after the ground thaws. Apply new 3 to 4 inch layer of mulch. Prune evergreens before new growth spurt so that cuts will be quickly covered. Prune early spring flowering plants after the end of their flowering season.

### Summer

- Flowers: Check flowers closely for insects. Continue fertilizer and weed control schedule. Water as needed. Remulch beds to conserve moisture and control weeds.
- Lawn: Water lawns as needed. Raise mower height to 3 inches for improved areas.
- Groundcovers and vines: Water as needed.

- Trees and shrubs: Finish pruning spring flowering shrubs. Water as needed. Remulch as needed to conserve moisture and lower soil temperature. Fertilize broadleaf evergreens after blooming with a 5 10 5 fertilizer for acid loving plants.

### Fall

- Flowers: Continue to water as needed. Clean up annual beds and plow under at the end of the season. Beds may be mulched or planted with winter rye grass to add nutrients. Plant spring flowering bulbs.
- Lawns: Test soil pH, fertilize based on soil test, dethatch, aerate, top dress, and reseed. Set mower height for 2 inches in improved lawn areas. Remove leaves from grass. Water so that the turf begins the dormant season in a moist condition.
- Groundcovers and vines: Continue to water as needed until the ground freezes. Remove dead leaves, twigs, branches, and other debris. Remulch.
- Trees and shrubs: Rake fallen leaves and make a compost pile. Continue to water as needed until the ground freezes. Fertilize trees and shrubs that are not receiving fertilizer from application to other areas.

### Tree Protection during Excavation and Construction

Extreme care should be taken to protect trees from damage when excavation and construction work is planned in the vicinity of trees. Compaction of earth can take place when the earth within the crown of the tree is used for storage or driven over with vehicles or machinery. Compaction can cause severe root damage and reduce the air and water holding capacity of the soil.

A surrounding barrier should be used to cordon off the crown spread of the tree (*Figure 3-11*). If this area should get compacted during the construction work, the soil should be aerated thoroughly after the work is over. When minor work is planned in the vicinity of a tree or the tree is further away from the construction site, tree trunk barriers must be used for protection from impact or abrasion.

Trees and other vegetation should also be protected from damage caused by vehicles or machinery being driven over or parked in the vicinity of their crowns or root zones. Where vehicular access is necessary, the route or parking should be clearly defined and separated from planting areas via bollards, fences or other permanent barriers.

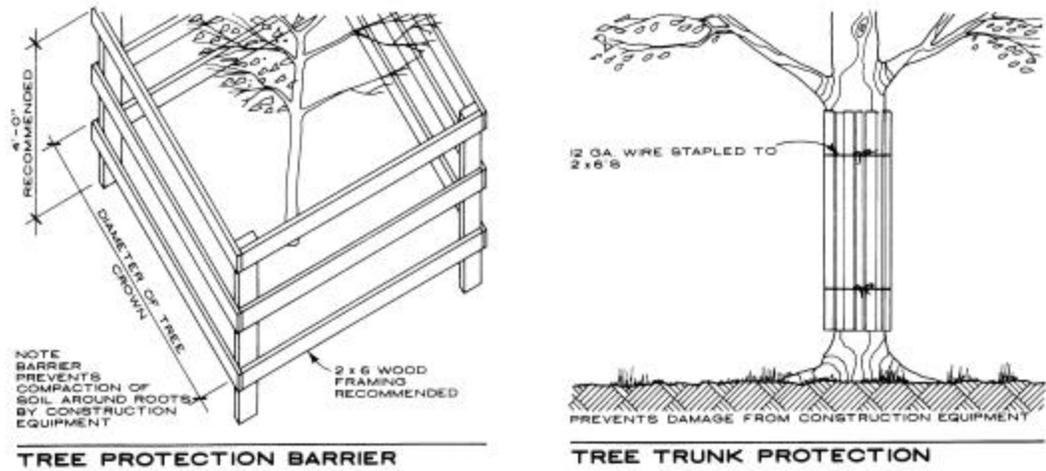


Figure 3-11 : Tree Protection <sup>2</sup>

### 3 . 2 . 4 Landscape Considerations and Restrictions

All the mechanics for introducing plant materials into the environment are too numerous to list for purposes of this document. A professional, such as a landscape architect, landscape contractor, horticulturist or nurseryman, should be consulted prior to any landscape planting. The plant palette and planting guidelines described in the previous section are general instructions and may need to be tailored for specific plants, sites and designs. However, there are some basic considerations concerning placement, choice, and maintenance that should be observed by the designer. In addition, all Marine Corps security and safety criteria must be taken into account since they will impact all planting designs. The following is a list of fundamental considerations for the use of plant materials at MCB Quantico.

- Avoid the use of potentially dangerous plants, such as those having large thorns or poisonous fruit.
- Overhead materials should be selected for their particular characteristics. Avoid materials that have tendencies toward dropping excessive debris or are susceptible to drooping or breaking under heavy snow or wind loads.

**NOTE :**

<sup>2</sup> Ramsey, C.G. and Sleeper, H.R., *Ramsey/Sleeper Architectural Graphic Standards*, John Wiley & Sons, New York, 1994.

- Plant materials may affect snow and ice melt from walkways and stairs. Consider plants' mature shadow patterns during winter months prior to deciding on final locations. Snow removal and storage must also be considered since snow stored in planting areas can damage plant materials.
- Along roadways, avoid the use of species that are sensitive to salt damage.
- Maintain a minimum of 8' 6" vertical clearance between low tree branches and walls, sitting areas, pedestrian paths, etc.
- Note that improper location or poor maintenance of plant materials can quickly lead to a reduction in the efficiency of lighting systems.
- Many trees with shallow or surface root systems will heave up or break walkway surfaces. Use caution when choosing these varieties and their locations.
- Avoid placing plant materials over or near underground utilities to avoid root interference. Avoid plants with root systems that characteristically cause damage to pipelines, cables, or sewers. In all cases, prior to initiating a landscape plan, the designer should verify the location of existing facilities.
- Trees must be placed according to mature height and spread to avoid interference with power lines, etc. Where there are numerous utilities, a utility easement should be established, free of all plantings other than lawn.
- Creeping groundcovers, vines, and other invasive materials can be troublesome if not contained. Keep them from buildings, walkways, steps, ramps, signs, and lighting fixtures.
- Plantings should be located to avoid interference with public rights of ways, utilities, or streets, particularly at intersections where visual obstructions may occur. As a rule of thumb, plantings should be contained within property boundaries, and should not intrude on the adjacent rights of way. Federal, state, and local sight line criteria should be observed as a minimum at intersections and points of entry.

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### 3.3 Circulation and Parking

A large area of open space on the Base is dedicated to parking and circulation. Enhancing the functional and aesthetic value of parking and circulation infrastructure can have a significant base-wide effect.

#### 3.3.1 Vehicular Circulation

The vehicular circulation system, i.e. the road system, provides the primary means of on-site access to the Base. It is also the primary vantage point along which the Base is experienced.

- The hierarchy of the road network must separate incompatible kinds of traffic.
- Primary roads carrying high speed traffic should have a minimum of curb-cuts, providing entry to major facilities or groups of buildings.
- Medians or median barriers should be provided for roads carrying traffic at high speed or in large volume.
- Sidewalks, running or bicycle paths along major roads should be separated from the road by a planting strip.
- Sidewalks should be provided on both sides of primary and secondary roads, and on one side for tertiary roads, cul-de-sacs or roads with low pedestrian traffic.
- For primary roads, a minimum of 10 feet of buffer planting between the road and adjacent parcel or building should be provided. Street tree planting can be used to create an "avenue" effect to emphasize the importance of a major street.
- New roads should be constructed to match natural grades and site conditions as closely as possible.
- Use retaining walls or tree wells to preserve noteworthy specimens of trees where cut and fill slopes threaten the root system and the survival of the tree.
- Promote revegetation of areas disturbed due to road construction. Use serrated slope edges on steep slopes to facilitate revegetation and moisture retention, and control soil erosion.
- Coordinate streetscape elements to minimize clutter and follow a uniform style and organization.
- Provide curbs and gutters to channel storm drainage in densely developed areas. In rural areas, the use of swales or ditches is recommended.
- Cross streets should be designed to meet at 90 degrees where possible. Intersections should allow for appropriate sight distances to ensure safety of motorists.

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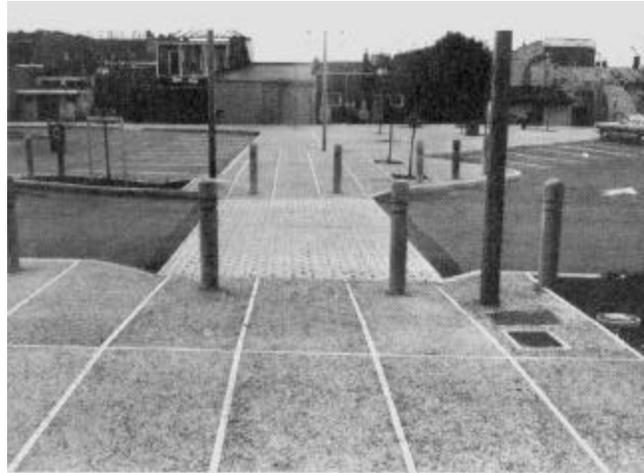
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### 3.3.3 Pedestrian Circulation

Pedestrian circulation is an important component in expressing the environmental theme within special areas and base wide. Improvements to the pedestrian atmosphere should be incorporated into new construction and major renovation projects to ensure that it contributes to the positive image of the Base.

- The basic walkway system should provide a continuous, unbroken circulation network linking major points of destination and following existing or logical desire lines of travel.
- Walkways will be designed as a hierarchical network depending on level of use. Walkways with higher level of use (primary walkways) will have hard surface paving, high level of lighting, pedestrian amenities and landscape features. With lower levels of use, softer paving materials can be used and little or no lighting and pedestrian amenities will be needed.

*Figure 3-12 : An efficient pedestrian system with paved and patterned crosswalk, handicapped ramps and bollards. <sup>3</sup>*



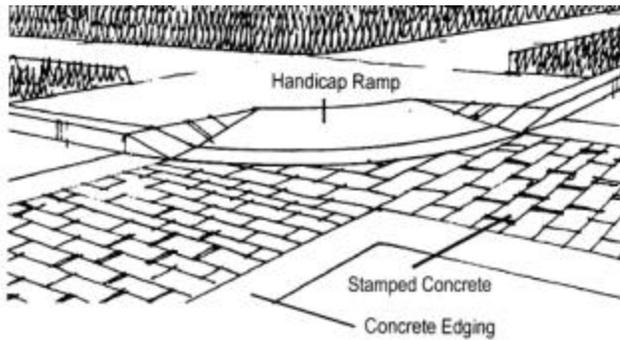
- Minimum width for sidewalks shall be 6 feet. All walks shall intersect with a minimum of a 4-foot radius.
- Walkways should follow the natural topography where possible to avoid providing steps and ramps. Where necessary, steps and ramps must be clearly marked and the area well-lit to avoid accidents.
- It is important to minimize vehicular and pedestrian conflicts when designing new walkways and connecting existing walkways. Walkways should be channelized to designated crosswalks.

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**NOTE :**

<sup>3</sup> Untermann, R. K., *Principles and Practices of Grading, Drainage and Road Alignment: An Ecological Approach*, Reston Publishing Company, Reston, VA, 1978, p. 228

- Crosswalks should be provided when pedestrian circulation crosses roadways or vehicular circulation routes. Depending on the importance of intersection and volume of pedestrian traffic, crosswalks may be emphasized by changing the paving material (*Figure 3-13*).



*Figure 3-13 : Typical crosswalk design at a street intersection*

- Wheelchair accessible ramps from the sidewalk to the street must be provided at intersections.
- Troopways, paved paths lined with shade trees, should be provided for marching in formation between classrooms, barracks, mess halls and parade grounds, where required.
- Pedestrian facilities should be sited to take maximum advantage of the areas of visual enjoyment and be separated from the inhospitable influences created by automobiles and trucks.

### 3.3.3 Parking

- Parking for adjacent buildings or facilities should be consolidated into parking lots of no less than 10 spaces that are adequately screened from view and provided with shade trees. Large lots (of more than 50 spaces) are difficult to screen and should be avoided where possible.
- Screening can be achieved by : planting evergreens along the perimeter; providing berms or earth mounds where there is adequate space and no pedestrian connection is desired; providing a fence or wall when space is limited.
- Avoid parking directly adjacent to buildings, leaving space for planting and/or walks.
- In lots with multiple rows of parking spaces, each row shall be terminated with a landscape island. There shall be no more than 18 parking spaces in a row without a landscape island. The island shall have a minimum outside radius of not less than 15 feet. Each side of the terminal island adjacent to a travel lane or parking space shall have a continuous 6-inch curb of concrete or other appropriate material.



Figure 3-14 : This planter strip serves to shade and screen the cars <sup>4</sup>

- Shade trees should be provided between rows of cars and along the perimeter (*Figure 3-14*). Shrubs should be avoided where they block drivers' views. The parking lot layout should be designed to preserve as many existing trees as possible.
- Temporary parking or lots with low usage should be treated with porous materials, such as porous concrete, gravel or grasscrete. These lots can usually support more landscape plantings than permanent lots.
- Each road must have a single point of entry (or minimum necessary for peak-hour requirements) to the parking lot. Where a number of options for locating an entry point are available, the entry point should be located on the road with lower traffic volume and a minimum of 50 feet away from intersections to reduce traffic circulation problems. A buffer strip of a minimum of 20 feet should separate the parking lot from the street.



Figure 3-15 : A parking arrangement with the walkway in front of the cars. Note that the cars overhang about 15 to 18 inches, so the walk must be at least 4.5 feet wide. The berm to the left of the walkway shields the cars visually from the park beyond. <sup>5</sup>

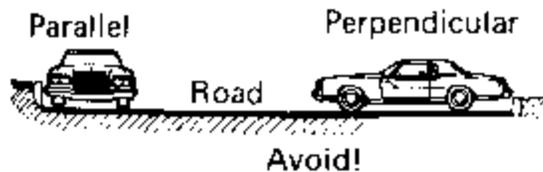
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**NOTE :**

<sup>4</sup> *ibid*, p. 228

<sup>5</sup> *ibid*, p. 230

- Parking lots should be distinctly separated from vehicular roadways through the use of curbing, pedestrian paths, planter strips or a combination of these elements *(Figure 3-15)*.
- Pedestrian routes, such as paved walkways or informal paths, should be designed from parked cars to points of destination adjacent to the parking lot.
- Aisles should be perpendicular to building entrances where possible.
- Perpendicular parking is most efficient in terms of land utilization and traffic flow.
- On-street parking should be avoided on roadways with high traffic volumes and high visibility. Perpendicular or diagonal on-street parking should not be provided.



*Figure 3-16 : Avoid perpendicular parking opposite parallel parking. <sup>6</sup>*

**\*\* Materials for roads, paths and parking lots are described in Appendix 2  
- Materials Palette**

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**NOTE :**

<sup>6</sup> *ibid*, p. 229

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### 3.4 Outdoor Lighting

Lighting contributes to the security and aesthetic character of a district. Areas that need to be well lit include roads, walkways, plazas, parking lots, building entrances and security control points. Amount of lighting can be prioritized for certain areas depending on use and importance. Areas with low usage should be in low ambient luminance that satisfies security requirements while contributing to the desired visual character. The glare of intensive light sources should be eliminated by selection of an appropriate fixture and placement, or by an architectural or landscape architectural solution.

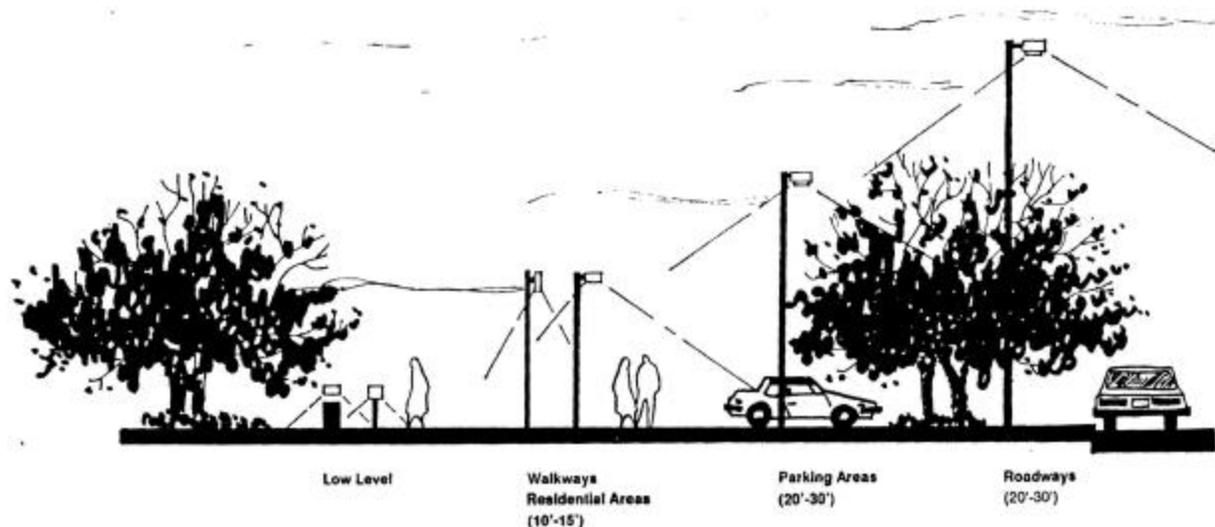


Figure 3-17: Types of light fixtures

Light fixtures are needed in a wide range of instances. The scale and size of the fixture should be appropriate to its setting (*Figure 3-17*). The lighting fixture should complement the color, materials, and style of the surrounding buildings or area.

### 3.4.1 Roadway Lighting

Although functional, the design of roadway lighting has a significant effect on the overall appearance of the Base. Style of light fixtures and poles should reflect the road hierarchy. Roadway lighting style for major roads must be consistent basewide across the various districts. Since the general architectural style on Mainside is Georgian, appropriate light fixtures and poles for major roads should be of the same or matching style. The poles should be ornamental with a flared base and a capital, and poles and light fixtures should be well-detailed, made of cast iron and glass or similar materials.



Figure 3-18: Precedents for selecting style of light fixture - Barnett Avenue lighting (mid 1940s)<sup>7</sup>; OCS parking lot;

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**NOTE :**

<sup>7</sup> USMC Photo 31487 in Fleming, Lt. Col. C. A., et.al., *Quantico: Crossroads of the Corps*, History and Museums Division, U.S. Marine Corps, Washington, D.C., 1978, p.74.

### 3.4.2 Parking and Walkway Lighting

Lighting for parking lots and walkways should match the architectural style and landscape elements in the vicinity. These fixtures may be unique to a district or local area. Style may be dictated by importance or visibility of the area, level of use and budgetary constraints.

Walkway lighting is appropriate for pedestrian paths, plazas, outdoor seating and other domestic scale public open space. Lighting is to be designed for promoting a sense of security and avoiding accidents. Walkway lights should have enough peripheral distribution to illuminate the usable area, such as the walkway or seating area, as well as the immediate surroundings.

### 3.4.3 Low Level and Wall Lights

Low level lighting and wall lights are provided to complement the ambient lighting and as accent lighting to highlight significant landscape features or groups of plantings (*Figure 3-19*). Style of fixtures should match other light fixtures and architectural and landscape elements in the area.



Figure 3-19: Types of Complementary lighting <sup>8</sup>

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**NOTE :**

<sup>8</sup> Harris, C.W. and Dines, N. T., *Time-Saver Standards for Landscape Architecture*, McGraw-Hill Book Company, New York, USA, 1988, p. 540-10.

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### 3.5 Signage

Some principles that should be followed in the design and location of all signage on the Base :

- Signs should be consolidated into a unified system to avoid landscape clutter.
- Combine signs with lighting fixtures to reduce unnecessary posts and to enhance illumination of signs.
- Information signs should be placed at natural gathering points and should be included in the design of site furnishings (such as kiosks).
- Avoid placement of signs where they may conflict with vehicular or pedestrian traffic, door openings or vehicular operation.
- Sign location should not be visually obstructed by parked vehicles, site furnishings, or other objects.
- Information contained on a sign should be as concise and clear as possible.
- Lettering and graphic symbols should be bold and simple.
- Contrasting color schemes (light images on dark backgrounds) that make signs easier to read should be used.

#### 3.5.1 Identification Signs

This set of guidelines will provide continuity in the exterior signage used at MCB Quantico. The identification signs introduce the Base to the surrounding community and to those who work at and visit the site. Functionally, they are important to quickly identify districts and buildings which help in orientation and circulation around the Base.

##### Entrance Gate Signs

Entrance gate signs must create a lasting first impression that will set the tone for the visitor's recollection and mental image of the campus.

The supporting structure will be of brick and poured Portland cement with a smooth, floated finish to match the existing architecture of the Base. Technical drawings for the sign and supporting structure must be approved by the Base prior to construction.

The proposed entrance sign for the MCU campus is a good example of an appropriate entrance sign (Figure 3-20).

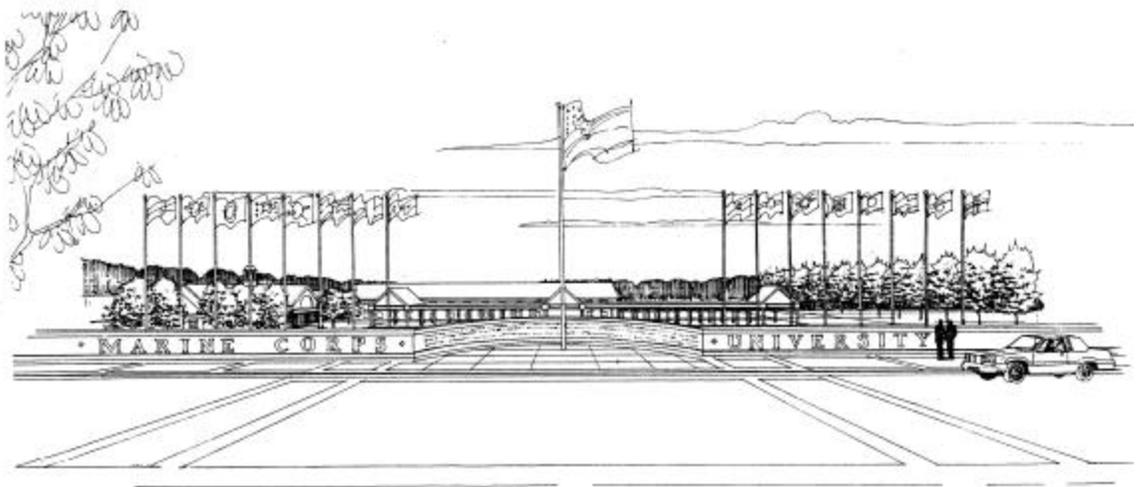


Figure 3-20: Flag Court at Entrance of MCU

Type C 1, Building Identification Signs

The major function of building identification signs is to identify buildings by the organizations using them. They will serve to introduce visitors to the buildings and should be placed adjacent to main entrances as required for proper exposure.

*Color* : Colors will be standardized on all signs. Background will be dark bronze color approved by the Base as the standard. All lettering will be reflective or illuminated white. For reflective signs, 3M Scotchlite, engineering grade, white letters are recommended.

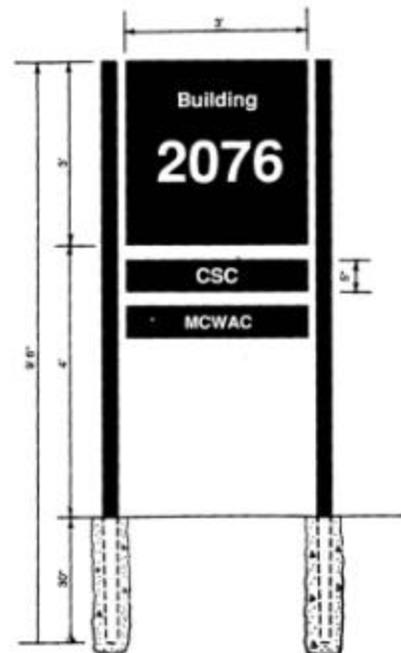


Figure 3-21: Building  
Identification Sign

*Copy* : It is recommended that the top panel be a standard size of 30" x 30" with 4" Helvetica Medium, upper and lower case lettering on the top line and a 12" numeral in the same type below. All lettering on supplemental panels will be 3" Helvetica Medium, centered. Standard abbreviations may be used as required. Messages on supplemental panels will be limited to major occupants of the buildings needing the most exposure. All wording on signs must be approved by the Base prior to ordering signs.

*Post Design* : All posts and framing for signs will be standardized for uniformity. All posts will be constructed of 1 3/4" x 4" x 0.125" extruded aluminum with a dark bronze anodized or painted finish to match existing directional and building identification signage. The standard post length for signs will be 9' 0", considering 30" below grade, and 6' 6" between grade and the top of the sign. All posts for signs will be buried 30" in the ground and surrounded by concrete for stability.

Framing for sign panels will be dark bronze in color and constructed of 2" hardened 0.125" aluminum channels, or two 1" angles connected to the posts with sheet metal screws from the inside of the signpost, or welded. Sign faces will be constructed of 0.125" aluminum extrusions, 2" thick, cut to fit frames, and will be fastened to frames with theftproof screws countersunk flush with channel surface for good appearance. Standard prefabricated architectural units, rather than fabricated raw material, are recommended in most cases for sign framing and posts.

*Type C 2, Building Number Signs*

*Color* : Colors will be standardized on all signs. Background will be a dark bronze color approved by the MCU as the standard. All numerals will be 3M Scotchlite, engineering grade white.

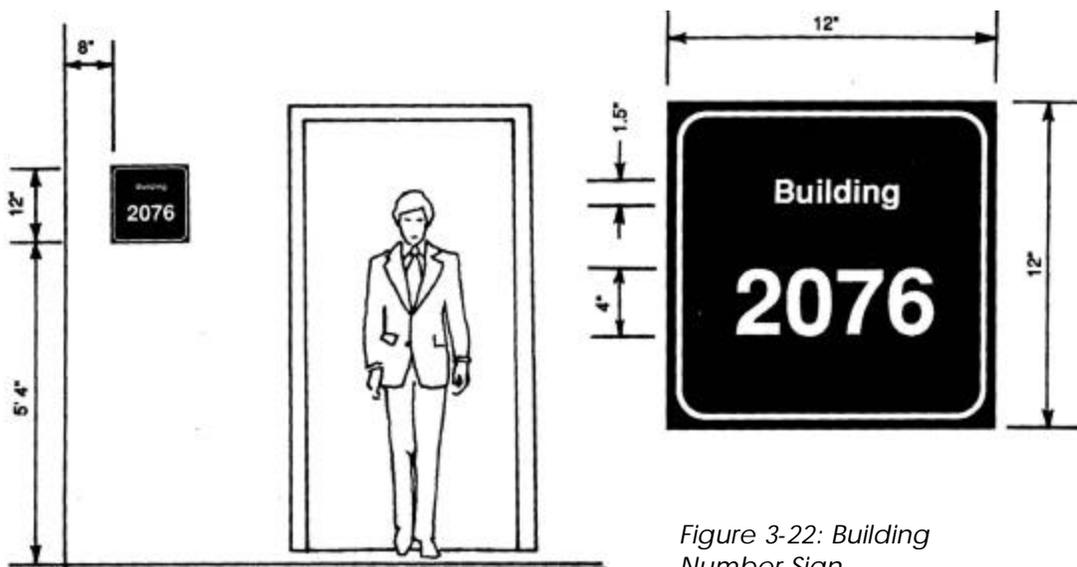


Figure 3-22: Building Number Sign

*Copy* : It is recommended that the numerals be of Helvetica Medium to match other architectural signage. Signs will match Type C 1, building identification signs in layout, except they will display only building numbers. All letters will be Helvetica Medium, 1.5" in height. All numerals will be 5" in height and will be optically centered under the word BUILDING170.

Signs will be 1/8" x 12" x 12" tempered aluminum. All signs will be placed 5' 4" from the ground level to the bottom of the sign on exterior walls near the visible corners of buildings. Signs will not be placed closer than 8" from the edges of buildings.

### 3.5.2 Directional Signs

Directional signs should be located along major roads and at key intersections to indicate the direction towards key points on the Base. They play a significant role in visitors' orientation, circulation and access around the Base.

#### Type A, Vehicular Directional Signs

Effective direction signs can help make the road system easier to use and can help avoid confusion and frustration. Used in conjunction with adequate street identification and site orientation signs, they form the key to visitor orientation. The major function of vehicular directional signs will be to direct motorists to key points on the Base. These key points include: the Main Gate, MCU, Hospital Point, the Town of Quantico, MCAF, the Medical Clinic, the Exchange and the Back Gate.

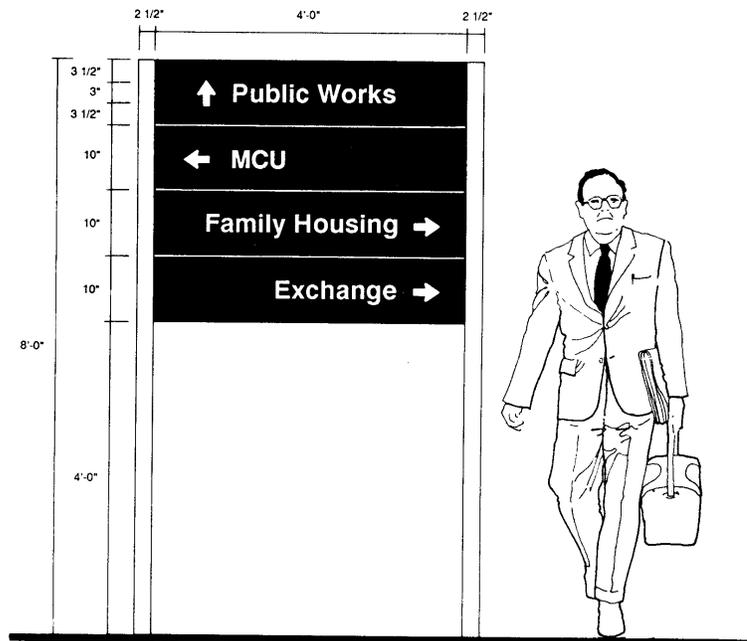


Figure 3-23:  
Vehicular  
Directional Sign

*Color* : Colors will be standardized on all signs. Background will be a bronze color approved by the Base as the standard. All lettering symbols will be reflective or illuminated white. For reflective signs, 3M Scotchlite, engineering grade white letters are recommended.

*Copy* : The Type A directional sign is designated for use on roadways with a posted speed of 25 miles per hour or less. A separate slat (10" x 4' 0") for each destination should be used so that destinations can be easily changed without remaking the entire sign face. All lettering will be 3" high, Helvetica Medium, upper and lower case. No other letter style will be used for directional signs. Copy may be on one side of the sign or both. Standardized abbreviations for certain areas may be used if approved by Base.

*Post Design* : All posts and framing for directional signs will be standardized for uniformity. All posts will be 1.75" by 4" by .125" extruded aluminum with a durondonic bronze anodized or epoxy finish to match existing directional signage. The maximum total post length for directional signs will be 11' 0", considering 36" below grade, 30" between grade and bottom of sign, and 48" maximum for sign. It is recommended that a standard height of 8' 0" from ground level to the top of the sign be used for all directional signs. All posts for directional signs will be buried 30" in the ground and surrounded by concrete for stability. Standard prefabricated architectural units, rather than fabricated raw material, are recommended in most cases for sign framing and posts.

Sign panel units will be easily interchangeable and all units will be installed flush to appear as one unit. Framing for the sign panel will be constructed of 2" (inside dimension), hardened, .125" aluminum channel, or two 1" angles connected to the posts with steel metal screws from the inside of the sign post, or welds. Sign faces will be constructed of .125" aluminum extrusions 2" in depth and 5" side cut to fit lettering requirements. Panels will be fastened to frames with theftproof screws countersunk flush with channel or angle surface for good appearance.

#### *Type B, Pedestrian Directional Signs*

This type of sign will provide directional guidance for pedestrians on the Base. It will provide direction from both sides and will be used only in heavily travelled pedestrian areas where vehicular direction signs cannot be seen.

*Color* : Colors will be standardized on all signs. Background will be a durondonic bronze color approved by the Base as the standard. All lettering and symbols will be reflective. 3M Scotchlite engineering grade, white, pressure or heat sensitive graphics are recommended.

*Copy* : Allowance for 2" of margin space should be planned for top and bottom, and a 1" space between lines of copy is recommended. Lettering will be 2", left justified, Helvetica Medium, upper and lower case. Maximum characters per line will be eight, considering minimum 1" left/right margins. Because of limited space, standardized abbreviations should be used whenever possible. Use standard arrows.

*Post Design* : All posts for pedestrian direction signs will be standardized for uniformity. They will be fabricated from 2" x 3" x .125" aluminum extrusions and finished a duroidic bronze to match existing directional signage. Posts will have the capability to hold one or two sign panels as shown, but no more than two panels per post will be allowed. 18" x 18" sign panels will be either the framed type as shown or single, .125" thick panels. All panels will be finished to match posts. A standard height of 4' 0" from ground level to the top of the sign will be used for installation.

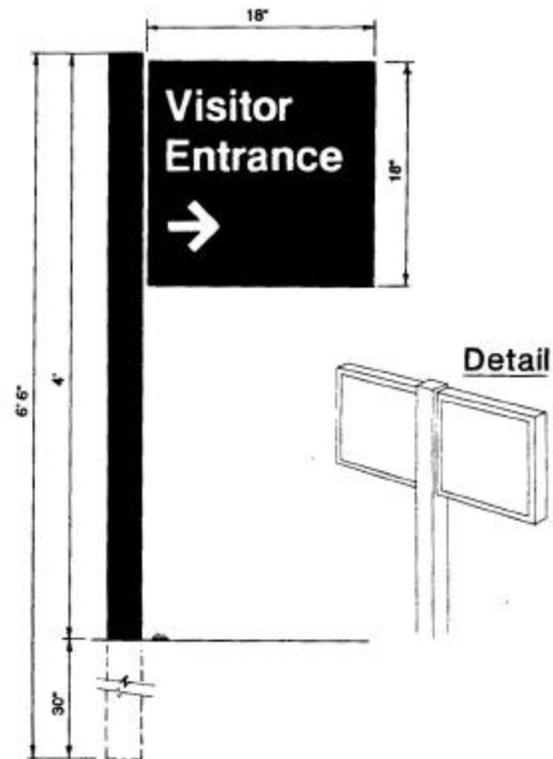


Figure 3-24: Pedestrian Directional Sign

### 3 . 5 . 3 Type R, Regulatory Signs

A systematic approach to regulatory signage is important. Without a master plan for signage, the installation can become cluttered with too many types of regulatory signs. There are three main types (classes) of regulatory signs: highway standards, base warning, and parking regulation signs.

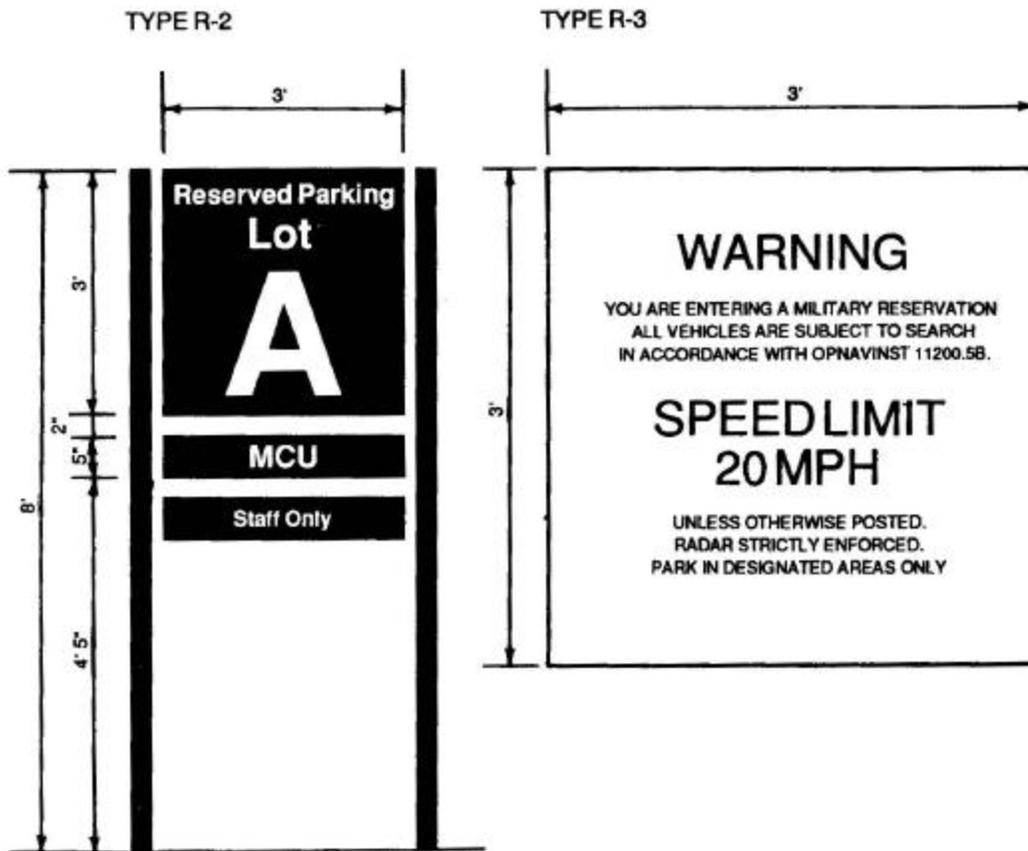


Figure 3-25: Regulatory Signs

Type R 1: Highway Standard Signage

Highway/Street standards are used for signs that regulate vehicular traffic on the Base. In the United States, the standards are described in the Manual of Uniform Traffic Control Devices published by the Federal Highway Administration. Any deviation from these commonly accepted standards for highway safety signs could create serious safety hazards. Signs should adhere to designs that are familiar to motorists and used on roads outside the Base.

Type R 2 and R 3: Warning Signs

Warning signs are used to maintain security on the Base perimeter and other specific areas in the area. The MCU installation warning sign, controlled area sign, and restricted area sign should be used at all personnel and vehicle entry points. Other additional notices, such as a solicitation warning or photography prohibition, may be required. These notices may be placed directly below the installation warning sign or on a separate sign structure.

DESIGN  
GUIDELINES

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*Color* : Sign lettering for Type R 2 and R 3 signs will be reflective white. Sign background will be dark bronze. Posts and supporting angles will be dark bronze. Lettering for R 2 signs will be bright red and dark blue. Lettering for R 3 signs will be reflective white. All lettering is Helvetica Medium, upper case, height, centered.

*Post Design* : Post will be constructed of .125" x 1 3/4" x 4" extruded aluminum with a dark bronze anodized or painted finish to match existing directional signage.

### 3.6 Site Elements

Site elements on MCB Quantico include utilitarian items such as benches, bus shelters, trash receptacles and fences as well as more symbolic ones such as flagpoles and outdoor exhibits. Examples of recommended styles for common site elements are illustrated in Figures 3-26 through 3-33. With proper coordination of style and location, site elements can not only fulfil their functions but also contribute to the overall visual quality and identity of the Base.

#### 3.6.1 Benches, Seats and Tables

- Benches, seats and tables should serve waiting and resting needs at locations such as waiting areas, plazas, along walkways and near recreational areas.
- Benches and seats should be set back 2 feet from adjacent sidewalks to provide ample legroom and not impede pedestrian traffic.
- A space of 4 feet should be provided at the end of benches and seats to enable strollers and wheelchairs to be parked.
- A space of 5 feet should be provided between the front edge of the seat and any stationary obstacle including trash receptacles or sign posts.
- Seat surfaces should be pitted or slotted to shed water.
- For informal seating, seating walls can be incorporated with planters and landscaping. Seating walls should be 18"-22" high and 12"-18" wide.

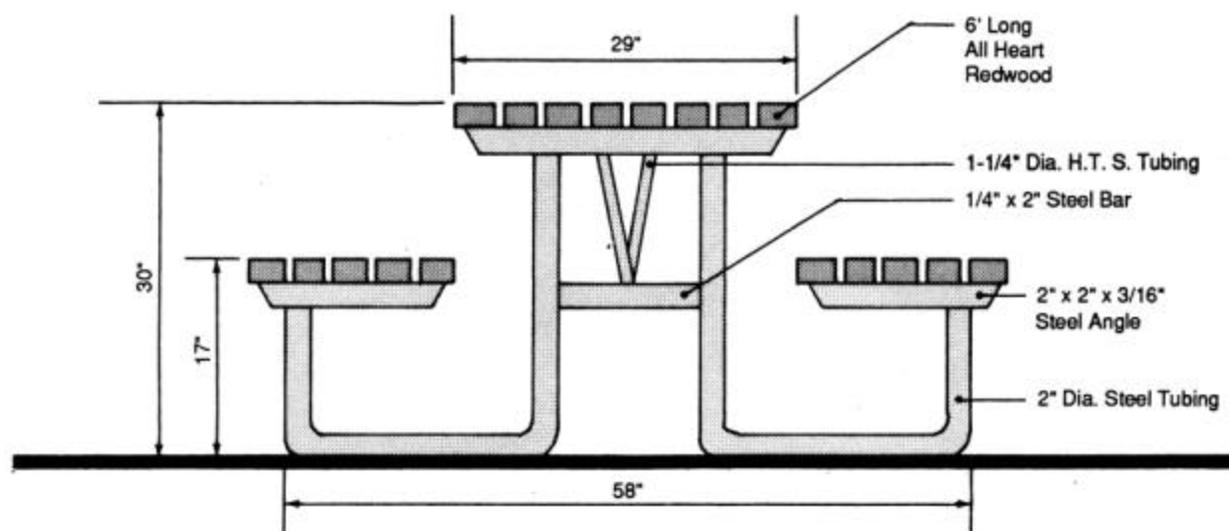


Figure 3-26 : Appropriate picnic table style

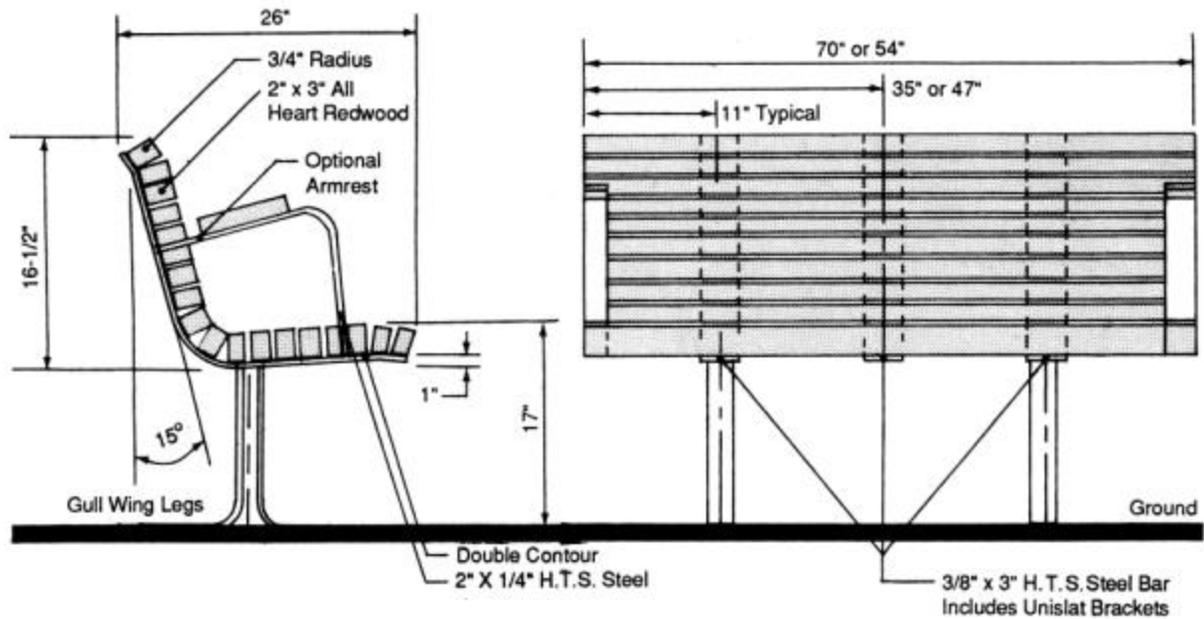


Figure 3-27: Some appropriate benches <sup>9</sup>

### 3.6.2 Trash Receptacles

- Trash receptacles should be located conveniently and strategically to collect litter. Good locations are along walkways, near bus stops, recreation areas and plazas.
- Size and style of trash receptacle should be appropriate to surrounding elements and level of use.
- Trash deposit openings should be about 3 feet above ground level.

**NOTE :**

<sup>9</sup> McGraw-Hill Construction Information Group, *Sweet's General Building and Renovation Catalog File*, 1999

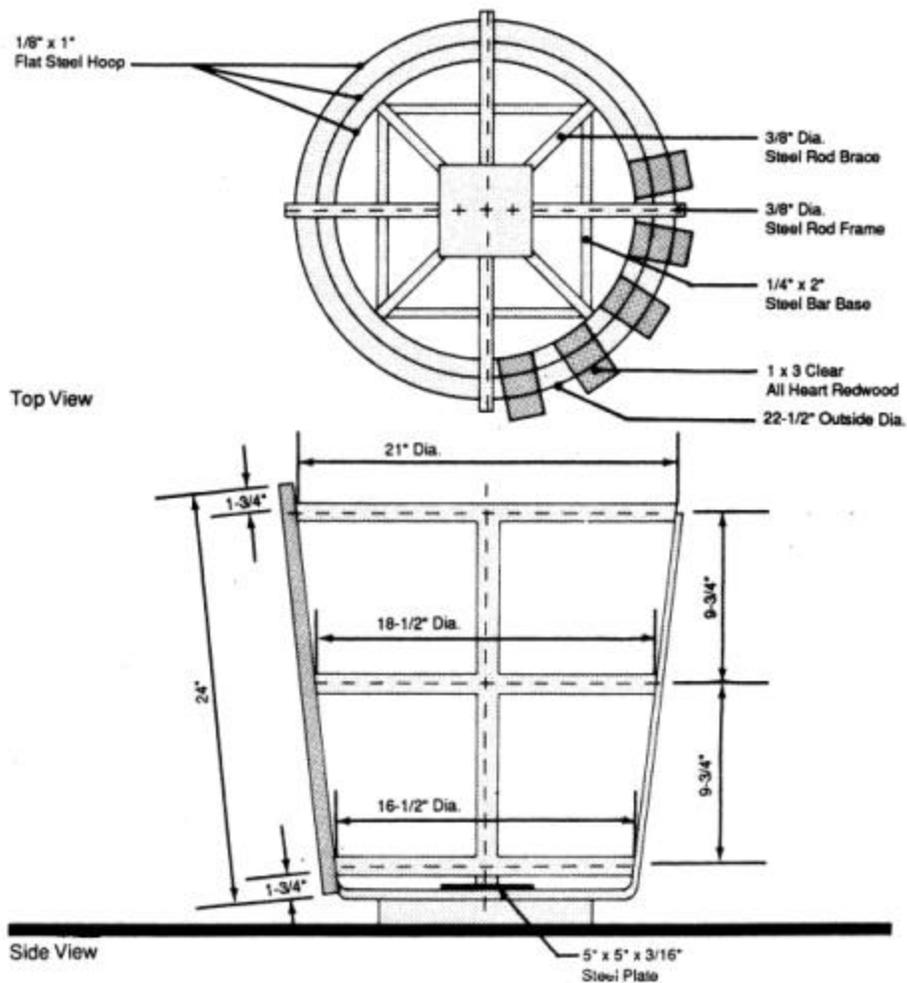


Figure 3-28 : Some appropriate trash receptacle design styles <sup>10</sup>

**NOTE :**

<sup>10</sup> ibid

### 3.6.3 Bicycle Racks

- Bicycle racks and other amenities for bicyclists facilitate the use of bicycles and encourage an alternate mode of transport other than the automobile. Bicycle racks should be provided at all reasonable points of destination including BEQs, fitness centers, administrative buildings and community service facilities.
- Bicycle racks must allow a wheel and the frame to be anchored to prevent detachment and theft of a portion of the bicycle.



*Figure 3-29 : Recommended style of Bicycle Rack*

### 3.6.4 Bus Shelters

- Bus shelters should be provided at Base-shuttle bus stops with a high level of use or long waiting periods.
- Shelters should be located with sight lines to approaching buses.
- Bus shelters should have a minimum size of 5 feet by 8 feet (40 sq.ft.)
- A minimum setback of 3'-6" should be provided.
- All waiting areas should have hard-surface paving that drains adequately to prevent puddles.



*Figure 3-30 : This MCB Quantico gatehouse from the 1940s can be used as a precedent for Bus Shelters and similar structures in Historic Districts <sup>11</sup>*

### 3 . 6 . 5 Fencing and Screening

- Fencing and screening elements are to be used to mark boundaries, provide security, visual and wind screening.
- Fencing material, type and size must be selected as appropriate for particular locations and functions. e.g. Fencing near the Main Gate and other high visibility areas should be ornamental and designed to enhance the visual character of the area.
- All dangerous projections, such as fastening devices and edges, should be rounded off, knuckled or capped.



*Figure 3-31 : Ornamental Fencing appropriate for high visibility areas <sup>12</sup>*

**NOTE :**

<sup>11</sup> USMC Photo 31487, *ibid*

<sup>12</sup> McGraw-Hill Construction Information Group, *ibid*

- Acceptable types of fencing and screening include chainlink fences for security or industrial areas, ornamental steel picket fences, brick walls, earth berms and vegetative screening.  
(Also refer to section 3.8.2 : Security Fences)

### 3.6.6 Bollards

- Bollards are used to control and direct vehicular traffic by providing visual deterrents and physical barriers.
- Bollards can be installed as permanent fixtures or they may be removable for allowing limited vehicular access.
- Bollards are most commonly used to restrict vehicular access to paved areas that are for pedestrian use or to areas that are exclusively for emergency and/or service access. Bollards are also used as vehicle barriers against forcible entry into controlled access areas.
- All bollards should be aligned along desire lines of pedestrian and bicycle travel, so that they do not form obstacles for pedestrians and bicyclists.
- Chains attached to bollards are not recommended because they present a hazard to pedestrians and bicyclists, especially because they are difficult to see from a distance or in dim light.
- Simple designs with smooth surfaces, minimal projections and rounded edges are the most suitable styles.
- Bollards should be installed with adequate space between them (min. 8 feet) to allow pedestrian, bicycles, strollers and wheelchairs to pass through the openings.

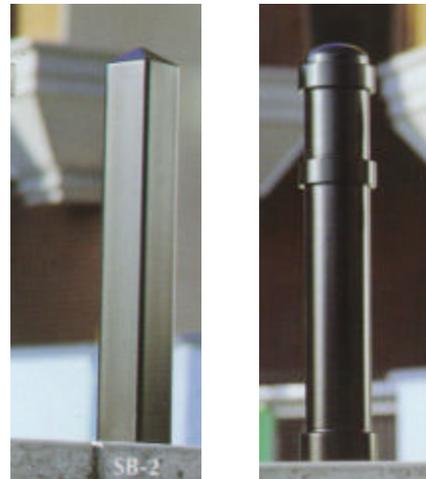


Figure 3-32 : Some examples of appropriate bollards <sup>13</sup>

**NOTE :**

<sup>13</sup> ibid

### 3.6.7 Retaining Walls

- Retaining walls are to be used only when graded and landscaped slopes or embankments are not feasible. Retaining walls are a more costly and visually harsher solution for negotiating changes in surface levels.
- Terracing can be used for retaining walls of more than 5 feet height, to avoid large blank facades.
- The wall surface should be softened by using overhanging plants or materials with textured surfaces.
- Materials selected should have an intrinsic aesthetic quality and should require minimal maintenance and additional treatment to blend with the surrounding architecture and landscape elements.



*Figure 3-33 : A terraced retaining wall, with matching steps, built from concrete blocks is durable and visually appealing <sup>14</sup>*

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**NOTE :**

<sup>14</sup> ibid

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### 3.7 Utilities

Mechanical, heating, air conditioning, plumbing, and electrical equipment and utilities have a major impact on the visual environment of a site. While it may not be feasible to relocate or place all these utilities underground, consideration should be given to the following guidelines for new construction, replacement and long-term planning.

- All mechanical, heating, air conditioning, plumbing, and electrical equipment should be screened or hidden from view, especially from public spaces.
- Power and steam lines should be located underground where possible. Where overhead power lines and pipes cannot be avoided, they should be located away from primary vehicular circulation routes. Existing creosote poles supporting overhead lines should be replaced with concrete poles.
- Placing existing lines underground should be included as part of any adjacent or nearby construction, renovation, or demolition projects, and during replacement or repair work of pipes, especially in more visible areas.



*Figure 3-34 : The existing stormwater detention pond near the Marsh Center is functional as well as visually appealing*

- Manmade retention/detention ponds should be made more visually appealing by emulating natural water bodies, providing appropriate landscape plantings and using organic shapes (*Figure 3-34*).
- Vents and louvers should be carefully detailed and integrated into the design of the facade (*Figure 3-35*).
- Dumpsters should be screened using constructed or vegetative screening. Adequate area should be provided for truck access and service activity.
- Service areas and access should be screened using planted earth berms.

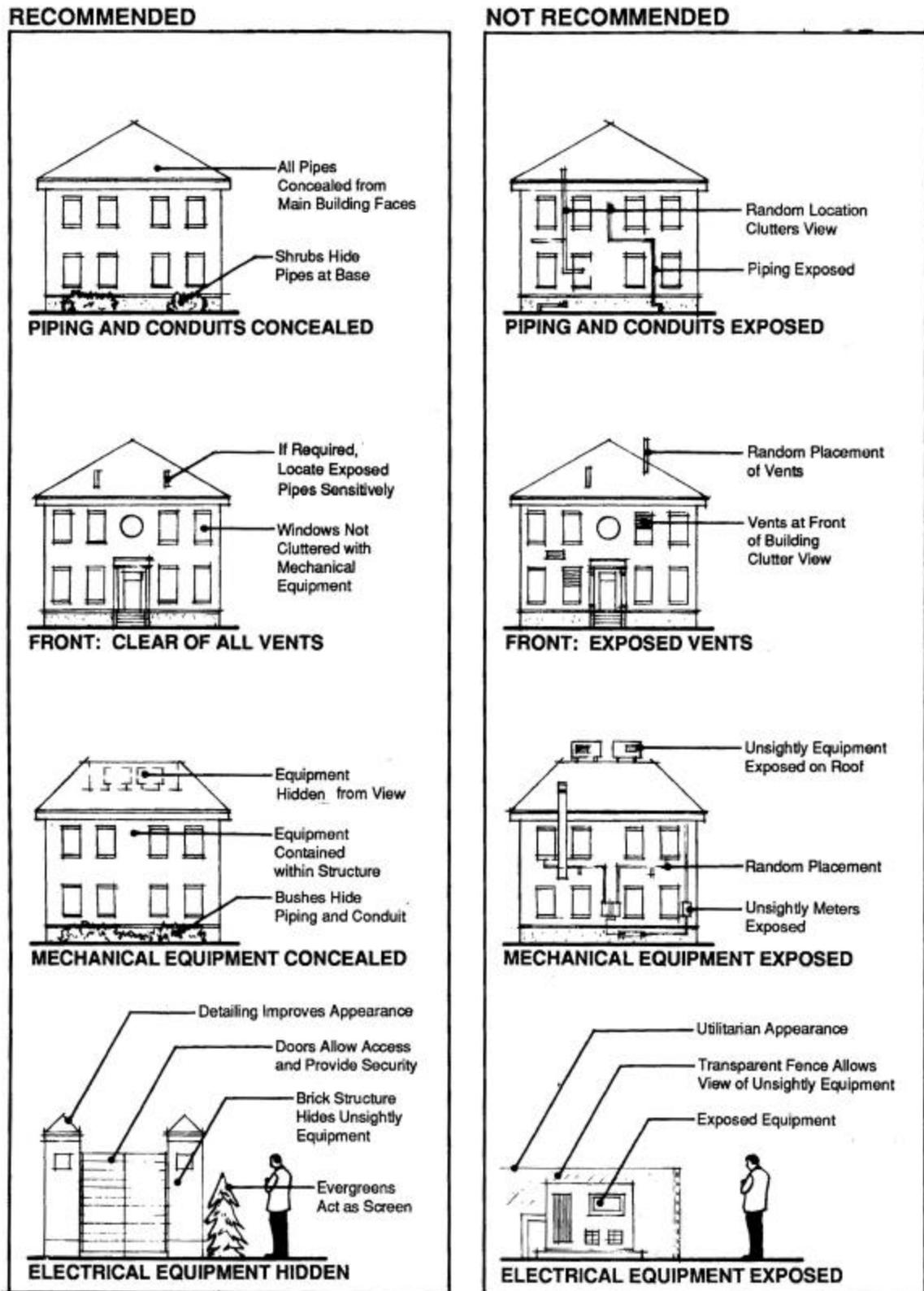


Figure 3-35 : Screening and Concealing Utilities

### 3.8 Security

It is important to plan for appropriate physical security of all Department of Defense (DOD) personnel, installations and assets to minimize damage, to reduce loss or theft of assets and to ensure that war-fighting capabilities are maintained. In addition to installing a security system to mitigate assessed threat, precautionary measures can be implemented for all construction and landscape projects.

Minimum Site Work Protective Consideration :

- Eliminate potential hiding places near the facility.
- Provide unobstructed view around the facility.
- Provide adequate facility separation from installation boundary.
- Eliminate lines of approach perpendicular to building.
- Minimize vehicle access points.
- Eliminate parking beneath facilities.
- Locate the facility away from natural or manmade vantage points.

The security guidelines that follow are applicable basewide. Certain areas may need more stringent measures due to restricted access or if they are assessed as vulnerable to a greater level of threat. An integrated security system must be designed for these areas and facilities. Security measures must be focussed on assets to be protected.

#### 3.8.1 Force Protection

Due to the heightened awareness of the terrorist threat to DOD facilities, the DOD and the Department of the Navy have developed antiterrorism/force protection (AT/FP) planning and construction standards. DOD AT/FP Minimum Construction Standards (Draft, 12 May 2000) apply to new construction and major renovations undertaken by all services. OPNAV 3300.55 outlines the Navy Combating Terrorism Program Standards. Additional Navy-specific guidance is provided in NAVFAC Interim Technical Guidance AT/FP (19 January 2000). It is NAVFAC policy to include cost effective AT/FP as part of military construction (MILCON) project scopes.

General areas of consideration for AT/FP relative to exterior architectural and site features include:

- Establishment of stand-off zones between inhabited structures, including bachelor quarters (BQ) and primary gathering structures, and the potential location for an explosives detonation
- Perimeter surveillance, fencing and barriers
- Controlled perimeter access, vehicle inspection and control points
- Land forms
- Building orientation and form
- Road location
- Design and location of facility entrances, windows and doors

- Site access/egress/signage
- Parking lot location and lighting
- Design and location of utilities
- Incorporation of surveillance closed circuit television (CCTV)

Minimum Construction Standards relating to sitework, facility separation, stand-off, parking and roadways for the construction of new or the renovation of existing inhabited structures are summarized below.

*Sitework, Facility Separation and Stand-off Guidelines*

- Eliminate, minimize or mitigate lines of approach perpendicular to inhabited structures.
- Minimize vehicle access points for new construction.
- Coordinate with the installation master plan with respect to siting new facilities with large non-DOD visitor populations away from inhabited structures where possible. Relocate existing BQ and primary gathering structures away from facilities with large non-DOD visitor populations where possible.
- Avoid conditions within 10 meters of inhabited structures for new construction or within 10 meters of existing BQ and primary gathering structures that permit concealment of aggressors or would obscure the view of objects or packages from the view of security personnel.
- Minimize exposure to surveillance and observation of assets within inhabited structures from uncontrolled natural or man-made vantage points for new construction.
- Facility stand-off distances are intended to limit the progressive collapse of structures. Minimum standoff distances from inhabited structures (including BQ and primary gathering structures) to the installation perimeter, roads, parking and adjacent structures are identified in the Minimum Construction Standards for new construction. For renovation of existing facilities, the minimum facility stand-off only applies to BQ and primary gathering structures.
- Locate trash containers 10 meters from inhabited structures (new construction only) and 25 meters from BQ and primary gathering structures (new construction and existing structures).
- Maintain a minimum building separation of 10 meters for new BQ and primary gathering structures. When the separation distance between an existing inhabited building and existing BQ, primary gathering or combinations of those occupancies is less than 10 meters, ensure the building cladding can sustain an equivalent degree of damage for 1 kilogram TNT at one-half the available separation distance.

*Parking and Roadways Guidelines*

- Parking beneath new inhabited structures is discouraged. If unavoidable, mitigate by designing columns assuming the loss of lateral support at any floor level to limit progressive collapse of the

building. Control access to the parking structure with vehicle arms, etc.

- Parking beneath existing BQ and primary gathering structures is strongly discouraged. If unavoidable, mitigate by designing frame retrofits to survive a 25 kilogram TNT explosive placed adjacent to a single column. Allow access to the parking structure to authorized personnel only.
- Parking and roadways shall be located 10 meters from inhabited structures.
- Parking and roadways shall be located 25 meters from primary gathering and BQ structures for new construction and at the distances indicated in the Minimum Construction Standards for major renovations of BQ and primary gathering structures. When the standoff distance is not available, it should be mitigated as outlined in the standards.
- Where operational requirements require a drive-up or drop off area or a drive through lane of traffic near a building, ensure that the lane is clearly defined through the use of physical barriers and that its intended use is clear. Additional specific criteria for drive-up or drop off areas or a drive through lane are identified in the Minimum Construction Standards.

Separate standards have been developed for new and existing family housing. For structures containing up to 12 family units per building the following standards apply:

- For new construction, maintain a minimum stand-off distance of 25 meters from installation perimeters and roads, streets or highways external to housing areas. Compliance with minimum stand-off distances is not required for existing family housing, but where existing stand-off distances for housing are 25 meters or less, those distances will not be encroached.
- For new and existing family housing, screen housing areas from roads, streets, highways external to housing areas and other vantage points where possible using privacy fencing, vegetation, trees, etc.

For structures with more than 12 family units per building, the minimum standards associated with new construction or the renovation of existing BQ and primary gathering structures shall be used.

It should be noted DOD and Navy AT/FP planning and construction standards are still under development. The reader is referred to the current version of the publications referenced above for a discussion of the specific standards and guidelines relative to new construction and the major renovation of existing facilities.

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### 3.8.2 Security Fences

Security fences alone are not likely to stop a determined intruder. They must be augmented by security force personnel and other means of protection, detection, delay and assessment.

Security fences are useful to:

- define the perimeter of the Base or a restricted area on the Base
- prevent accidental entry
- provide a physical and psychological deterrent to entry while serving notice that entry is not freely permitted
- optimize security force operations
- facilitate detection and apprehension of intruders
- channel and control the flow of personnel and vehicles through designated portals or gates

Chain link fences are the most common type of fencing used to enclose restricted areas. They require minimal maintenance and provide little concealment for intruders. In areas of high visibility or where aesthetics are a concern, alternatives to standard chain link fencing are appropriate and fulfil the same functions. Perimeter security fences should be posted with signs indicating the restricted area. Additional active and passive vehicle barriers may include pop-up barriers, across-the-road bar-type barriers, bollards, concrete planter boxes and concrete median barriers.

#### Chain link Fence Materials

Taut wire or standard chain link metal fabric with various enhancements are appropriate for perimeter fencing of the Base.

Gauge/Material	9-gauge (3.8mm) steel wire mesh
Mesh	Less than 2 inches (50mm) per side
Coating	Zinc coated, aluminium coated or polyvinyl chloride (PVC) over zinc or aluminium coating
Tension Wires	Wire, rail, cable (attached at top or bottom)
Support Posts	Steel pipe-formed sections, H-sections, square
Height w/ Outriggers	8 feet (2.4 m)
Fabric Tie-Downs	Buried, 2-inch (50 mm) minimum encased in concrete or staked
Pole Reinforcement	Buried, encased in concrete
Gate Opening	Single or double swing, cantilevered, wheel-or overhead-supported

### Alternate Fence Materials

When fencing is located in a prominent place, aesthetics must be considered while choosing a design. In highly visible areas, ornamental fencing is appropriate. Alternative materials for fencing include:

- Galvanized and powder coated steel
- Polyester color coated aluminium
- P.V.C.
- Vinyl coated chain link
- Wrought Iron

### **3.8.3 Gates**

Gates must be as effective as their associated fence to provide an equivalent deterrent. Gates are useful to :

- facilitate control of authorized traffic and its flow
- establish specific points of entrance and exit to an area defined by fences
- limit or prohibit free flow of pedestrian or vehicular traffic, while establishing a traffic pattern for restricted areas

### **3.8.4 Sentry Booths and Gatehouses**

- Sentry booths and gatehouses are the points where personnel and vehicle control and badge exchange operations are conducted.
- Site layout should allow for vehicle inspections or search without causing undue traffic backups. A turnaround should be provided just inside the entry control point (ECP).
- A sentry booth or gatehouse should be provided at all entrance gates that are manned by security personnel on a full or part-time basis. They should be located as close to the entry gate to permit the personnel inside the structure to maintain constant surveillance over the entrance and approaches.
- Sentry booths should be designed to house the maximum number of personnel required to effect security requirements, as well as required electronic and gate control equipment (*Figure 3-36*). Ballistics and penetration resistance should be considered while selecting location and materials.

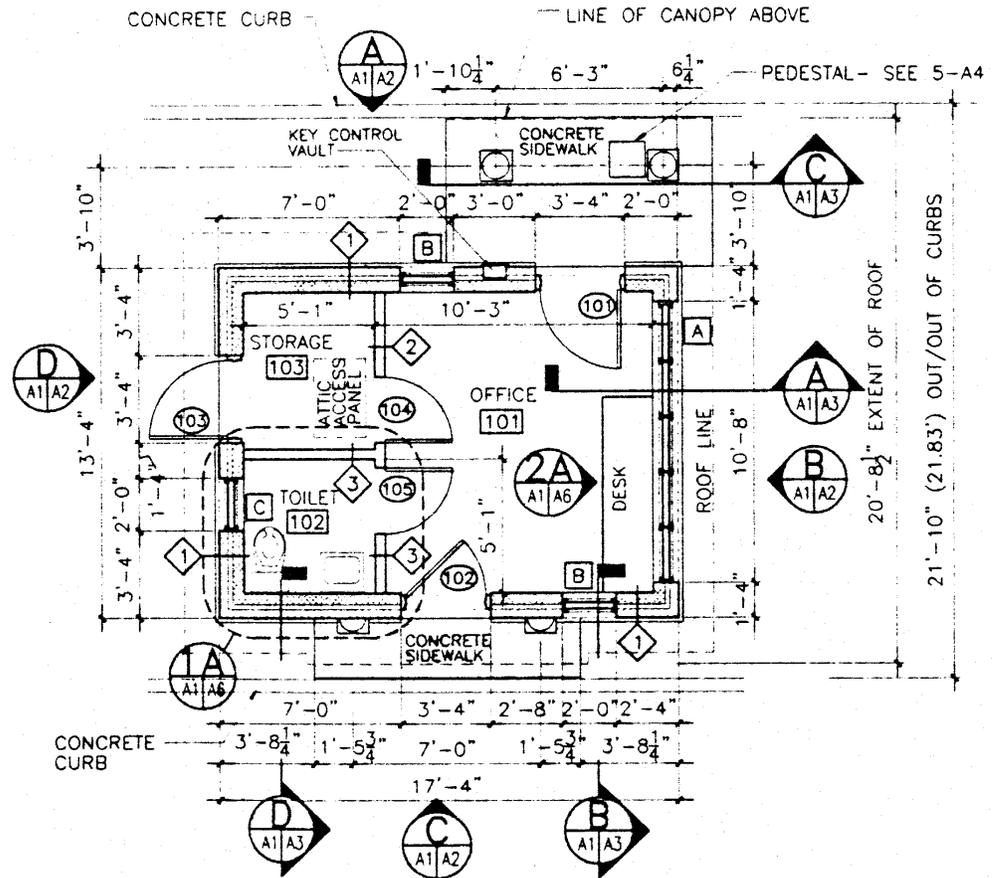


Figure 3-36 : Proposed Gatehouse plan for the Main Gate

### 3.8.5 Security Lighting

- Security lighting aids threat detection, assessment and interdiction.
- Lighting may also have value as a deterrent.
- Lighting increases the effectiveness of guards and CCTV by increasing the visual range during periods of darkness or by illuminating an area where natural light is insufficient. Lighting requirements for CCTV are considerably higher than those required for direct visual surveillance.
- Exterior security lighting is typically located along exterior perimeters and entry points of the site and buildings.

## 4 . 0      Priority Projects

This section describes the existing conditions and proposed improvements for four priority projects for MCB Quantico. The priority projects are areas that have been identified as high visibility spots on the Base that lack an appropriate visual environment. The proposed improvements elaborate on the design guidelines outlined in the earlier section and indicate specific designs and actions that can enhance the aesthetic appeal of the area.

### Selection Process

Priority projects are specific improvements or concept designs for upgrading an area through the application of the BEAP. Typically priority projects focus on areas with high levels of public exposure that are critical to the Base image.

During the BEAP development, a number of high-visibility areas were targeted as requiring improvements. Potential projects to introduce additional outdoor amenities were also identified (Figure 4-1). They include :

**1) Pedestrian and Running Path (South) :** A pedestrian (non-vehicular) corridor could be established parallel to Barnett Avenue along the railroad tracks between Range Road and Henderson Road. The path could serve runners or joggers, especially those starting from Larson’s Gymnasium or the new fitness center, pedestrians and bicyclists. The path would be provided with shade trees, rest areas and amenities for pedestrians and bicyclists.

**2) Pedestrian and Running Path (North) :** A pedestrian corridor could also be established between Henderson Road and Potomac Avenue, along the railroad tracks and through parking lot PL-6. The trail could also connect to the proposed trail in the Town of Quantico and to the Fuller Road bike lane.

**3) Improvements near the Proposed Fitness Center :** The proposed Fitness Center has been sited well and will create a positive relationship between the barracks and fitness/ recreation. The pedestrian and bicycle circulation here can be facilitated by providing paths with shade trees and amenities including benches, drinking fountains, kiosks and trash receptacles. The paths should follow the existing and anticipated routes and connect logical destinations. Siting and screening of the proposed parking lots and retention pond can help to make them less conspicuous. Outdoor recreation and fitness areas such as exercise circuits, horseshoe pits and running paths can be sited to make optimum use of the open space in the vicinity.

**4) Improvements near the Proposed BEQ :** The proposed BEQ is located near the proposed Fitness Center and the existing Barracks Area. Pedestrian and bicycle connections between these areas can be provided for with a planned network of shaded paths and landscaped rest or activity areas. Outdoor gathering space may also be provided for the BEQ.

**5) Open space around Bldg. 2005 :** The open space around the barrack buildings can be designed as outdoor extensions of the barracks, providing appropriately designed areas for community gatherings as well as individual scale leisure. This area should provide a pedestrian connection to the fitness and recreation areas. The shuttle bus stop will serve all the facilities in the area and can become a major pedestrian amenity.

**6) Open Space adjacent to Bldg. 2000 :** The open space adjacent to the Dining Hall can be designed for community gatherings and outdoor events. Outdoor seating, art exhibits, and bicycle and pedestrian amenities such as an information kiosk, bicycle racks and drinking fountains can be provided to create an outdoor extension of the Dining Hall.

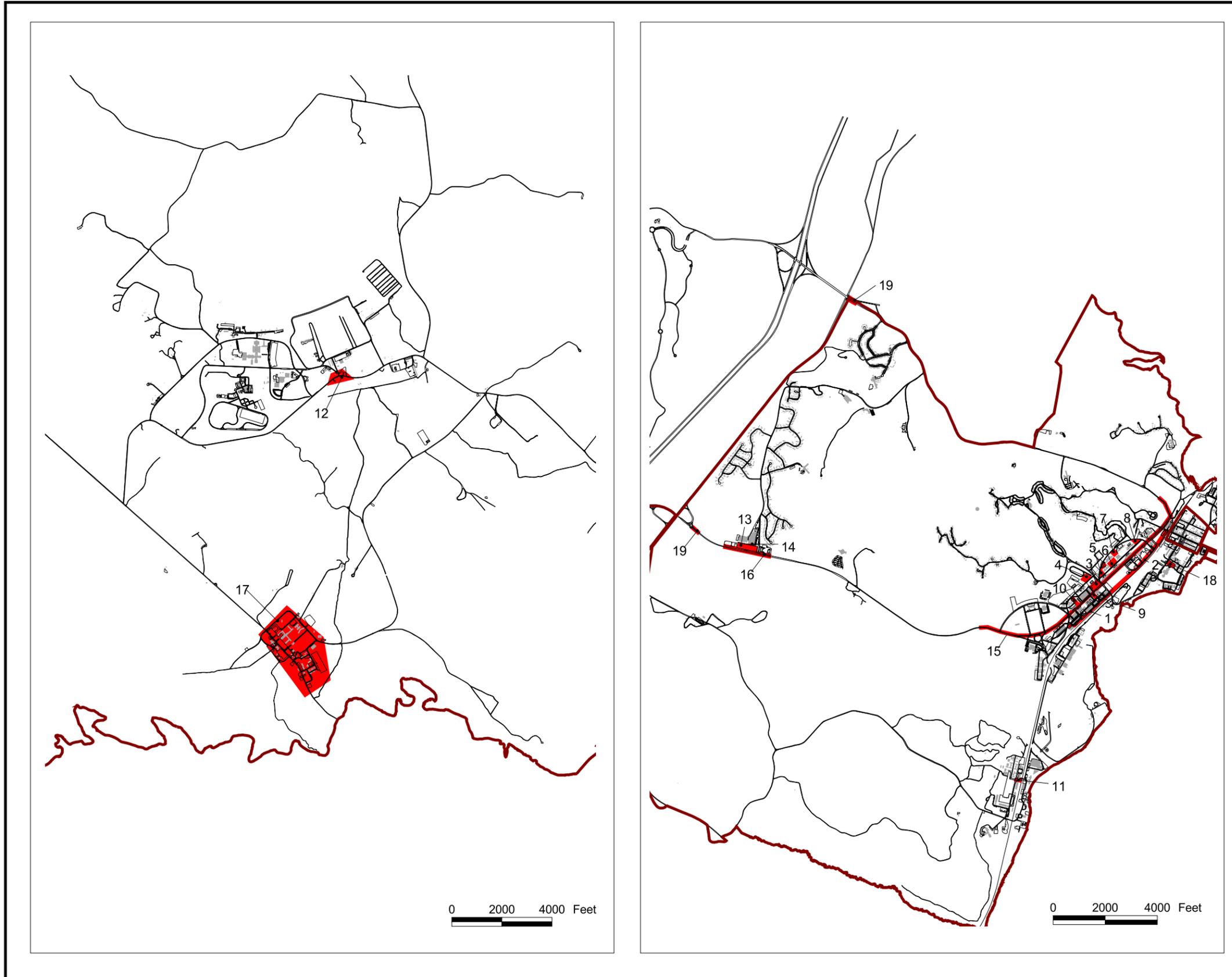
**7) Open Space behind Bldg. 2000 :** Similar to (6)

**8) Open Space around Bldg. 2006 :** Similar to (5)

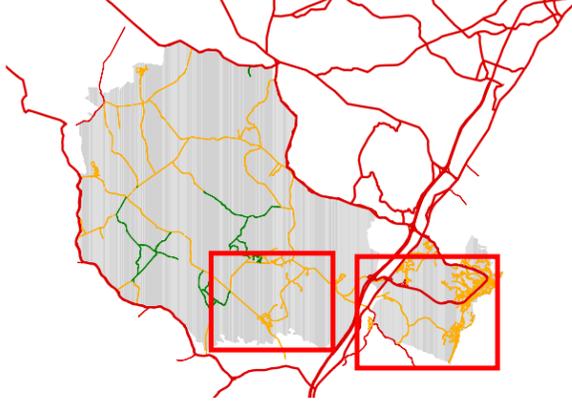
**9) Open Space near Power Plant :** The development district of Barnett Avenue South lacks a planned network of open spaces. The open area adjacent to the power plant can be designed to provide a pedestrian plaza with amenities and a connection between the fitness center area and parking lots and/or the potential pedestrian trail near the railroad tracks.

**10) Open Space near Hochmuth Hall :** This open space can be designed to accommodate a parking lot and a pedestrian plaza with amenities. A cross axis can be created to make visual and pedestrian connections across Barnett Avenue and continue down to the river.

**11) OCS Entrance :** The OCS campus does not have a distinct entrance gate or sign. The railroad tracks act as a barrier or gate to the campus. Once within the campus there is no distinct character or site layout, making orientation within the campus difficult. A well-designed gate and entrance area can announce the campus and direct the visitor to its various parts.



  
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**LOCATION MAP**

**FIGURE 4 - 1**  
**POTENTIAL  
PRIORITY PROJECTS**

*Source of Map Data : MCB Quantico, NREA & The Onyx Group*



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**BASE EXTERIOR ARCHITECTURE PLAN**

**12) Weapons Training Battalion Entrance** : The WTBN campus does not have a well-designed entrance point or gate. Orientation is difficult due to lack of signage or visual clues. The Marine Federal Credit Union ATM is located inappropriately at the gate. The area also needs more vegetation and greenery.

**13) MCX Parking Lot** : The Marine Corps Exchange requires a large parking lot to serve its parking demands. Located along Russell Road, it is in sharp contrast with the surrounding forest and vegetation. The visual environment can be enhanced by introducing additional shade trees and landscaping in the islands and entry areas and creating a pedestrian circulation network. The parking lot and buildings can be screened from Russell Road with a vegetative buffer.

**14) MCX Facade and Foundation Plantings** : The MCX building facade requires visual and aesthetic improvements. The color scheme can be redesigned and foundation plantings can be added to enhance the large facade facing the parking lot.

**15) Barnett Avenue** : The Barnett Avenue corridor can be designed in keeping with its historical design and yet accommodate current functions and needs. The complete stretch of Barnett Avenue can be coordinated to have a cohesive identity.

**16) South Gate / Russell Road corridor** : is a highly visible area to visitors and the surrounding community. The commercial development can be screened and the streetscape and open space can be enhanced to blend in with the surrounding forested area.

**17) Camp Barrett** : An appropriate campus design can be planned for Camp Barrett to reflect the training and academic functions it houses.

**18) MCU Flag Court and Site Improvements** : A military construction (MILCON) project, P-434, exists to create a flag court and parade field as an appropriate entrance to the MCU. Other site improvements including sidewalks and a lawn area are also proposed.

**19) North and South Gate Improvements** : The redesign of the two major gates on Mainside has been funded and awaits approval for construction to begin. The improvements proposed include renovation of the gatehouses, plantings in the vicinity of the gates and restriping and realignment of the vehicular travel lanes.

In consultation with the Base Public Works Branch staff, four areas were selected as priority projects. Each priority project site was reviewed in detail to document existing visual assets and deficiencies. A conceptual design plan delineating a series of improvements for each site was then developed. Each priority project is described in the following sections.

## 4 . 1            Barnett Avenue

Barnett Avenue is part of the primary route of vehicular circulation on Mainside. It is a very high visibility area and is densely populated with a variety of land uses and functions. The street was originally designed as a boulevard provided with street trees, lighting and sidewalks. Over the years, the street has been widened and extended without a long range or overall plan. This section documents the existing conditions, identifies a conceptual or visionary plan for the street and outlines key improvements to put this plan into action.

### 4 . 1 . 1           Existing Conditions

Barnett Avenue functions as the “Main Street” of Mainside. It runs through the densest development at Mainside and is a much travelled route. Many significant buildings are sited along it such as the Barracks, the Fire Station, Daly Hall, Little Hall, the new Medical Clinic and the proposed Fitness Center (*Figure 4-2*). It also forms an anchor to the lateral streets that access various parts of the Base, such as MCU, the Town of Quantico, Hospital Point, the residential areas, the Medical Clinic and MCAF.

#### Intersections

Barnett Avenue ends abruptly on both sides without designed or well-defined transition points. Barnett Avenue is accessed from Fuller Road to the north and from Russell Road to the south. For the most part, the character of Fuller and Russell Roads is that of a tree-lined country road running through sparsely developed areas. Views of the golf course greet the visitor driving along Fuller Road and those of the Chopawamsic Creek along Russell Road. Along Barnett Avenue, the development is more dense and an urban campus setting can be visualized. The Fuller Road / Barnett Avenue intersection has a blind curve with an embankment on one side. The Russell Road / Barnett Avenue intersection is at Dunlap Circle, a location that presents immense potential for redesign as a focal point and a key intersection of the campus. Currently the landscape here is virtually devoid of any feature or vegetation. Other key nodes along Barnett Avenue are the intersections with Potomac Avenue (entrance to the Town of Quantico and access to Hospital Point), Martin Street (entrance to MCU), Henderson Road (interface between the Barracks and the proposed Fitness Center) and Catlin Avenue (entrance to the Medical Clinic).

#### Barnett Avenue (North) - The Boulevard

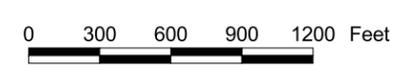
The Northern part of Barnett Ave. has a pedestrian friendly environment with street trees planted at approximately 40 ft. on center. For a short stretch in the Barracks area there is a double row of street trees, which creates a boulevard-like character (refer photo). This condition may



LOCATION MAP

FIGURE 4 - 2  
**BARNETT AVENUE -  
 EXISTING CONDITIONS**

*Source of Map Data : MCB Quantico, NREA & The Onyx Group*



provide a model for future plantings. The sidewalks are wide enough for use by both pedestrians and bicyclists. In the Barracks area, however, some buildings have an excess of paving near the entrance, providing an opportunity for redesign to create a sense of arrival at the entry points to buildings. Crosswalks are too frequent and not aligned to connect key buildings or parking lots. The lighting fixtures along the street are incompatible with the architecture and boulevard character because of their style and placement on the median. Some attempt has been made to screen parking lots from view from Barnett Ave, but most lots need attention to their interface with the street. Pedestrian access across the lots and landscaping within and around the lots are in poor condition. Open space between buildings in the Barracks area is underutilized. In keeping with a campus setting, public open space may be located in these spots. The new Fitness Center is located to have a direct relationship with Butler Stadium and the Barracks area. Pedestrian circulation and amenities will be required there.



*Barnett Avenue North - the Boulevard*

*Barnett Avenue (South) - The Addition*

South of Henderson Road, sidewalks along Barnett Ave. are discontinuous, few crosswalks exist and street tree plantings are intermittent. Where they exist, the trees are planted too far from the street to provide any shade or vertical dimension to the street. There is no median in the street and the travel lanes are blocked by on-street parking spaces. A large amount of frontage is taken up by parking lots that could be consolidated and screened from view (refer photo). Though the relationship of the buildings to the street is roughly the same as that in the Northern part, the character of the street is less pedestrian-friendly and more industrial. The power plant is an eyesore because of the scale, lack of relationship with the street and the industrial character of the building and its surroundings. An effort has been made to plant evergreens along the streets as a screen, but they still need a few years to grow into place.



*Barnett Avenue South - the Addition*

### General Concerns

- On the whole, Barnett Avenue lacks cohesion and a unified character.
- Sidewalks in most areas are in serious disrepair. This provides an opportunity for creative use of materials and textures to define the pedestrian realm.
- Crosswalks need to be realigned and new ones added to connect specific building entrances and related parking lots.
- Utilities and service installations are often placed in prominent locations. Unsightly installations can be relocated or screened.
- Traffic lights are hung on cables and do not conform to standards used off the Base for fixtures or placements.
- Street tree plantings are intermittent and plant varieties are not suitably chosen or placed. Maintenance of plants is often ignored or improperly done.
- Few pedestrian amenities are provided. The absence of site furnishings such as benches and seats, drinking fountains, bus shelters, information kiosks, phone booths, planters and outdoor art exhibits is felt due to the lack of definition in the nature and function of public open spaces.
- Lamps and lighting fixtures are not uniformly distributed and can be relocated and redesigned to enhance the character of the street.
- Signs indicating directions to various parts of the Base are not standardized and difficult to locate.

#### **4 . 1 . 2      Proposed Concept**

The conceptual plan for Barnett Avenue addresses both short term and long term improvements. The short term improvements are in response to specific problems observed on the site. The long term improvements are key projects that will help to develop the identity and visual character of Barnett Avenue.

The two parts of Barnett Avenue (North and South) have distinctly different characters, mainly due to their history of development. This distinction between the two parts of Barnett Avenue is to be maintained. The streetscape, however, is to be designed to unify the two parts and continuity is to be maintained between sidewalks, street plantings and travel lanes (*Figure 4-3*).

#### Barnett Avenue North

The existing buildings on Barnett Avenue include some of the oldest permanent construction on the Base, as well as more recent construction projects. The visual environment of Barnett Avenue North has a strong character that was established when the street was initially constructed. All new construction and renovations should be in keeping with the

historical character of the streetscape (refer photo). Improvements required here are mainly rectification of inappropriate additions or functionally deficient areas.



*Historical character of Barnett Avenue - the streetscape at the beginning of World War II<sup>1</sup>*

*Barnett Avenue South*

Barnett Avenue South is visually confusing and is in a state of transition and development. The proposed identity for this area is quite different from the chronologically older section - Barnett Avenue North. A network of open spaces and connecting axes is to be established here to bring balance into the urban fabric between built and unbuilt spaces. These open spaces can provide areas for outdoor recreation and leisure while creating a pedestrian circulation system that bridges Barnett Avenue and connects buildings, parking lots, bus stops and other logical destinations.

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**NOTE :**

<sup>1</sup> USMC Photo 31487 in Fleming, Lt. Col. C. A., et.al., *Quantico: Crossroads of the Corps*, History and Museums Division, U.S. Marine Corps, Washington, D.C., 1978, p.74.



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-  EXISTING BUILDING IN STUDY AREA
-  PROPOSED / FUTURE BUILDING
-  PROPOSED SPECIAL PAVING
-  PROPOSED PARKING LOT OR CONCRETE PATH
-  PROPOSED OPEN SPACE
-  PROPOSED STORMWATER DETENTION POND
-  PROPOSED TREE
-  EXISTING TREE
-  PROPOSED VEGETATION

FIGURE 4 - 3

**CONCEPTUAL PLAN  
FOR BARNETT AVENUE**



BASE EXTERIOR ARCHITECTURE PLAN

#### 4 . 1 . 3      Proposed Improvements

Define the beginning and end points of Barnett Avenue at the Potomac Ave. / Barnett Ave. intersection and Dunlap Circle

##### 1A. Fuller Road end :

- Trees are to be planted in forest fashion (a mixed variety of trees in non-geometrical or random formation) on both sides of Fuller Road to bring the forest edge closer to the end point of Barnett Avenue at the intersection of Potomac Ave.
- Overhanging creepers or spreading shrubs are to be planted alongside retaining wall to soften the edges of the blank concrete wall. A long-term solution is to replace the retaining wall with a stepped or terraced wall built in a visually appealing material, with flower beds or planting areas on each level.

##### 1B. Russell Road end :

- Trees are to be planted in forest fashion along Russell Road, extending the Russell Road character to Dunlap Circle.

Design the approach from Fuller Rd. including the Potomac Ave. / Barnett Ave. intersection, the entrance plaza of Little Hall and the parking lot adjacent to Daly Hall (Figure 4-4)

##### 2 a. Intersection Improvements :

- Key intersections along Barnett Avenue are to be defined by changing the paving material. Stamped concrete paving is to be used for delineating the crosswalks and the designated area of the intersection. The location will be highlighted using color and texture.
- The existing traffic island is to be landscaped with ornamental grass and/or ground cover. The plantings will give the location more definition while staying below the line of sight of motorists.
- A tiered planter is to be cut into the natural slope on the north corner. This is also a suitable location for a directional sign for north-bound traffic.
- Directional Signs indicating the directions towards the Town of Quantico, MCU, Medical Clinic, etc. should be incorporated into the intersection improvement.

##### 2 b. Little Hall Plaza :

- Stamped concrete paving is to be provided for the crosswalk across Barnett Avenue and the plaza near Little Hall (*Figure 4-5*).

- Ornamental trees are to be planted in cutouts in the paved area. A low brick wall with a coping to match the architectural style can be built around the cutouts to protect the trees and provide informal seating.
- The existing sign post is to be redesigned to provide the necessary information in a neater, less cluttered format.
- Lampposts and fixtures of inappropriate style are to be replaced. The new style must be in keeping with the architectural style and historical significance of Barnett Avenue.

2 c. Parking Lot :

- The parking lot must be reconfigured to incorporate pedestrian paths connecting Little Hall and Daly Hall to Potomac Ave.
- Planting strips with shade trees are to be provided between the parking rows.

Design the Martin St./ Barnett Ave intersection as a node

3. Intersection Improvements :

- Stamped concrete paving is to be used for delineating the crosswalks and the designated area of the intersection.
- Road signs are to be provided on the east and south corners.

Restore the historical character of the Barracks section of Barnett Ave.

4 a. Barracks Area :

- The street trees, mainly oaks, are an integral part of the identity of Barnett Avenue. But a number of trees are deteriorating and dying. To preserve the unique character of the streetscape, a phased replacement of the street trees is to be undertaken.
- Lampposts and fixtures of inappropriate style are to be replaced. (For design guidelines refer to earlier section.)
- Foundation planting is to be designed for the Barrack buildings closest to Barnett Avenue (*Figure 4-6*). Large evergreen shrubs are to be used to emphasize entrance doors, and low shrubs and ornamental grasses are to be planted between entrances. Stamped concrete or brick paving is to be provided in front of the buildings. The paving pattern is to be designed to bring variation and interest to the front court of the buildings.



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-  EXISTING BUILDING IN STUDY AREA
-  PROPOSED PEDESTRIAN PATHS / PAVING
-  PROPOSED PARKING LOT
-  PROPOSED TREE
-  EXISTING TREE
-  PROPOSED VEGETATION

FIGURE 4 - 4  
**APPROACH FROM  
 FULLER ROAD**  
 DETAIL PLAN

0 75 150 Feet



BASE EXTERIOR ARCHITECTURE PLAN



*Existing Conditions*



*Proposed Conditions*

Figure 4-5: Little Hall Plaza



*Existing Conditions*



*Proposed Conditions*

*Figure 4-6A: Prototype for Foundation Planting for Barrack Buildings*



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- EXISTING BUILDING IN STUDY AREA
- PROPOSED / FUTURE BUILDING
- PROPOSED PATH OR SPECIAL PAVING
- PROPOSED PARKING LOT OR ROAD
- PROPOSED OPEN SPACE
- PROPOSED TREE
- EXISTING TREE
- PROPOSED VEGETATION

FIGURE 4 - 6

# PROTOTYPE FOR FOUNDATION PLANTING FOR BARRACK BUILDINGS

DETAIL PLAN

0                      30                      60 Feet



BASE EXTERIOR ARCHITECTURE PLAN



*Existing Conditions*



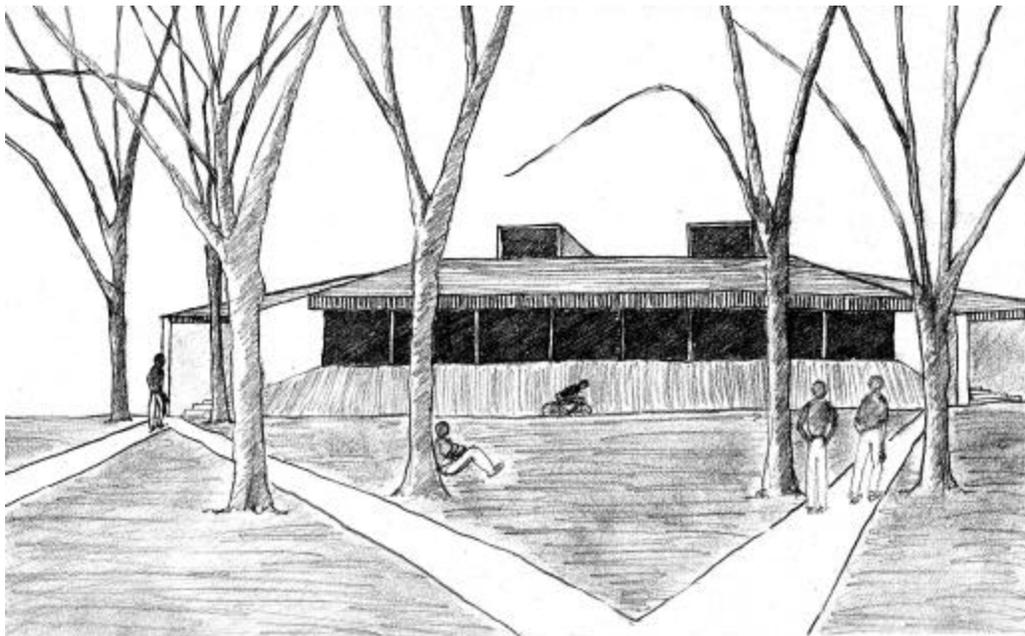
*Proposed Conditions*

*Figure 4-6A: Prototype for Foundation Planting for Barrack Buildings*

- Open areas in between barrack buildings are to be designed to preserve the park-like character (*Figure 4-7*). These landscaped spaces must be passive to low activity areas and can include rustic seats and outdoor art / exhibits. Trees and lawn are to be provided, leaving the understory clear of shrubs. Pedestrian paths, paved with a porous material, are to follow the existing circulation pattern.

4 b. Between the fire station and Bldg. 3035 :

- The parking lots and commercial development along Barnett Avenue should be screened from view. The existing screening comprising of a wood fence and shrubbery is to be extended and supplemented with evergreen plantings.
- The on-street parking from the front of Bldg. 3035 is to be consolidated into the parking lot to the rear of the building and out of sight from Barnett Avenue.
- Landscape improvements including shrubs and trees are to be provided to embellish entrances and building facades.



*Figure 4-7 : Sketch of Open Space near Dining Hall*

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Design the John Quick Rd./ Barnett Ave. intersection as a node and transition point

5 a. North of John Quick Rd :

- A bus shelter and outdoor seating is to be provided at the bus stop near the parking lot (PL-18). The bus shelter must be of a style in keeping with the surrounding architectural style and historical character of the street. Pedestrian access must be provided to the waiting area from Barnett Avenue and from the bus pull-in area in the parking lot (*Figure 4-7*). This parking lot can be used as a precedent for the proposed parking lot near Bldg. 3035.
- Screen plantings are to be provided between the parking lot (PL-18) and Barnett Ave and Henderson Road.
- Planter strips with shade trees are to be provided between the rows in the parking lot.

5 b. South of John Quick Rd :

- A vegetative screen is to be provided between the Power Plant yard and Barnett Ave. The screen is to consist of medium to large evergreens, with a layer of flowering or colorful shrubs along Barnett Ave.
- The parking for the proposed Fitness Center is to be consolidated into a parking lot, with shade trees planted between the rows and adequate screening from Barnett Ave.
- The open space around the Fitness Center is to be used to provide outdoor open space, recreation and exercise areas (e.g. exercise circuit, running trail, horseshoe pit). The landscape will reflect the function of the building.
- The required detention pond is to be incorporated into the design of the open space to make it as inconspicuous as possible. The area is to be planted with species native to meadow and wetland areas.

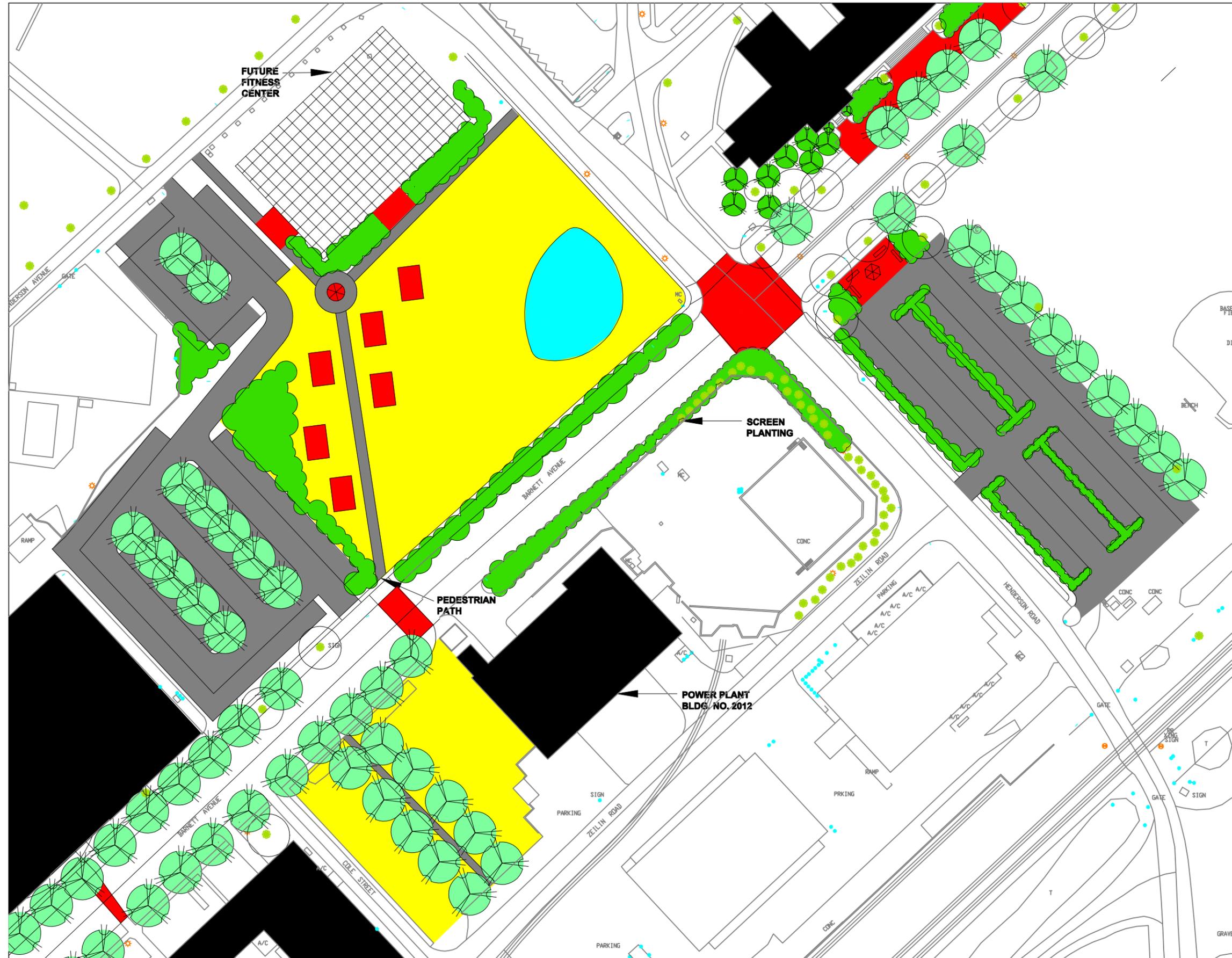
Redesign Barnett Ave. south of John Quick Rd.

6. Streetscape Improvements :

- Barnett Ave. must be widened to 4 lanes to maintain continuity with the northern section. Additional turn lanes are to be provided where needed.
- On-street parking in this area must be relocated and consolidated into screened parking lots.



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-  EXISTING BUILDING IN STUDY AREA
-  PROPOSED DEVELOPMENT
-  PROPOSED PEDESTRIAN PATHS / PAVING
-  PROPOSED PARKING LOT / PATHS
-  PROPOSED OPEN SPACE
-  PROPOSED DETENTION POND
-  PROPOSED TREE
-  EXISTING TREE
-  PROPOSED VEGETATION

FIGURE 4 - 8

# JOHN QUICK ROAD/ BARNETT AVENUE INTERSECTION

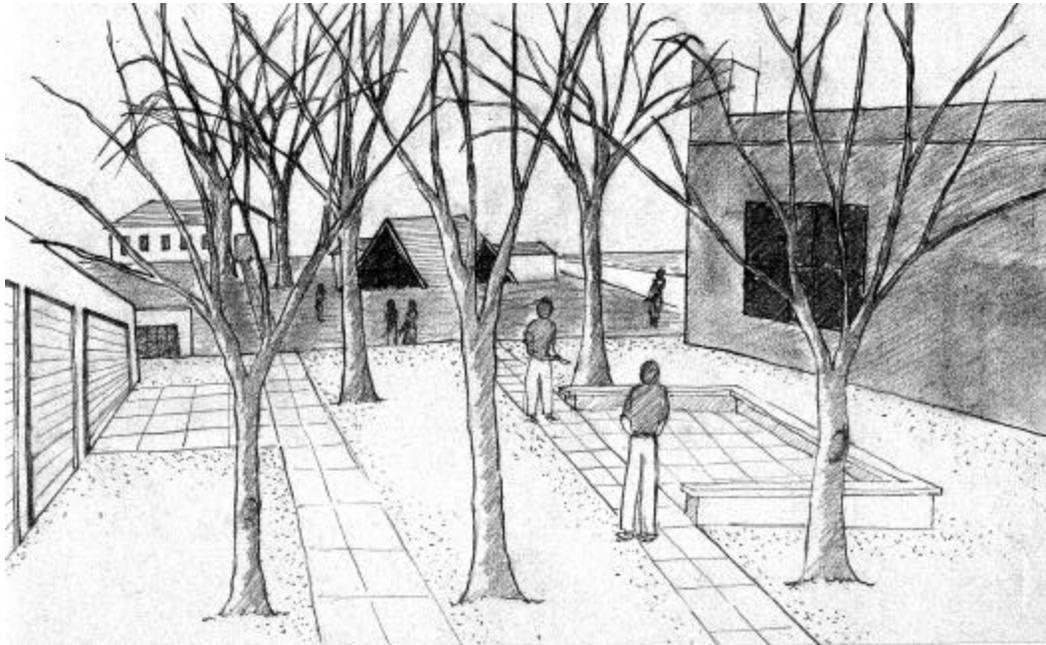
DETAIL PLAN

0 75 150 Feet



BASE EXTERIOR ARCHITECTURE PLAN

- Street trees, sidewalks and crosswalks are to be provided, maintaining a green strip between the road and the sidewalk. The buildings are to be setback from the road to maintain a consistent street width.
- Barnett Avenue is to be bridged both visually using tree-lined axes, and physically with pedestrian paths connecting buildings, parking lots and public greens on either side of the street (*Figure 4-8*)



*Figure 4-8: Sketch of Pedestrian and Visual Axes*

*Design the Catlin Ave./ Range Rd./ Barnett Ave. intersection as a node*

This intersection has been redesigned and signalized to improve vehicular traffic operations. Additional improvements not included in the redesign are listed below.

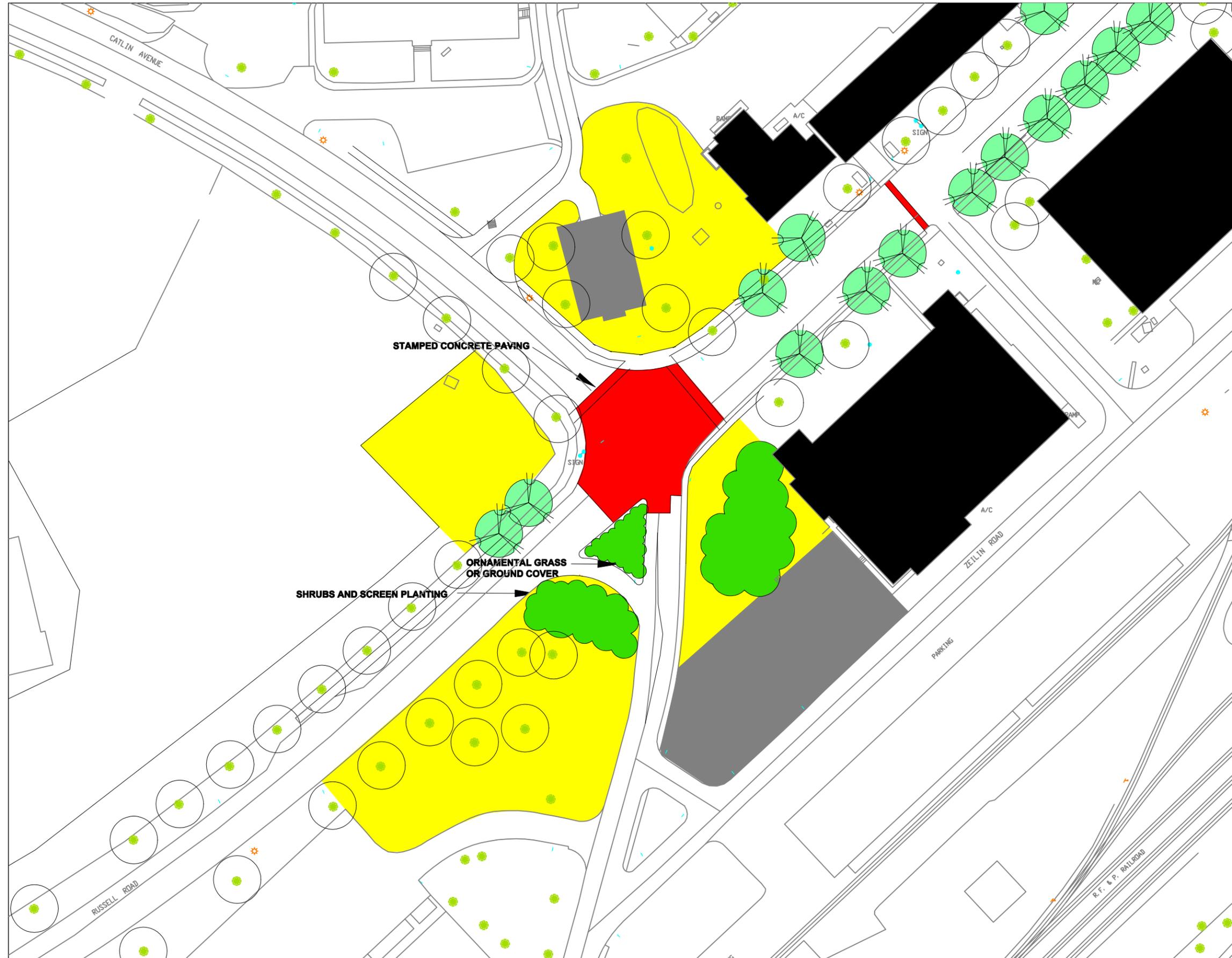
7. Intersection Improvements :

- Stamped concrete paving is to be used for delineating the crosswalks and the designated area of the intersection (*Figure 4-9*).
- A traffic island is to be provided and landscaped with ornamental grass and/or ground cover.
- Parking lots are to be screened using evergreens and by sinking the lots below road level.
- Screening is to be located to conceal utilities visible from the street.
- Sidewalk is to be extended along Barnett Avenue to the bus stop near the Medical Clinic .

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-  EXISTING BUILDING IN STUDY AREA
-  PROPOSED PEDESTRIAN PATHS / PAVING
-  PROPOSED PARKING LOT
-  PROPOSED OPEN SPACE
-  PROPOSED TREE
-  EXISTING TREE
-  PROPOSED VEGETATION

FIGURE 4 - 10

# CATLIN AVENUE/ BARNETT AVENUE INTERSECTION

DETAIL PLAN

0 65 130 Feet



BASE EXTERIOR ARCHITECTURE PLAN



*Existing Conditions*



*Proposed Conditions*

*Figure 4-10A: Catlin Avenue / Barnett Avenue Intersection*

## 4 . 2            South Gate

The South Gate is located on Russell Road and allows easy access to I-95 and Route 1. It functions as the primary access to the Exchange and other commercial facilities located along Russell Road. Being a highly visible area to visitors and the surrounding community, the visual environment at the South Gate and Russell Road corridor needs to be enhanced.

### 4 . 2 . 1           Existing Conditions

The South Gate consists of a cluster of sign boards and a sentry house with a pull-up area (*Figure 4-10*). Once through the gate, the drive along Russell Road is through a forested area to the intersection with Purvis Road. Purvis Road is the main access to the residential area but passes through the commercial district. The Marine Corps Exchange and the Commissary are located at this intersection. Other commercial organizations located along Russell Road include Mc Donald's, Auto Pride and the Marine Federal Credit Union. Due to the location of the facilities, commercial and residential traffic is not segregated and there is no check or control between the two.

The commercial area requires a large parking lot to meet its needs. The existing parking lot lacks adequate shade and screening from Russell Road. The light fixtures used here are functional and not very appealing. The Commissary building has an attractive two-tone facade. The entrance is highlighted using a barrel vault within the roof. The Exchange building is comparatively drab with a metal and textured CMU facade. A picnic area shaded by trees is located between the two buildings. Signboards for the various MWR facilities are in a number of sizes, styles and locations. This creates clutter and detracts from the visual character of the area.

### 4 . 2 . 2           Proposed Concept

The main goal of the proposed improvements is to create a better driving experience along Russell Road when entering the Base through the South Gate. The Russell Road character at the Purvis Road intersection is in sharp contrast with the other sections, mainly due to the commercial facilities located here and a lack of control and planning of the visual environment. The improvements proposed focus on screening these areas from Russell Road, facilitating pedestrian traffic within the MCX Center and aesthetically enhancing the existing facilities and landscape features (*Figure 4-11*).

Another goal of the improvements in this area is to be able to segregate traffic accessing the MCX Center and other commercial facilities from that accessing the residential area and the rest of Mainside. To achieve this goal, the proposal of relocating the South Gate between the MCX Center entrance and Purvis Road was explored. This proposal has a number of pros and cons that need to be weighed carefully to determine its feasibility. Existing and new traffic patterns will have to be analyzed, construction costs will need to be determined and noise and disturbance to the residential community in the vicinity will have to be gauged.

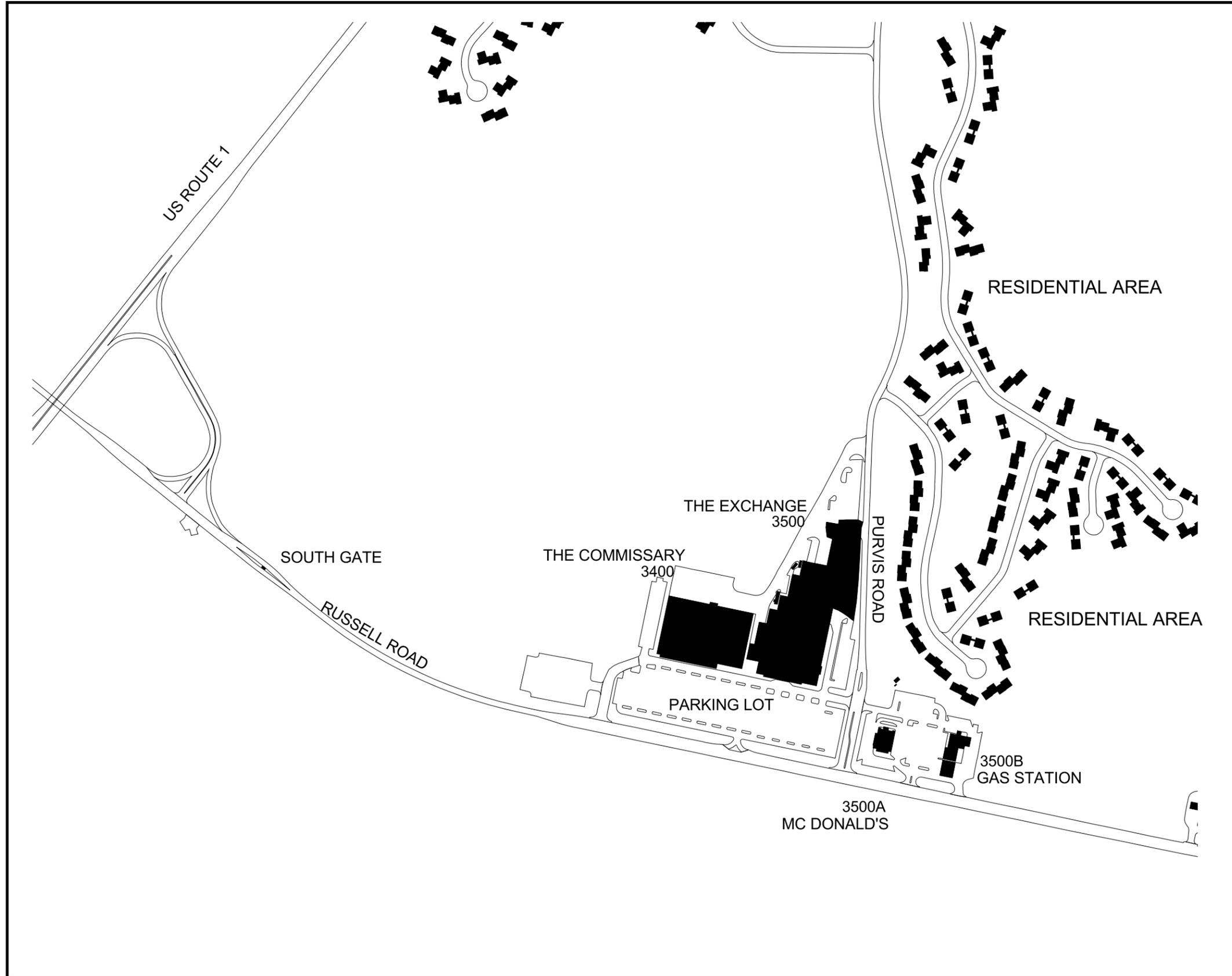
The redesign of the South Gate area and sentry post has been funded and approval to begin construction is pending. In conjunction with the proposed construction, the feasibility of relocation of the South Gate may be investigated. A MILCON project, P479, for the widening of Russell Road also exists. The proposed improvements listed below may be coordinated with the proposed construction in this area.

The proposal also includes an additional project involving the realignment of the Purvis Road/ Russell Road intersection beyond Mc Donald's to allow more room for the gate activities and to include Mc Donald's into the MCX Center. A separate decision can be taken on this part of the proposal.

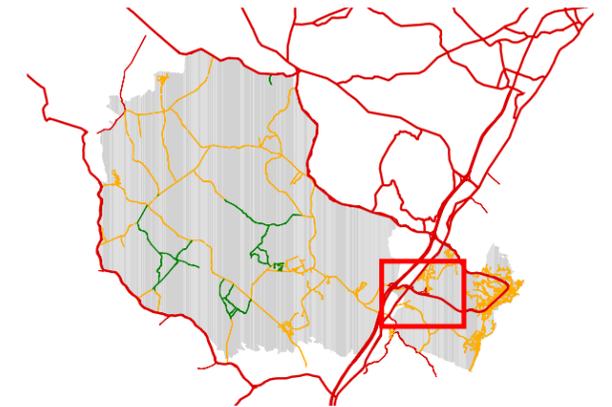
A proposal exists to site an auto mall in the commercial district on Russell Road. This project is not recommended to be located in the MCX Center due to lack of space. The auto mall can be sited near the gas station, on the other side of Purvis Road. This site should also be adequately buffered and screened from Russell Road in keeping with the above concept.

#### **4 . 2 . 3      Proposed Improvements**

1. Buffer strip : The buffer strip between Russell Road and the commercial activities and parking lots can be planted with two or three rows of shade trees to help screen these areas from the road. The existing difference in elevation between Russell Road and the adjacent development also acts as a visual barrier.
2. Islands within the parking lot : The islands at the ends of parking rows need to be planted with trees to provide shade to parked cars and pedestrians as well as to break up the visual monotony of cars and asphalt. An additional row of islands along the center of the large parking lot can be provided to provide more space for planting trees.
3. MCX Facade : The facade of the Exchange building has a very functional look which is not very appealing. The facade may be enhanced by creating depth using colors and detailing (*Figure 4-12*).



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LOCATION MAP

FIGURE 4 - 11

# SOUTH GATE - EXISTING CONDITIONS

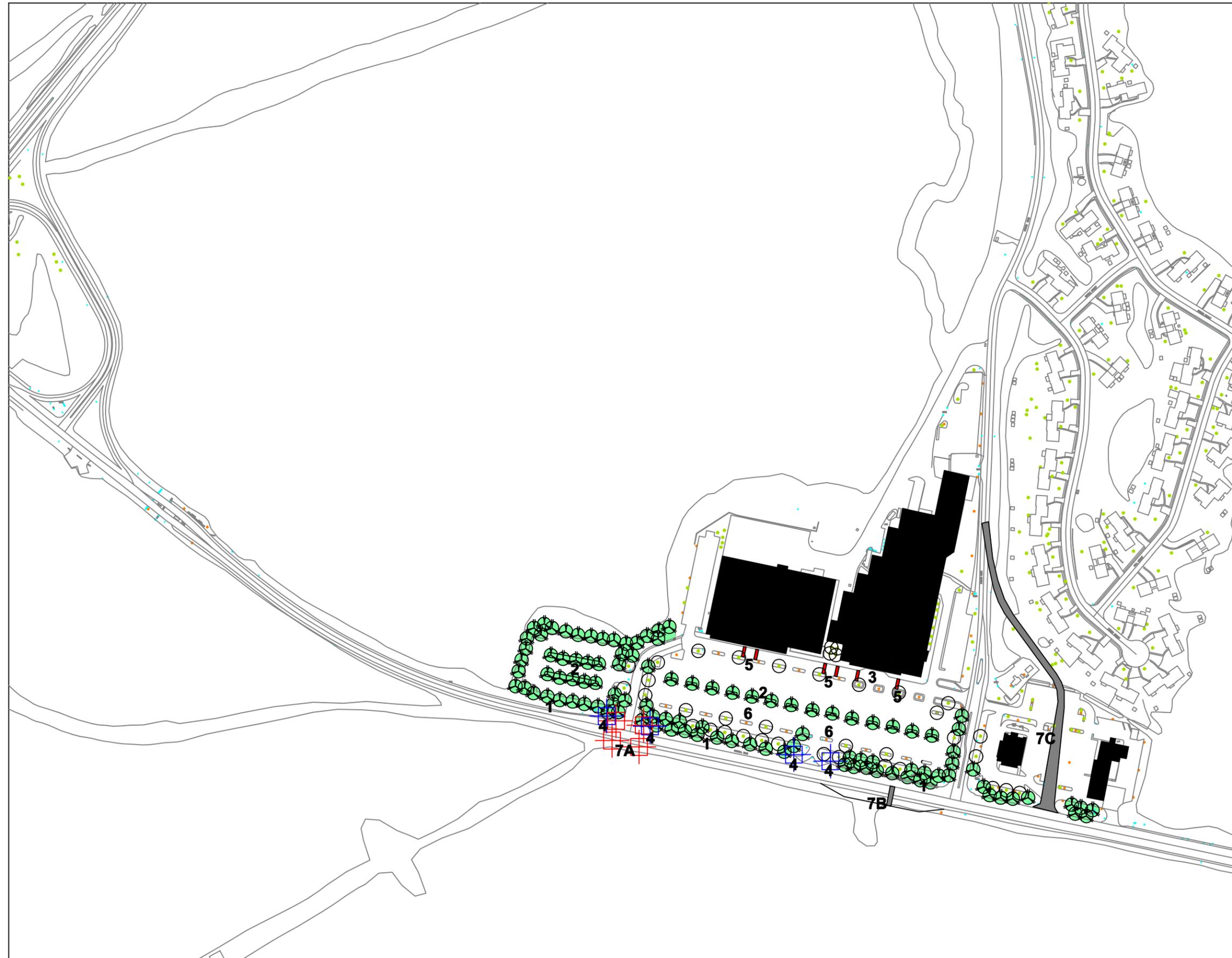
Source of Map Data : MCB Quantico, NREA & The Onyx Group

0 200 400 600 Feet





MCB  
QUANTICO



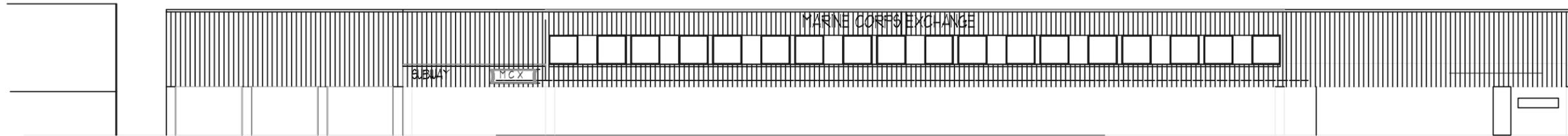
-  EXISTING BUILDING IN STUDY AREA
-  PROPOSED SPECIAL PAVING
-  PROPOSED ROAD REALIGNMENT
-  PROPOSED OPEN SPACE
-  PROPOSED TREE
-  EXISTING TREE
-  PROPOSED TRAFFIC LIGHT
-  PROPOSED SIGN

FIGURE 4 - 12

### CONCEPTUAL PLAN FOR THE SOUTH GATE

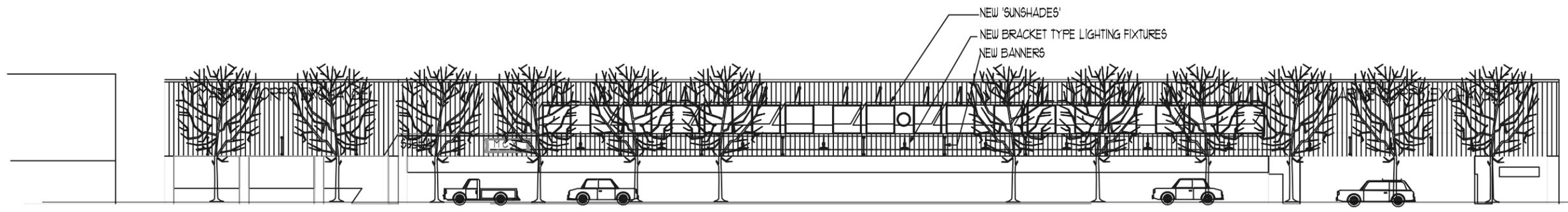
0 400 800 Feet





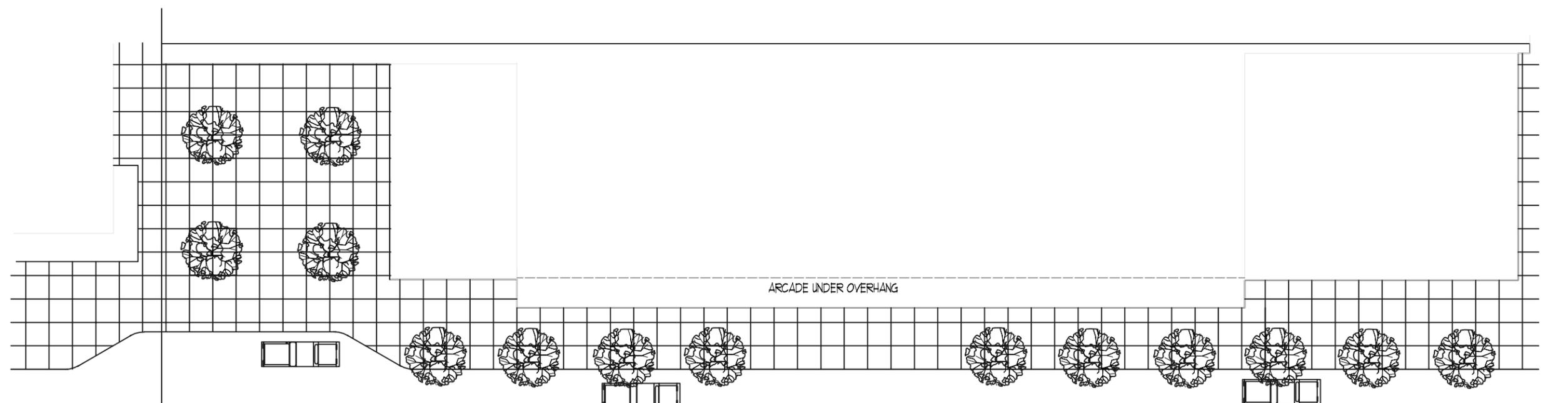
COMMISSARY

### EXISTING FRONT ELEVATION



COMMISSARY

### PROPOSED FRONT ELEVATION



### PROPOSED SITE PLAN

Figure 4-13: MCX Facade Improvement

*Figure 4-15: MCX Facade Improvement*

*\*\*\* TO BE PROVIDED IN FUTURE SUBMISSION \*\*\**

4. Signage : Consolidate the signage of all Morale Welfare and Recreation facilities within the same area into a well designed signpost located near the entry point. Avoid excessive signage that detracts from the visual environment.
5. Pedestrian Paths : Provide pedestrian paths of a different material and texture to slow traffic down and highlight crosswalks.
6. Light fixtures : may be replaced with those of a more appropriate style, material and color.

*To segregate traffic accessing the commercial area and the rest of Mainside*

- 7A. Additional traffic light : Provide a new traffic light at the west entrance to the MCX Center. This entrance should function as the main access to the commercial area. The other gate along Russell Road should function as a secondary entrance. No access should be provided off Purvis Road because it will be difficult to monitor.
- 7B. Relocate the South Gate and sentry post : from the current location to the proposed position between the entrances of commercial and residential areas. This will allow free access to the commercial area without entering the gate, while restricting access to the residential area and the rest of Mainside.
- 7C. Reroute Purvis Road : to meet Russell Road beyond Mc Donald's to allow more length of road for vehicles to queue on either side of the Gate during peak hours.

### **4 . 3            Camp Barrett**

Camp Barrett is the largest development district on the west side of the Base. The points of entry into the area are located on MCB 2 and MCB 3 (*Figure 413*). While MCB 2 terminates at Camp Barrett, MCB 3 carries some through traffic, including trucks and heavy vehicles. Camp Barrett mainly consists of training and related facilities for TBS. The visual character of Camp Barrett can be enhanced to portray its academic functions and create a campus environment.

#### **4 . 3 . 1            Existing Conditions**

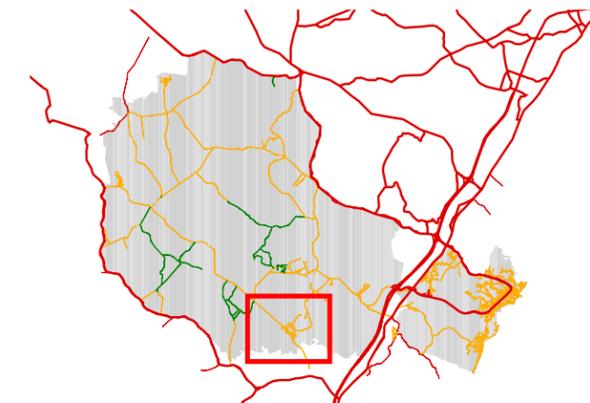
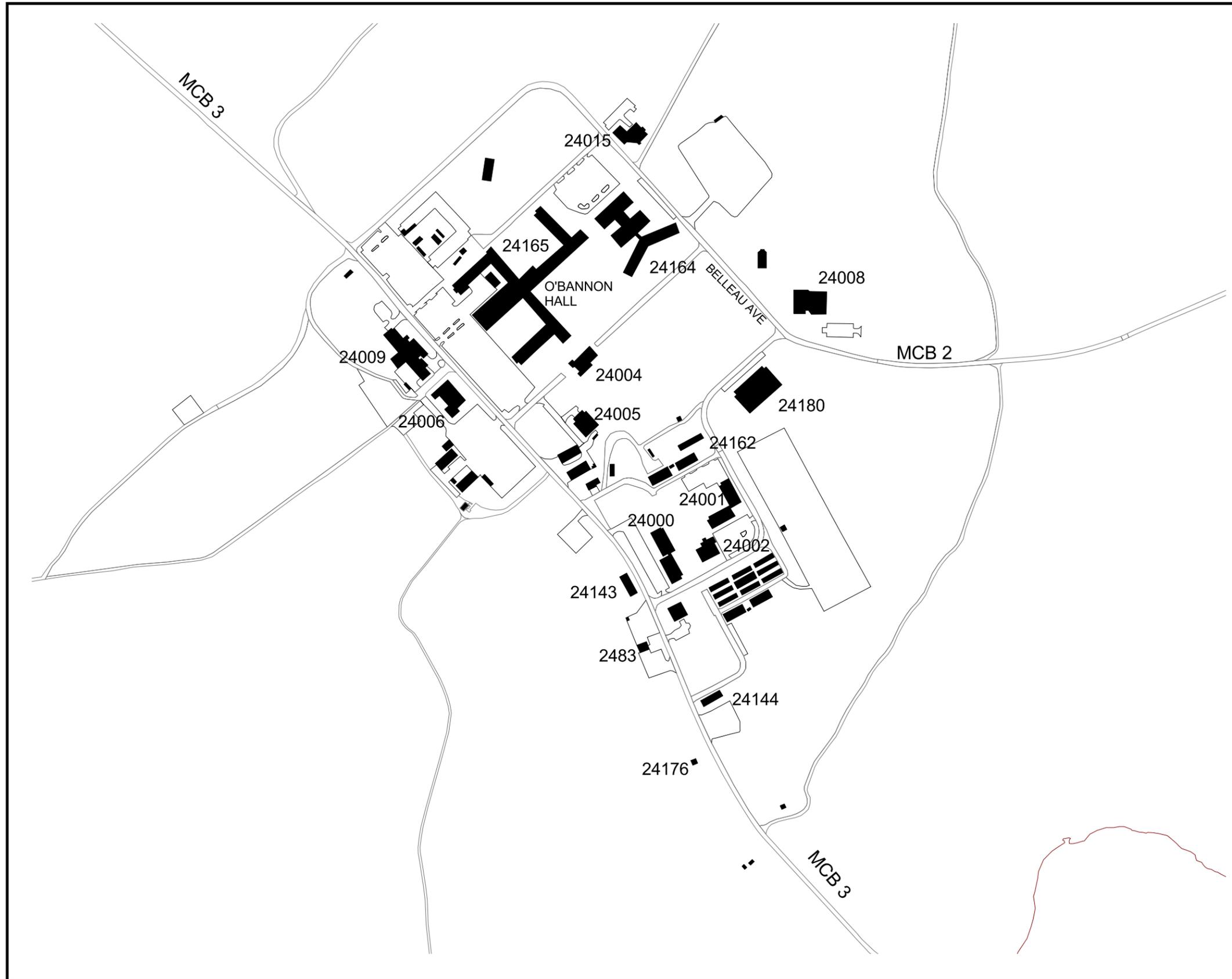
Entering Camp Barrett through the gate on MCB 2 leads the visitor to the most striking landscape feature of Camp Barrett - the central open space for the campus consisting of the landing zone and adjacent open areas. The buildings arranged around this large open area are given a prominent site on the campus. The buildings include a barrack, the gymnasium, the clinic and the main academic building. Though these buildings are fairly large and sprawling, they are not very imposing due to the large space and plantings in the foreground.

MCB 3 forms the rear entrance to Camp Barrett. The section of MCB 3 that passes through Camp Barrett is flanked mainly by large parking lots and storage and maintenance facilities. This is a more functional and less visually appealing area. There is a lack of shade trees and sidewalks here. Recreational areas are provided along MCB 3 and near barrack buildings. A cluster of maintenance and industrial facilities is located between the two housing areas. This cluster includes some poorly maintained and/or temporary metal structures. It also includes community services such as a barber, a dry cleaner and a convenience store. While the community services are functionally related to the housing, the rest of the buildings here are in sharp contrast both functionally and visually.

Within the campus, the road network is haphazardly organized. Steep slopes and abrupt changes in elevation are characteristic of Camp Barrett making it difficult to plan a gridiron network. Lack of definition between various areas and functions results in a mix of light and heavy vehicles using the same roads. There is a need for directional signs and maps at key intersections.

#### **4 . 3 . 2            Proposed Concept**

The academic functions at TBS demand an appropriate campus setting. An excellent precedent has been provided by the central open space surrounded by buildings of similar or related functions. This can be translated into a planned network of open spaces based on function or surrounding land use (*Figure 4-14*). The open spaces or courts can be of

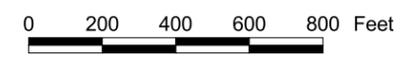


LOCATION MAP

FIGURE 4 - 14

**CAMP BARRETT - EXISTING CONDITIONS**

*Source of Map Data : MCB Quantico, NREA & The Onyx Group*





MCB  
QUANTICO



-  EXISTING BUILDING IN STUDY AREA
-  PROPOSED DEVELOPMENT
-  PROPOSED PEDESTRIAN PATHS
-  PROPOSED PARKING LOT
-  EXISTING OPEN SPACE
-  PROPOSED OPEN SPACE
-  PROPOSED TREE
-  PROPOSED VEGETATION

FIGURE 4 - 15

### CONCEPTUAL PLAN FOR CAMP BARRETT

0 100' 200 Feet



BASE EXTERIOR ARCHITECTURE PLAN

various sizes and scales, accommodating a range of outdoor and indoor activities and functions. They should be connected together by a pedestrian circulation system. Parking can be sited along the periphery of the development, providing easy access to buildings, yet banishing vehicles from the green core of the campus. Industrial, service and storage functions can be assigned to the MCB 3 side of the campus. The arrangement of open spaces and buildings maintains a balance between built and unbuilt area. It also provides guidelines for siting future development according to function and the architectural style, scale, massing and materials to be used.

#### **4 . 3 . 3          Proposed Improvements**

1. Gate on MCB 2 : Provide a gate at the MCB 2 entrance to Camp Barrett consisting of brick gateposts and wall with a concrete coping and gates in cast iron or similar material. A sign indicating the name of the area, directions to major buildings on the campus and a map of the district should be incorporated into the entrance area.
2. Streetscape improvement of MCB 3 within Camp Barrett : Plant shade trees on either side of the section of MCB 3 within Camp Barrett (i.e. between Building 24176 to the Belleau Ave. intersection). Provide adequate screening for parking lots and other areas from the road. Provide lamp posts and light fixtures of an appropriate style and material.
3. Parking lots along MCB 3 : Consolidate major existing and proposed parking lots for the barracks along MCB 3. Provide adequately spaced islands along parking rows and plant shade trees to provide shade.
4. Pedestrian paths : are to be provided connecting logical destinations in the various open areas, such as barracks, academic facilities and community services. Shade trees are to be planted along the paths and paving material should be distinctly different from vehicular areas to delineate the pedestrian realm (e.g. stamped concrete or exposed aggregate concrete).
5. Open spaces : are to be established between existing and proposed barrack buildings or wings and near the MCX building. The open areas are to be designed for recreation and leisure on an individual scale as well as for community gatherings. Open spaces are to provide a view from inside the building and a landscaped foreground from the exterior. Pedestrian amenities and outdoor seating can be incorporated into the areas.

6. Power plant and industrial area : Most buildings in the cluster near the power plant are proposed to be relocated or demolished. The power plant and other buildings that will remain are to be screened from view from the surrounding housing and academic areas.
7. Signage : Road names and signs indicating the direction to major buildings on the campus are to be placed at key intersections or locations along MCB 3.
8. Expansion and new development : Areas along MCB 3 have been proposed for siting new development.

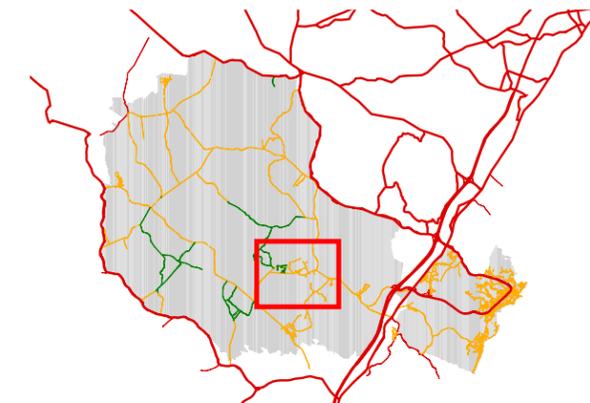
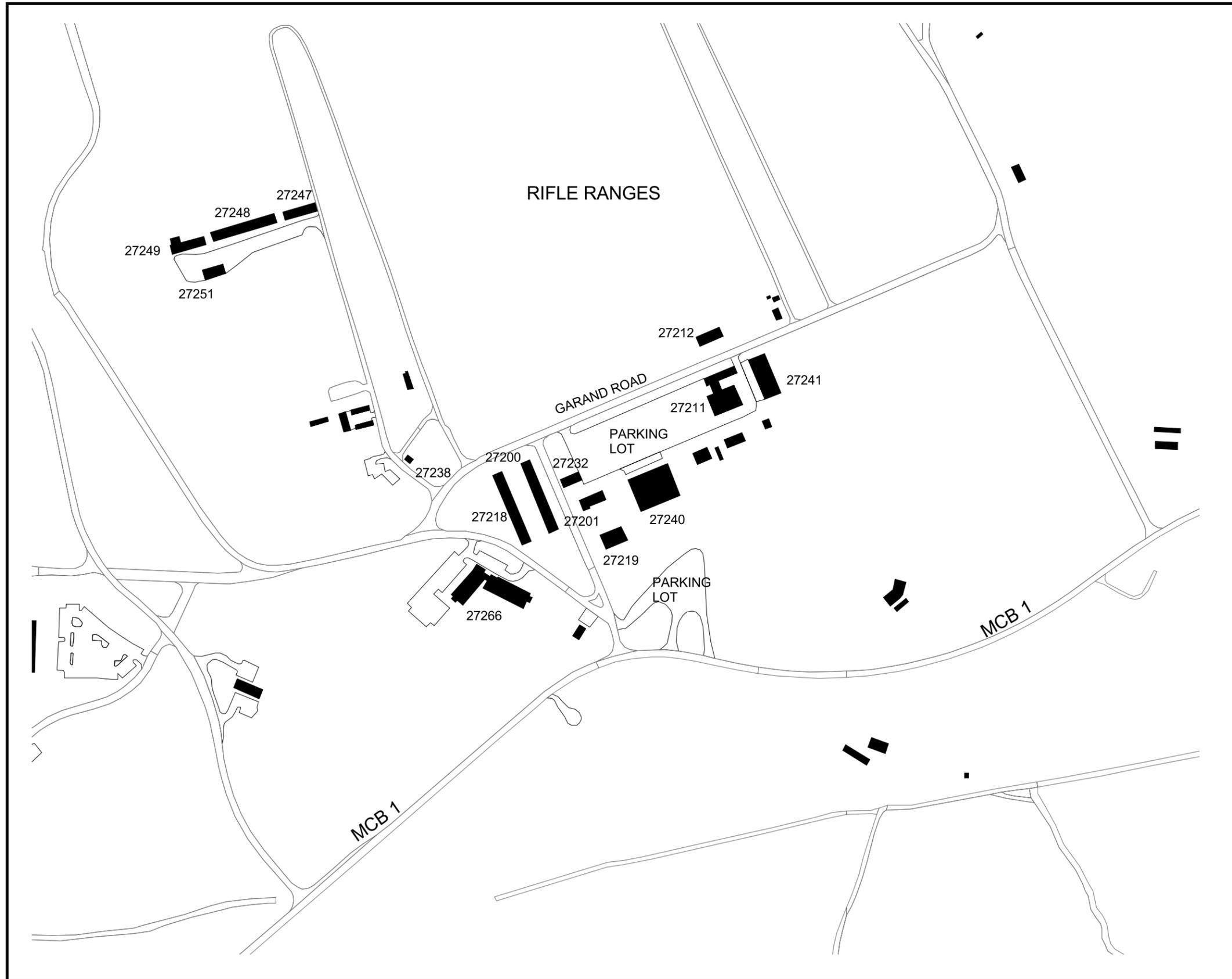
#### **4 . 4                    Weapons Training Battalion / C.A. Lloyd Range**

The Weapons Training Battalion (WTBN) at the C.A. Lloyd Range is located on the western side of the Base. The main entrance to the district is located on MCB 4 (*Figure 415*). The campus consists of a cluster of permanent and temporary buildings as well as the rifle ranges beyond. WTBN has great potential for improving the visual character and circulation system. These improvements will help to increase efficiency and project a positive image of the campus. They will be especially appreciated during special events when a large number of visitors are at the campus.

##### **4 . 4 . 1                Existing Conditions**

The entrance to the WTBN area is not well-defined. MCB 4 is a two lane road with a design speed of 45 mph which is reduced to 25 mph in the WTBN area. The entrance gate to the area is located along a curve in the road, making it difficult to anticipate and make the turn. At the entrance, one is confronted with a fork in the road without adequate signage or other visual clues to indicate the correct route to the headquarters building. Also, the visual character at the entrance lacks an aesthetic appeal. The MFCU ATM, the red brick barracks and the white wood framed buildings are in a variety of colors, textures and alignments. The headquarters building also does not stand out in the crowd. Visual clues and landscape improvements are required to direct visitors to this building.

The existing arrangement of the buildings and their relationship with the rifle ranges and other open space can be transformed into a traditional campus with a sound circulation system. The built part of the campus is closer to MCB 4 allowing easy vehicular access. It overlooks the rifle ranges which form an appropriate backdrop and can be accessed through the built part of the campus. The main parking lot for WTBN is situated in the central open space between the buildings. Although this



LOCATION MAP

FIGURE 4 - 16

**WTBN - EXISTING  
CONDITIONS**

*Source of Map Data : MCB Quantico, NREA & The Onyx Group*



location allows consolidation of parking for a number of buildings, better use of this prime spot can be planned. A number of buildings are slated for demolition at WTBN. This allows some room for reconfiguring the campus orientation and planning for expansion and relocation of facilities. Pedestrian amenities and outdoor recreation areas are not provided.

#### **4 . 4 . 2          Proposed Concept**

An important goal of the campus master plan is to provide a central open space or campus green in place of the existing parking lot (*Figure 4-16*). This will enhance the buildings around it, giving them an appropriate foreground and create a relationship with each other.

Another goal is to organize the road network and establish a hierarchy. This can be achieved by enhancing and highlighting the main route from the gate to the headquarters building and adding a road to complete the loop around the campus.

The main parking lot is to be relocated closer to the entrance gate to reduce the volume of traffic entering the campus. Pedestrian access between the parking lot and various buildings is to be provided to facilitate and encourage pedestrian circulation.

#### **4 . 4 . 3          Proposed Improvements**

1. Entry gate : The entrance area is to be enhanced by a formal gateway or arch with a sign incorporated into it. The area on either side of the road is to be planted with colorful shrubs and evergreens. Signs are also to be placed along MCB 4 approximately 100-200 feet on either side of the entry gate indicating the approaching turn-off.
2. Parking lot at entrance : The existing gravel lot near the entrance is to be enlarged to serve as the main parking lot for the campus. The existing ATM is to be accessed through this parking lot. This lot must be adequately screened from MCB 4.
3. Tree-lined boulevard : The existing street trees along Garand Road are to be added to and replaced if necessary and the boulevard is to be extended along the main route used between the gate and the headquarters building.
4. Campus Green : Provide a common open space to replace the central parking lot. This space is to accommodate recreation and leisure activities with space for community gatherings or small group events.

5. Pedestrian paths : Add pedestrian paths between the various buildings and the parking lots and provide shade trees and other amenities including trash cans, benches and walkway lighting along the paths.

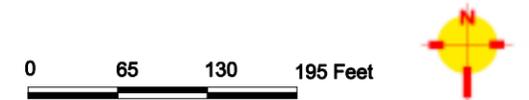


MCB  
QUANTICO



-  EXISTING BUILDING IN STUDY AREA
-  PROPOSED / FUTURE BUILDING
-  PROPOSED PATH OR SPECIAL PAVING
-  PROPOSED PARKING LOT OR ROAD
-  PROPOSED OPEN SPACE
-  PROPOSED TREE
-  EXISTING TREE
-  PROPOSED VEGETATION

FIGURE 4 - 17  
CONCEPTUAL PLAN  
FOR WTBN



BASE EXTERIOR ARCHITECTURE PLAN

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## 5.0 Implementation

The primary goal of the design guidelines and proposals for priority project areas outlined in this BEAP is to help improve the existing visual environment of the Base. The implementation of the BEAP guidelines and concepts will also help to ensure that future construction and renovations are designed in keeping with the existing style and aesthetic values.

### 5.1 Facilities Review Board

To enforce the recommendations of this BEAP, a Facilities Review Board should be formed within the Facilities Division of Public Works at MCB Quantico. The BEAP would be the formal document used by the board to enforce and ensure continuity throughout the base.

All new construction and major renovation projects on MCB Quantico would be submitted and approved by the board before construction activities begin. The board would review these projects to ensure they are in compliance with the design guidelines and aesthetic standards recommended by the BEAP. Review shall also be necessary for semi-permanent structures and other exterior improvements initiated by the Base or tenant organizations.

### 5.2 Relationship with other Planning Documents

The BEAP is being developed in conjunction with the Base Master Plan Update and takes into account the recommendations and proposals made in the Master Plan<sup>1</sup>. The BEAP also takes into account other current MCB Quantico planning documents including the Transportation Management Plan<sup>2</sup>, the Bicycle Master Plan<sup>3</sup>, the Marine Corps University Master Plan<sup>4</sup> and the Comprehensive Neighborhood Plan<sup>5</sup>. The Facility Review Board and other decision makers must be conversant with the concepts and proposals developed in these documents.

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**NOTE :**

<sup>1</sup> The Onyx Group, *Draft Master Plan Update for the Marine Corps Base Quantico, Virginia*, 1999

<sup>2</sup> The Onyx Group, *Transportation Management Plan, MCB Quantico, Virginia*, 2000

<sup>3</sup> Facilities Planning Division, MCB Quantico, *Bicycle Master Plan*, 1999

<sup>4</sup> The Onyx Group, *Marine Corps University Master Plan, MCB Quantico, Virginia*

<sup>5</sup> Greenhorne & O'Mara, Inc., *ibid*

### **5 . 2 . 1            MCB Quantico Master Plan Update**

The design guidelines and recommendations made in this BEAP apply to all projects developed through the planning process and included in the Master Plan.

### **5 . 2 . 2            MCB Quantico Transportation Master Plan**

A Base-wide Transportation Management Plan (TMP) was developed along with the Master Plan Update. The BEAP guidelines and recommendations were developed in conjunction with the TMP proposals and recommendations.

### **5 . 2 . 3            Comprehensive Neighborhood Plan**

The CNP takes a close look at the existing conditions at the MFH areas of the Base. It identifies specific deficiencies and proposes necessary improvements to bring the entire housing area up to Whole House and contemporary DOD standards, subject to Congressional limits.

The BEAP defers to the CNP for improvements and recommendations in the MFH areas. Projects generated by the CNP should be examined for compliance with the BEAP and modified if deemed appropriate.

## **5 . 3                Additional Actions**

During the development of the BEAP, several issues were brought out in discussions with Base staff. While it is beyond the scope of the BEAP to resolve the manner in which the Base addresses these issues, those listed below impact the visual and aesthetic environment at MCB Quantico.

- Comprehensive Signage - The signage across the Base is not adequate to orient visitors and direct them to various parts of the Base. The style of the signage is not coordinated or consistent. A Comprehensive Signage Study should be undertaken to document locations and styles of existing signage and make recommendations for a cohesive Base signage program.
- Landscape Maintenance - Maintenance of existing and proposed landscape areas is another concern. The BEAP outlines general guidelines for landscape maintenance, but maintenance practices will need to be tailored to specific situations. Qualified staff or consultants, such as horticulturists, landscape architects or urban foresters, should be identified for implementing the landscape design guidelines and proposals, as well as to plan and oversee the day-to-day maintenance of all Base landscapes. In addition, a Base-wide landscape maintenance plan should be developed to outline site and organization specific requirements and responsibility.

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# Appendix 1

Cost Estimates  
For Proposed Improvements  
For Priority Project Areas



ACTIVITY <b>Marine Corps Base, Quantico, Virginia</b>	SPECIFICATION NO.	A-E FIRM NAME <b>The Onyx Group</b>		SHEET <b>1</b>	OF <b>1</b>				
PROJECT TITLE <b>Barnett Avenue Priority Project 2A Barnett/Potomac Avenue Intersection Improvements</b>	ESTIMATE BY <b>TLS</b>	CHECKED BY		DATE <b>May 31,2000</b>					
	STATUS OF DESIGN [ ] 45% [ ] 100% [ ] FINAL [ ] PED [ ]			EFA Chesapeake JOB ORDER NO.					
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		ENGINEERING ESTIMATE		
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL	
<b>DIVISION 2 - SITE WORK</b>									
<b>Site Demolition</b>									
Remove Concrete Slab	15	SY					11.75	\$ 176.25	
Remove Concrete Curb and Gutter	100	LF					3.25	\$ 325.00	
Remove Asphalt	2,000	SY					3.40	\$ 6,800.00	
SUBTOTAL DEMOLITION									\$ 7,301.25
<b>New Construction</b>									
<b>Paving</b>									
Base Course (6")	350	CY					32.50	\$ 11,375.00	
Reinforced Concrete Slab w. Integrally Colored Stamped Pattern (6")	18,000	SF					7.25	\$130,500.00	
Concrete Curb and Gutter	30.00	LF					14.75	\$ 442.50	
Base Course (4")	15	CY					39.50	\$ 592.50	
Concrete Walk (4")	900	SF					4.50	\$ 4,050.00	
SUBTOTAL PAVING									\$146,960.00
<b>Special Construction</b>									
Block Retaining Wall and Planter	18	LF					200.00	\$ 3,600.00	
SUBTOTAL SPECIAL CONSTRUCTION									\$ 3,600.00
<b>Landscaping</b>									
Topsoil Purchase and Spread	25	CY					16.25	\$ 406.25	
Grading	300	SY					1.50	\$ 450.00	
Seeding (Lawn)	3,400	SY					0.55	\$ 1,870.00	
Decidious Tree (Canopy)	10	EA					300.00	\$ 3,000.00	
Decidious Tree (Ornamental)	-	EA					200.00	\$ -	
Evergreen or Decidious Shrub	-	EA					75.00	\$ -	
Groundcover	200	SY					5.50	\$ 1,100.00	
SUBTOTAL LANDSCAPING									\$ 6,826.25
<b>Site Furnishings</b>									
Trash Receptacles	12	EA					600.00	\$ 7,200.00	
Wood Benches	12	EA					1000.00	\$ 12,000.00	
SUBTOTAL SITE FURNISHINGS									\$ 19,200.00
<b>SUBTOTAL COST ALL SECTIONS</b>									\$183,887.50
<b>ADD: SIOH (6% OF TOTAL COST)</b>									\$ 11,033.25
<b>ADD: CONTINGENCY (10% OF TOTAL COST)</b>									\$ 18,388.75
<b>TOTAL ESTIMATED COST</b>									\$213,309.50

ACTIVITY	SPECIFICATION NO.		A-E FIRM NAME		SHEET OF			
	Marine Corps Base, Quantico, Virginia		The Onyx Group		1 1			
PROJECT TITLE	ESTIMATE BY		CHECKED BY		DATE			
	TLS				May 31,2000			
PROJECT TITLE	STATUS OF DESIGN				EFA Chesapeake JOB ORDER NO.			
	[ ] 45% [ ] 100% [ ] FINAL [ ] PED [ ]							
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		ENGINEERING ESTIMATE	
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL
<b>DIVISION 2 - SITE WORK</b>								
<b>Site Demolition</b>								
Remove Concrete Slab	450	SY					11.75	\$ 5,287.50
Remove Concrete Curb and Gutter	80	LF					3.25	\$ 260.00
Remove Asphalt	170	SY					3.40	\$ 578.00
SUBTOTAL DEMOLITION								\$ 6,125.50
<b>New Construction</b>								
<b>Paving</b>								
Reinforced Concrete Slab w. Integrally Colored Stamped Pattern (6")	5,600	SF					7.25	\$ 40,600.00
Concrete Curb and Gutter	20.00	LF					14.75	\$ 295.00
Base Course (6")	100	CY					32.50	\$ 3,250.00
SUBTOTAL PAVING								\$ 44,145.00
<b>Special Construction</b>								
SUBTOTAL SPECIAL CONSTRUCTION								\$ -
<b>Landscaping</b>								
Grading	100	SY					1.50	\$ 150.00
Seeding (Lawn)	700	SY					0.55	\$ 385.00
Decidious Tree (Canopy)	9	EA					300.00	\$ 2,700.00
Decidious Tree (Ornamental)	2	EA					200.00	\$ 400.00
Evergreen or Decidious Shrub	-	EA					75.00	\$ -
Groundcover	-	SY					5.50	\$ -
SUBTOTAL LANDSCAPING								\$ 3,635.00
<b>Site Furnishings</b>								
Trash Receptacles	2	EA					600.00	\$ 1,200.00
Wood Benches	-	EA					1000.00	\$ -
SUBTOTAL SITE FURNISHINGS								\$ 1,200.00
SUBTOTAL COST ALL SECTIONS								\$ 55,105.50
ADD: SIOH (6% OF TOTAL COST)								\$ 3,306.33
ADD: CONTINGENCY (10% OF TOTAL COST)								\$ 5,510.55
TOTAL ESTIMATED COST								\$ 63,922.38

ACTIVITY <b>Marine Corps Base, Quantico, Virginia</b>	SPECIFICATION NO.	A-E FIRM NAME <b>The Onyx Group</b>		SHEET <b>1</b>	OF <b>1</b>				
PROJECT TITLE <b>Barnett Avenue Priority Project 2C Landscape Improvements to Parking Lot Adjacent to Daly Hall</b>	ESTIMATE BY <b>TLS</b>	CHECKED BY		DATE <b>May 31,2000</b>					
	STATUS OF DESIGN [ ] 45% [ ] 100% [ ] FINAL [ ] PED [ ]			EFA Chesapeake JOB ORDER NO.					
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		ENGINEERING ESTIMATE		
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL	
<b>DIVISION 2 - SITE WORK</b>									
<i>Site Demolition</i>									
Remove Concrete Curb and Gutter	200	LF					3.25	\$ 650.00	
Remove Asphalt	2,500	SY					3.40	\$ 8,500.00	
SUBTOTAL DEMOLITION									\$ 9,150.00
<i>New Construction</i>									
<i>Paving</i>									
Reinforced Concrete Slab w. Integrally Colored Stamped Pattern (6")	1,200	SF					7.25	\$ 8,700.00	
Concrete Curb and Gutter	2500.00	LF					14.75	\$ 36,875.00	
Base Course (6")	155	CY					32.50	\$ 5,037.50	
Base Course (4")	85.00	CY					39.50	\$ 3,357.50	
Concrete Walk (4")	7,000	SF					4.50	\$ 31,500.00	
Parking Striping and Painting	1	LS					2000.00	\$ 2,000.00	
SUBTOTAL PAVING									\$ 87,470.00
<i>Special Construction</i>									
SUBTOTAL SPECIAL CONSTRUCTION									\$ -
<i>Landscaping</i>									
Topsoil Purchase and Spread	400	CY					16.25	\$ 6,500.00	
Grading	3,500	SY					1.50	\$ 5,250.00	
Seeding (Lawn)	3,500	SY					0.55	\$ 1,925.00	
Decidious Tree (Canopy)	50	EA					300.00	\$ 15,000.00	
Decidious Tree (Ornamental)	-	EA					200.00	\$ -	
Evergreen or Decidious Shrub	-	EA					75.00	\$ -	
Soil Stabilization/Mulch	2500.00	SY					0.95	\$ 2,375.00	
SUBTOTAL LANDSCAPING									\$ 31,050.00
<i>Site Furnishings</i>									
Trash Receptacles	2	EA					600.00	\$ 1,200.00	
Wood Benches	-	EA					1000.00	\$ -	
SUBTOTAL SITE FURNISHINGS									\$ 1,200.00
<b>SUBTOTAL COST ALL SECTIONS</b>									\$128,870.00
<b>ADD: SIOH (6% OF TOTAL COST)</b>									\$ 7,732.20
<b>ADD: CONTINGENCY (10% OF TOTAL COST)</b>									\$ 12,887.00
<b>TOTAL ESTIMATED COST</b>									\$149,489.20

ACTIVITY <b>Marine Corps Base, Quantico, Virginia</b>	SPECIFICATION NO.	A-E FIRM NAME <b>The Onyx Group</b>		SHEET <b>1</b>	OF <b>1</b>			
PROJECT TITLE <b>Barnett Avenue Priority Project 3 Barnett/Martin Street Intersection Improvements</b>	ESTIMATE BY <b>TLS</b>	CHECKED BY		DATE <b>May 31,2000</b>				
	STATUS OF DESIGN [ ] 45% [ ] 100% [ ] FINAL [ ] PED [ ]			EFA Chesapeake JOB ORDER NO.				
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		ENGINEERING ESTIMATE	
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL
<b>DIVISION 2 - SITE WORK</b>								
<b>Site Demolition</b>								
Remove Concrete Curb and Gutter	100	LF					3.25	\$ 325.00
Remove Asphalt	670	SY					3.40	\$ 2,278.00
Remove Concrete Slab	70	SY					11.75	\$ 822.50
SUBTOTAL DEMOLITION								\$ 3,425.50
<b>New Construction</b>								
<b>Paving</b>								
Reinforced Concrete Slab w. Integrally Colored Stamped Pattern (6")	6,000	SF					7.25	\$ 43,500.00
Base Course (6")	125	CY					32.50	\$ 4,062.50
Base Course (4")	10.00	CY					39.50	\$ 395.00
Concrete Walk (4")	600	SF					4.50	\$ 2,700.00
Concrete Edge at Slab	400	LF					4.90	\$ 1,960.00
SUBTOTAL PAVING								\$ 52,617.50
<b>Special Construction</b>								
SUBTOTAL SPECIAL CONSTRUCTION								\$ -
<b>Landscaping</b>								
Grading	600	SY					1.50	\$ 900.00
Seeding (Lawn)	600	SY					0.55	\$ 330.00
Decidious Tree (Canopy)	6	EA					300.00	\$ 1,800.00
Decidious Tree (Ornamental)	-	EA					200.00	\$ -
Evergreen or Decidious Shrub	-	EA					75.00	\$ -
Soil Stabilization/Mulch	-	SY					0.95	\$ -
SUBTOTAL LANDSCAPING								\$ 3,030.00
<b>Site Furnishings</b>								
Trash Receptacles	-	EA					600.00	\$ -
Wood Benches	-	EA					1000.00	\$ -
SUBTOTAL SITE FURNISHINGS								\$ -
<b>SUBTOTAL COST ALL SECTIONS</b>								\$ 59,073.00
<b>ADD: SIOH (6% OF TOTAL COST)</b>								\$ 3,544.38
<b>ADD: CONTINGENCY (10% OF TOTAL COST)</b>								\$ 5,907.30
<b>TOTAL ESTIMATED COST</b>								\$ 68,524.68

ACTIVITY <b>Marine Corps Base, Quantico, Virginia</b>	SPECIFICATION NO.	A-E FIRM NAME <b>The Onyx Group</b>		SHEET <b>1</b>	OF <b>1</b>			
PROJECT TITLE <b>Barnett Avenue Priority Project 4A Foundation Planting and Hardscape Prototype for Barracks Buildings</b>	ESTIMATE BY <b>TLS</b>	CHECKED BY		DATE <b>May 31,2000</b>				
	STATUS OF DESIGN <b>[ ] 45% [ ] 100% [ ] FINAL [ ] PED [ ]</b>			EFA Chesapeake JOB ORDER NO.				
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		ENGINEERING ESTIMATE	
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL
<b>DIVISION 2 - SITE WORK</b>								
<b>Site Demolition</b>								
Remove Concrete Slab	980.00	SY					11.75	\$ 11,515.00
Remove Concrete Curb and Gutter	80.00	LF					3.25	\$ 260.00
Site Clearing and Grubbing	0.50	AC					1500.00	\$ 750.00
Strip Topsoil and Stockpile	250.00	CY					1.90	\$ 475.00
SUBTOTAL DEMOLITION								\$ 13,000.00
<b>New Construction</b>								
<b>Paving</b>								
Base Course (6")	150.00	CY					32.50	\$ 4,875.00
Reinforced Concrete Slab w. Integrally Colored Stamped Pattern (6")	6300.00	SF					7.25	\$ 45,675.00
Concrete Curb and Gutter	80.00	LF					14.75	\$ 1,180.00
Asphalt Paving (Replace/Repair)	50.00	SY					20.32	\$ 1,016.00
SUBTOTAL PAVING								\$ 52,746.00
<b>Special Construction</b>								
NA	0.00	LS					0.00	\$ -
SUBTOTAL SPECIAL CONSTRUCTION								\$ -
<b>Landscaping</b>								
Topsoil Purchase and Spread	50.00	CY					16.25	\$ 812.50
Grading	1200.00	SY					1.50	\$ 1,800.00
Seeding (Lawn)	1200.00	SY					0.55	\$ 660.00
Decidious Tree (Canopy)	5.00	EA					300.00	\$ 1,500.00
Decidious Tree (Ornamental)	12.00	EA					200.00	\$ 2,400.00
Evergreen or Decidious Shrub	50.00	EA					75.00	\$ 3,750.00
Groundcover	0.00	SY					5.50	\$ -
SUBTOTAL LANDSCAPING								\$ 10,922.50
<b>Site Furnishings</b>								
Trash Receptacles	2.00	EA					600.00	\$ 1,200.00
Wood Benches	2.00	EA					1000.00	\$ 2,000.00
SUBTOTAL SITE FURNISHINGS								\$ 3,200.00
<b>SUBTOTAL COST ALL SECTIONS</b>								\$ 79,868.50
<b>ADD: SIOH (6% OF TOTAL COST)</b>								\$ 4,792.11
<b>ADD: CONTINGENCY (10% OF TOTAL COST)</b>								\$ 7,986.85
<b>TOTAL ESTIMATED COST</b>								\$ 92,647.46

ACTIVITY <b>Marine Corps Base, Quantico, Virginia</b>	SPECIFICATION NO.	A-E FIRM NAME <b>The Onyx Group</b>		SHEET <b>1</b>	OF <b>1</b>			
PROJECT TITLE <b>Barnett Avenue Priority Project 4A Landscape Improvements Adjacent to Proposed BEQ</b>	ESTIMATE BY <b>TLS</b>	CHECKED BY		DATE <b>May 31,2000</b>				
	STATUS OF DESIGN [ ] 45% [ ] 100% [ ] FINAL [ ] PED [ ]			EFA Chesapeake JOB ORDER NO.				
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		ENGINEERING ESTIMATE	
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL
<b>DIVISION 2 - SITE WORK</b>								
<b>Site Demolition</b>								
	-	SY					11.75	\$ -
	-	LF					3.25	\$ -
	-	SY					3.40	\$ -
<b>SUBTOTAL DEMOLITION</b>								\$ -
<b>New Construction</b>								
<b>Paving</b>								
Base Course (4")	50.00	CY					39.50	\$ 1,975.00
Concrete Walk (4")	4,000	SF					4.50	\$ 18,000.00
<b>SUBTOTAL PAVING</b>								\$ 19,975.00
<b>Special Construction</b>								
	-	LF					200.00	\$ -
<b>SUBTOTAL SPECIAL CONSTRUCTION</b>								\$ -
<b>Landscaping</b>								
Topsoil Purchase and Spread	50	CY					16.25	\$ 812.50
Grading	1,000	SY					1.50	\$ 1,500.00
Seeding (Lawn)	3,200	SY					0.55	\$ 1,760.00
Decidious Tree (Canopy)	6	EA					300.00	\$ 1,800.00
Decidious Tree (Ornamental)	-	EA					200.00	\$ -
Evergreen or Decidious Shrub	-	EA					75.00	\$ -
Groundcover	-	SY					5.50	\$ -
<b>SUBTOTAL LANDSCAPING</b>								\$ 5,872.50
<b>Site Furnishings</b>								
Trash Receptacles	2	EA					600.00	\$ 1,200.00
Wood Benches	4	EA					1000.00	\$ 4,000.00
<b>SUBTOTAL SITE FURNISHINGS</b>								\$ 5,200.00
<b>SUBTOTAL COST ALL SECTIONS</b>								\$ 31,047.50
<b>ADD: SIOH (6% OF TOTAL COST)</b>								\$ 1,862.85
<b>ADD: CONTINGENCY (10% OF TOTAL COST)</b>								\$ 3,104.75
<b>TOTAL ESTIMATED COST</b>								\$ 36,015.10

ACTIVITY <b>Marine Corps Base, Quantico, Virginia</b>	SPECIFICATION NO.	A-E FIRM NAME <b>The Onyx Group</b>		SHEET <b>1</b>	OF <b>1</b>			
PROJECT TITLE <b>Barnett Avenue Priority Project 4A Landscape Improvements Adjacent to Dining Hall (Building 2000)</b>	ESTIMATE BY <b>TLS</b>	CHECKED BY		DATE <b>May 31,2000</b>				
	STATUS OF DESIGN [ ] 45% [ ] 100% [ ] FINAL [ ] PED [ ]			EFA Chesapeake JOB ORDER NO.				
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		ENGINEERING ESTIMATE	
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL
<b>DIVISION 2 - SITE WORK</b>								
<b>Site Demolition</b>								
	-	SY					11.75	\$ -
	-	LF					3.25	\$ -
	-	SY					3.40	\$ -
<b>SUBTOTAL DEMOLITION</b>								\$ -
<b>New Construction</b>								
<b>Paving</b>								
Base Course (4")	50.00	CY					39.50	\$ 1,975.00
Concrete Walk (4")	3,780	SF					4.50	\$ 17,010.00
<b>SUBTOTAL PAVING</b>								\$ 18,985.00
<b>Special Construction</b>								
	-	LF					200.00	\$ -
<b>SUBTOTAL SPECIAL CONSTRUCTION</b>								\$ -
<b>Landscaping</b>								
Topsoil Purchase and Spread	50	CY					16.25	\$ 812.50
Grading	1,000	SY					1.50	\$ 1,500.00
Seeding (Lawn)	3,500	SY					0.55	\$ 1,925.00
Decidious Tree (Canopy)	6	EA					300.00	\$ 1,800.00
Decidious Tree (Ornamental)	-	EA					200.00	\$ -
Evergreen or Decidious Shrub	-	EA					75.00	\$ -
Groundcover	-	SY					5.50	\$ -
<b>SUBTOTAL LANDSCAPING</b>								\$ 6,037.50
<b>Site Furnishings</b>								
Trash Receptacles	2	EA					600.00	\$ 1,200.00
Wood Benches	4	EA					1000.00	\$ 4,000.00
<b>SUBTOTAL SITE FURNISHINGS</b>								\$ 5,200.00
<b>SUBTOTAL COST ALL SECTIONS</b>								\$ 30,222.50
<b>ADD: SIOH (6% OF TOTAL COST)</b>								\$ 1,813.35
<b>ADD: CONTINGENCY (10% OF TOTAL COST)</b>								\$ 3,022.25
<b>TOTAL ESTIMATED COST</b>								\$ 35,058.10

ACTIVITY <b>Marine Corps Base, Quantico, Virginia</b>	SPECIFICATION NO.	A-E FIRM NAME <b>The Onyx Group</b>		SHEET <b>1</b>	OF <b>1</b>			
PROJECT TITLE <b>Barnett Avenue Priority Project 4A Landscape Improvements Adjacent to Building 2002</b>	ESTIMATE BY <b>TLS</b>	CHECKED BY		DATE <b>May 31,2000</b>				
	STATUS OF DESIGN [ ] 45% [ ] 100% [ ] FINAL [ ] PED [ ]			EFA Chesapeake JOB ORDER NO.				
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		ENGINEERING ESTIMATE	
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL
<b>DIVISION 2 - SITE WORK</b>								
<b>Site Demolition</b>								
	-	SY					11.75	\$ -
	-	LF					3.25	\$ -
	-	SY					3.40	\$ -
<b>SUBTOTAL DEMOLITION</b>								\$ -
<b>New Construction</b>								
<b>Paving</b>								
Base Course (4")	15.00	CY					39.50	\$ 592.50
Concrete Walk (4")	1,100	SF					4.50	\$ 4,950.00
<b>SUBTOTAL PAVING</b>								\$ 5,542.50
<b>Special Construction</b>								
	-	LF					200.00	\$ -
<b>SUBTOTAL SPECIAL CONSTRUCTION</b>								\$ -
<b>Landscaping</b>								
Topsoil Purchase and Spread	50	CY					16.25	\$ 812.50
Grading	1,000	SY					1.50	\$ 1,500.00
Seeding (Lawn)	3,000	SY					0.55	\$ 1,650.00
Decidious Tree (Canopy)	5	EA					300.00	\$ 1,500.00
Decidious Tree (Ornamental)	-	EA					200.00	\$ -
Evergreen or Decidious Shrub	-	EA					75.00	\$ -
Groundcover	-	SY					5.50	\$ -
<b>SUBTOTAL LANDSCAPING</b>								\$ 5,462.50
<b>Site Furnishings</b>								
Trash Receptacles	2	EA					600.00	\$ 1,200.00
Wood Benches	4	EA					1000.00	\$ 4,000.00
<b>SUBTOTAL SITE FURNISHINGS</b>								\$ 5,200.00
<b>SUBTOTAL COST ALL SECTIONS</b>								\$ 16,205.00
<b>ADD: SIOH (6% OF TOTAL COST)</b>								\$ 972.30
<b>ADD: CONTINGENCY (10% OF TOTAL COST)</b>								\$ 1,620.50
<b>TOTAL ESTIMATED COST</b>								\$ 18,797.80

ACTIVITY <b>Marine Corps Base, Quantico, Virginia</b>	SPECIFICATION NO.	A-E FIRM NAME <b>The Onyx Group</b>		SHEET <b>1</b>	OF <b>1</b>				
PROJECT TITLE <b>Barnett Avenue Priority Project 5A</b>	ESTIMATE BY <b>TLS</b>	CHECKED BY		DATE <b>May 31,2000</b>					
<b>Barnett/John Quick Road Intersection Improvements</b>	STATUS OF DESIGN [ ] 45% [ ] 100% [ ] FINAL [ ] PED [ ]			EFA Chesapeake JOB ORDER NO.					
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		ENGINEERING ESTIMATE		
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL	
<b>DIVISION 2 - SITE WORK</b>									
<b>Site Demolition</b>									
Remove Concrete Slab	15	SY					11.75	\$ 176.25	
Remove Concrete Curb and Gutter	75	LF					3.25	\$ 243.75	
Remove Asphalt	850	SY					3.40	\$ 2,890.00	
SUBTOTAL DEMOLITION									\$ 3,310.00
<b>New Construction</b>									
<b>Paving</b>									
Reinforced Concrete Slab w. Integrally Colored Stamped Pattern (6")	7,600	SF					7.25	\$ 55,100.00	
Concrete Edge at Concrete Slab	260	LF					4.90	\$ 1,274.00	
Base Course (6")	140.00	CY					32.50	\$ 4,550.00	
Base Course (4")	5	CY					39.50	\$ 197.50	
Concrete Walk (4")	300	SF					4.50	\$ 1,350.00	
SUBTOTAL PAVING									\$ 62,471.50
<b>Special Construction</b>									
SUBTOTAL SPECIAL CONSTRUCTION								200.00	\$ -
									\$ -
<b>Landscaping</b>									
Topsoil Purchase and Spread	-	CY					16.25	\$ -	
Grading	-	SY					1.50	\$ -	
Seeding (Lawn)	-	SY					0.55	\$ -	
Decidious Tree (Canopy)	-	EA					300.00	\$ -	
Decidious Tree (Ornamental)	-	EA					200.00	\$ -	
Evergreen or Decidious Shrub	-	EA					75.00	\$ -	
Groundcover	-	SY					5.50	\$ -	
SUBTOTAL LANDSCAPING									\$ -
<b>Site Furnishings</b>									
Trash Receptacles	-	EA					600.00	\$ -	
Wood Benches	-	EA					1000.00	\$ -	
SUBTOTAL SITE FURNISHINGS									\$ -
<b>SUBTOTAL COST ALL SECTIONS</b>									\$ 65,781.50
<b>ADD: SIOH (6% OF TOTAL COST)</b>									\$ 3,946.89
<b>ADD: CONTINGENCY (10% OF TOTAL COST)</b>									\$ 6,578.15
<b>TOTAL ESTIMATED COST</b>									\$ 76,306.54

ACTIVITY <b>Marine Corps Base, Quantico, Virginia</b>	SPECIFICATION NO.	A-E FIRM NAME <b>The Onyx Group</b>		SHEET <b>1</b>	OF <b>1</b>			
PROJECT TITLE <b>Barnett Avenue Priority Project 5A Landscaping of Parking Lot PL-18 and Bus Stop</b>	ESTIMATE BY <b>TLS</b>	CHECKED BY		DATE <b>May 31,2000</b>				
	STATUS OF DESIGN <b>[ ] 45% [ ] 100% [ ] FINAL [ ] PED [ ]</b>		EFA Chesapeake JOB ORDER NO.					
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		ENGINEERING ESTIMATE	
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL
<b>DIVISION 2 - SITE WORK</b>								
<b>Site Demolition</b>								
Remove Asphalt	750	SY					3.40	\$ 2,550.00
Remove Concrete Curb and Gutter	125.00	LF					3.25	\$ 406.25
Site Clearing and Grubbing	0.25	AC					1500.00	\$ 375.00
SUBTOTAL DEMOLITION								\$ 3,331.25
<b>New Construction</b>								
<b>Paving</b>								
Base Course (6")	75.00	CY					32.50	\$ 2,437.50
Reinforced Concrete Slab w. Integrally Colored Stamped Pattern (6")	2100.00	SF					7.25	\$ 15,225.00
Concrete Curb and Gutter	750.00	LF					14.75	\$ 11,062.50
Base Course (4")	40.00	CY					39.50	\$ 1,580.00
Concrete Slab (4")	2160.00	SF					4.50	\$ 9,720.00
Asphalt Paving	200.00	SY					20.32	\$ 4,064.00
SUBTOTAL PAVING								\$ 44,089.00
<b>Special Construction</b>								
Bus Shelter (Wood Construction)	100.00	SF					175.00	\$ 17,500.00
SUBTOTAL SPECIAL CONSTRUCTION								\$ 17,500.00
<b>Landscaping</b>								
Topsoil Purchase and Spread	110.00	CY					16.25	\$ 1,787.50
Grading	1000.00	SY					1.50	\$ 1,500.00
Seeding (Lawn)	1600.00	SY					0.55	\$ 880.00
Decidious Tree (Canopy)	10.00	EA					300.00	\$ 3,000.00
Decidious Tree (Ornamental)	0.00	EA					200.00	\$ -
Evergreen or Decidious Shrub	250.00	EA					75.00	\$ 18,750.00
Evergreen Shrubs (Screen)	40.00	SY					85.00	\$ 3,400.00
SUBTOTAL LANDSCAPING								\$ 29,317.50
<b>Site Furnishings</b>								
Trash Receptacles	4.00	EA					600.00	\$ 2,400.00
Wood Benches	6.00	EA					1000.00	\$ 6,000.00
SUBTOTAL SITE FURNISHINGS								\$ 8,400.00
<b>SUBTOTAL COST ALL SECTIONS</b>								\$102,637.75
<b>ADD: SIOH (6% OF TOTAL COST)</b>								\$ 6,158.27
<b>ADD: CONTINGENCY (10% OF TOTAL COST)</b>								\$ 10,263.78
<b>TOTAL ESTIMATED COST</b>								\$119,059.79

ACTIVITY <b>Marine Corps Base, Quantico, Virginia</b>	SPECIFICATION NO.	A-E FIRM NAME <b>The Onyx Group</b>		SHEET <b>1</b>	OF <b>1</b>			
PROJECT TITLE <b>Barnett Avenue Priority Project 5A Landscape Improvements for Proposed Parking Lot and Bus Stop</b>	ESTIMATE BY <b>TLS</b>	CHECKED BY		DATE <b>May 31,2000</b>				
	STATUS OF DESIGN <b>[ ] 45% [ ] 100% [ ] FINAL [ ] PED [ ]</b>		EFA Chesapeake JOB ORDER NO.					
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		ENGINEERING ESTIMATE	
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL
<b>DIVISION 2 - SITE WORK</b>								
<b>Site Demolition</b>								
Remove Asphalt	50	SY					3.40	\$ 170.00
Remove Concrete Curb and Gutter	40.00	LF					3.25	\$ 130.00
Site Clearing and Grubbing	1.00	AC					1500.00	\$ 1,500.00
SUBTOTAL DEMOLITION								\$ 1,800.00
<b>New Construction</b>								
<b>Paving</b>								
Base Course (6")	600.00	CY					32.50	\$ 19,500.00
Reinforced Concrete Slab w. Integrally Colored Stamped Pattern (6")	1800.00	SF					7.25	\$ 13,050.00
Concrete Curb and Gutter	1300.00	LF					14.75	\$ 19,175.00
Base Course (4")	30.00	CY					39.50	\$ 1,185.00
Concrete Slab (4")	2200.00	SF					4.50	\$ 9,900.00
Asphalt Paving	3400.00	SY					20.32	\$ 69,088.00
SUBTOTAL PAVING								\$131,898.00
<b>Special Construction</b>								
Bus Shelter (Wood Construction)	100.00	SF					175.00	\$ 17,500.00
SUBTOTAL SPECIAL CONSTRUCTION								\$ 17,500.00
<b>Landscaping</b>								
Topsoil Purchase and Spread	150.00	CY					16.25	\$ 2,437.50
Grading	1200.00	SY					1.50	\$ 1,800.00
Seeding (Lawn)	1000.00	SY					0.55	\$ 550.00
Decidious Tree (Canopy)	15.00	EA					300.00	\$ 4,500.00
Decidious Tree (Ornamental)	0.00	EA					200.00	\$ -
Evergreen or Decidious Shrub	0.00	EA					75.00	\$ -
Evergreen Shrubs (Screen)	40.00	SY					85.00	\$ 3,400.00
SUBTOTAL LANDSCAPING								\$ 12,687.50
<b>Site Furnishings</b>								
Trash Receptacles	1.00	EA					600.00	\$ 600.00
Wood Benches	4.00	EA					1000.00	\$ 4,000.00
SUBTOTAL SITE FURNISHINGS								\$ 4,600.00
<b>SUBTOTAL COST ALL SECTIONS</b>								\$168,485.50
<b>ADD: SIOH (6% OF TOTAL COST)</b>								\$ 10,109.13
<b>ADD: CONTINGENCY (10% OF TOTAL COST)</b>								\$ 16,848.55
<b>TOTAL ESTIMATED COST</b>								\$195,443.18

ACTIVITY <b>Marine Corps Base, Quantico, Virginia</b>	SPECIFICATION NO.	A-E FIRM NAME <b>The Onyx Group</b>		SHEET <b>1</b>	OF <b>1</b>				
PROJECT TITLE <b>Barnett Avenue Priority Project 6 Barnett Avenue Realignment/Landscaping</b>	ESTIMATE BY <b>TLS</b>	CHECKED BY		DATE <b>May 31,2000</b>					
	STATUS OF DESIGN [ ] 45% [ ] 100% [ ] FINAL [ ] PED [ ]			EFA Chesapeake JOB ORDER NO.					
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		ENGINEERING ESTIMATE		
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL	
<b>DIVISION 2 - SITE WORK</b>									
<b>Site Demolition</b>									
Remove Concrete Slab	1,200	SY					11.75	\$ 14,100.00	
Remove Concrete Curb and Gutter	4,000	LF					3.25	\$ 13,000.00	
Remove Asphalt	4,500	SY					3.40	\$ 15,300.00	
Strip Topsoil and Stockpile	200	CY					1.90	\$ 380.00	
Utility Demolition	1	LS					50000.00	\$ 50,000.00	
SUBTOTAL DEMOLITION									\$ 92,780.00
<b>New Construction</b>									
<b>Paving</b>									
Base Course (6")	600	CY					32.50	\$ 19,500.00	
Reinforced Concrete Slab w. Integrally Colored Stamped Pattern (6")	2,500	SF					7.25	\$ 18,125.00	
Concrete Curb and Gutter	3,600	LF					14.75	\$ 53,100.00	
Base Course (4")	350	CY					39.50	\$ 13,825.00	
Concrete Walk (4")	18,000	SF					4.50	\$ 81,000.00	
Asphalt Paving (Top 1 1/2")	7,000	SY					3.50	\$ 24,500.00	
Asphalt Paving	3,500	SY					20.32	\$ 71,120.00	
SUBTOTAL PAVING									\$281,170.00
<b>Special Construction</b>									
Utility Relocation/Replacement Allowance	1	LS					125000.00	\$125,000.00	
	-	LS					0.00	\$ -	
SUBTOTAL SPECIAL CONSTRUCTION									\$125,000.00
<b>Landscaping</b>									
Topsoil Purchase and Spread	2,500	CY					16.25	\$ 40,625.00	
Grading	12,000	SY					1.50	\$ 18,000.00	
Seeding (Lawn)	12,000	SY					0.55	\$ 6,600.00	
Decidious Tree (Canopy)	50	EA					300.00	\$ 15,000.00	
Decidious Tree (Ornamental)	-	EA					200.00	\$ -	
Evergreen or Decidious Shrub	300	EA					75.00	\$ 22,500.00	
Groundcover	-	SY					5.50	\$ -	
SUBTOTAL LANDSCAPING									\$102,725.00
<b>Site Furnishings</b>									
Trash Receptacles	12	EA					600.00	\$ 7,200.00	
Wood Benches	12	EA					1000.00	\$ 12,000.00	
SUBTOTAL SITE FURNISHINGS									\$ 19,200.00
<b>SUBTOTAL COST ALL SECTIONS</b>									\$620,875.00
<b>ADD: SIOH (6% OF TOTAL COST)</b>									\$ 37,252.50
<b>ADD: CONTINGENCY (10% OF TOTAL COST)</b>									\$ 62,087.50
<b>TOTAL ESTIMATED COST</b>									\$720,215.00

ACTIVITY <b>Marine Corps Base, Quantico, Virginia</b>	SPECIFICATION NO.	A-E FIRM NAME <b>The Onyx Group</b>		SHEET <b>1</b>	OF <b>1</b>			
PROJECT TITLE <b>Barnett Avenue Priority Project 6 Parking Lot and Landscape Development Adjacent to Building 2033</b>	ESTIMATE BY <b>TLS</b>	CHECKED BY		DATE <b>May 31,2000</b>				
	STATUS OF DESIGN <b>[ ] 45% [ ] 100% [ ] FINAL [ ] PED [ ]</b>		EFA Chesapeake JOB ORDER NO.					
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		ENGINEERING ESTIMATE	
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL
<b>DIVISION 2 - SITE WORK</b>								
<b>Site Demolition</b>								
Remove Asphalt	2,200	SY					3.40	\$ 7,480.00
Remove Concrete Curb and Gutter	550.00	LF					3.25	\$ 1,787.50
Site Clearing and Grubbing	0.50	AC					1500.00	\$ 750.00
Strip Topsoil and Stockpile	250.00	CY					1.90	\$ 475.00
SUBTOTAL DEMOLITION								\$ 10,492.50
<b>New Construction</b>								
<b>Paving</b>								
Concrete Curb and Gutter	550.00	LF					14.75	\$ 8,112.50
Grasscrete or Porous Modular Paving Unit	1600.00	SF					5.50	\$ 8,800.00
Base Course (6")	300	CY					32.50	\$ 9,750.00
Asphalt Paving	1900.00	SY					20.32	\$ 38,608.00
SUBTOTAL PAVING								\$ 65,270.50
<b>Special Construction</b>								
	0.00	SF					0.00	\$ -
SUBTOTAL SPECIAL CONSTRUCTION								\$ -
<b>Landscaping</b>								
Topsoil Purchase and Spread	400.00	CY					16.25	\$ 6,500.00
Grading	5000.00	SY					1.50	\$ 7,500.00
Seeding (Lawn)	5000.00	SY					0.55	\$ 2,750.00
Decidious Tree (Canopy)	12.00	EA					300.00	\$ 3,600.00
Decidious Tree (Ornamental)	0.00	EA					200.00	\$ -
Evergreen or Decidious Shrub	0.00	EA					75.00	\$ -
Evergreen Shrubs (Screen)	0.00	SY					85.00	\$ -
SUBTOTAL LANDSCAPING								\$ 20,350.00
<b>Site Furnishings</b>								
Trash Receptacles	2.00	EA					600.00	\$ 1,200.00
Wood Benches	3.00	EA					1000.00	\$ 3,000.00
SUBTOTAL SITE FURNISHINGS								\$ 4,200.00
<b>SUBTOTAL COST ALL SECTIONS</b>								
								\$100,313.00
<b>ADD: SIOH (6% OF TOTAL COST)</b>								
								\$ 6,018.78
<b>ADD: CONTINGENCY (10% OF TOTAL COST)</b>								
								\$ 10,031.30
<b>TOTAL ESTIMATED COST</b>								
								\$116,363.08

ACTIVITY <b>Marine Corps Base, Quantico, Virginia</b>	SPECIFICATION NO.	A-E FIRM NAME <b>The Onyx Group</b>		SHEET <b>1</b>	OF <b>1</b>			
PROJECT TITLE <b>Barnett Avenue Priority Project 6 Landscape Development Adjacent to Building 2012</b>	ESTIMATE BY <b>TLS</b>	CHECKED BY		DATE <b>May 31,2000</b>				
	STATUS OF DESIGN <input type="checkbox"/> 45% <input type="checkbox"/> 100% <input type="checkbox"/> FINAL <input type="checkbox"/> PED <input type="checkbox"/>			EFA Chesapeake JOB ORDER NO.				
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		ENGINEERING ESTIMATE	
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL
<b>DIVISION 2 - SITE WORK</b>								
<b>Site Demolition</b>								
Remove Concrete Slab	175	SY					11.75	\$ 2,056.25
SUBTOTAL DEMOLITION								\$ 2,056.25
<b>New Construction</b>								
<b>Paving</b>								
Excavate and Prepare Base/Compact and Edge	1700.00	SF					1.50	\$ 2,550.00
Grasscrete or Porous Modular Paving Unit	1700.00	SF					5.50	\$ 9,350.00
SUBTOTAL PAVING								\$ 11,900.00
<b>Special Construction</b>								
	0.00	SF					0.00	\$ -
SUBTOTAL SPECIAL CONSTRUCTION								\$ -
<b>Landscaping</b>								
Fine Grading	3600.00	SY					1.85	\$ 6,660.00
Seeding (Lawn)	5000.00	SY					0.55	\$ 2,750.00
Deciduous Tree (Canopy)	10.00	EA					300.00	\$ 3,000.00
SUBTOTAL LANDSCAPING								\$ 12,410.00
<b>Site Furnishings</b>								
Trash Receptacles	0.00	EA					600.00	\$ -
Wood Benches	0.00	EA					1000.00	\$ -
SUBTOTAL SITE FURNISHINGS								\$ -
<b>SUBTOTAL COST ALL SECTIONS</b>								\$ 26,366.25
<b>ADD: SIOH (6% OF TOTAL COST)</b>								\$ 1,581.98
<b>ADD: CONTINGENCY (10% OF TOTAL COST)</b>								\$ 2,636.63
<b>TOTAL ESTIMATED COST</b>								\$ 30,584.85

ACTIVITY <b>Marine Corps Base, Quantico, Virginia</b>	SPECIFICATION NO.	A-E FIRM NAME <b>The Onyx Group</b>		SHEET <b>1</b>	OF <b>1</b>				
PROJECT TITLE <b>Barnett Avenue Priority Project 7 Catlin/Barnett Avenue Intersection Landscape Improvements</b>	ESTIMATE BY <b>TLS</b>	CHECKED BY		DATE <b>May 31,2000</b>					
	STATUS OF DESIGN [ ] 45% [ ] 100% [ ] FINAL [ ] PED [ ]			EFA Chesapeake JOB ORDER NO.					
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		ENGINEERING ESTIMATE		
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL	
<b>DIVISION 2 - SITE WORK</b>									
<b>Site Demolition</b>									
Remove Concrete Slab	70	SY					11.75	\$ 822.50	
Remove Concrete Curb and Gutter	100	LF					3.25	\$ 325.00	
Remove Asphalt	1,400	SY					3.40	\$ 4,760.00	
SUBTOTAL DEMOLITION									\$ 5,907.50
<b>New Construction</b>									
<b>Paving</b>									
Base Course (6")	250	CY					32.50	\$ 8,125.00	
Reinforced Concrete Slab w. Integrally Colored Stamped Pattern (6")	13,000	SF					7.25	\$ 94,250.00	
Concrete Edge at Concrete Slab	285	LF					4.90	\$ 1,396.50	
Base Course (4")	55	CY					39.50	\$ 2,172.50	
Concrete Walk (4")	3,000	SF					4.50	\$ 13,500.00	
SUBTOTAL PAVING									\$119,444.00
<b>Special Construction</b>									
	-								
	-	LS					0.00	\$ -	
		LS					0.00	\$ -	
SUBTOTAL SPECIAL CONSTRUCTION									\$ -
<b>Landscaping</b>									
Topsoil Purchase and Spread	50	CY					16.25	\$ 812.50	
Grading	3,500	SY					1.50	\$ 5,250.00	
Seeding (Lawn)	3,500	SY					0.55	\$ 1,925.00	
Decidious Tree (Canopy)	7	EA					300.00	\$ 2,100.00	
Decidious Tree (Ornamental)	35	EA					200.00	\$ 7,000.00	
Evergreen or Decidious Shrub	70	EA					75.00	\$ 5,250.00	
Groundcover	200	SY					5.50	\$ 1,100.00	
SUBTOTAL LANDSCAPING									\$ 23,437.50
<b>Site Furnishings</b>									
	-	EA					600.00	\$ -	
	-	EA					1000.00	\$ -	
SUBTOTAL SITE FURNISHINGS									\$ -
<b>SUBTOTAL COST ALL SECTIONS</b>									\$148,789.00
<b>ADD: SIOH (6% OF TOTAL COST)</b>									\$ 8,927.34
<b>ADD: CONTINGENCY (10% OF TOTAL COST)</b>									\$ 14,878.90
<b>TOTAL ESTIMATED COST</b>									\$172,595.24

ACTIVITY <b>Marine Corps Base, Quantico, Virginia</b>	SPECIFICATION NO.	A-E FIRM NAME <b>The Onyx Group</b>		SHEET <b>1</b>	OF <b>1</b>			
PROJECT TITLE <b>South Gate Priority Project 1 MCX Center Buffer Strip</b>	ESTIMATE BY <b>TLS</b>	CHECKED BY		DATE <b>May 31,2000</b>				
	STATUS OF DESIGN [ ] 45% [ ] 100% [ ] FINAL [ ] PED [ ]			EFA Chesapeake JOB ORDER NO.				
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		ENGINEERING ESTIMATE	
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL
<b>DIVISION 2 - SITE WORK</b>								
<b>Site Demolition</b>								
	-						0.00	\$ -
SUBTOTAL DEMOLITION								\$ -
<b>New Construction</b>								
<b>Paving</b>								
	-						0.00	\$ -
SUBTOTAL PAVING								\$ -
<b>Special Construction</b>								
Main Entry Monumentation/Signage	1	LS					18000.00	\$ 18,000.00
Secondary Entry Signage	1	LS					6000.00	\$ 6,000.00
SUBTOTAL SPECIAL CONSTRUCTION								\$ 24,000.00
<b>Landscaping</b>								
Decidious Tree (Canopy)	47	EA					300.00	\$ 14,100.00
Decidious Tree (Ornamental)	-	EA					200.00	\$ -
Evergreen or Decidious Shrub	-	EA					75.00	\$ -
Groundcover	-	SY					5.50	\$ -
SUBTOTAL LANDSCAPING								\$ 14,100.00
<b>Site Furnishings</b>								
Trash Receptacles	-	EA					600.00	\$ -
Wood Benches	-	EA					1000.00	\$ -
SUBTOTAL SITE FURNISHINGS								\$ -
<b>SUBTOTAL COST ALL SECTIONS</b>								\$ 38,100.00
<b>ADD: SIOH (6% OF TOTAL COST)</b>								\$ 2,286.00
<b>ADD: CONTINGENCY (10% OF TOTAL COST)</b>								\$ 3,810.00
<b>TOTAL ESTIMATED COST</b>								\$ 44,196.00

ACTIVITY <b>Marine Corps Base, Quantico, Virginia</b>	SPECIFICATION NO.	A-E FIRM NAME <b>The Onyx Group</b>		SHEET <b>1</b> OF <b>1</b>				
PROJECT TITLE <b>South Gate Priority Project 2, 4, and 5 MCX Center Parking Lot and Landscape Improvements</b>	ESTIMATE BY <b>TLS</b>	CHECKED BY		DATE <b>May 31,2000</b>				
	STATUS OF DESIGN [ ] 45% [ ] 100% [ ] FINAL [ ] PED [ ]			EFA Chesapeake JOB ORDER NO.				
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		ENGINEERING ESTIMATE	
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL
<b>DIVISION 2 - SITE WORK</b>								
<b>Site Demolition</b>								
Remove Asphal	1,500	SY					3.40	\$ 5,100.00
SUBTOTAL DEMOLITION								\$ 5,100.00
<b>New Construction</b>								
<b>Paving</b>								
Reinforced Concrete Slab w. Integrally Colored Stamped Pattern (€	1,800	SF					7.25	\$ 13,050.00
Concrete Edge at Concrete Slal	400	LF					4.90	\$ 1,960.00
Base Course (6")	35.00	CY					32.50	\$ 1,137.50
SUBTOTAL PAVING								\$ 16,147.50
<b>Special Construction</b>								
	-	LS					0.00	\$ -
	-	LS					0.00	\$ -
SUBTOTAL SPECIAL CONSTRUCTION								\$ -
<b>Landscaping</b>								
Decidious Tree (Canopy	55	EA					300.00	\$ 16,500.00
Decidious Tree (Ornamental	-	EA					200.00	\$ -
Evergreen or Decidious Shrut	-	EA					75.00	\$ -
Groundcover	-	SY					5.50	\$ -
SUBTOTAL LANDSCAPING								\$ 16,500.00
<b>Site Furnishings</b>								
Trash Receptacles	-	EA					600.00	\$ -
Wood Benches	-	EA					1000.00	\$ -
SUBTOTAL SITE FURNISHINGS								\$ -
<b>SUBTOTAL COST ALL SECTIONS</b>								\$ 37,747.50
<b>ADD: SIOH (6% OF TOTAL COST)</b>								\$ 2,264.85
<b>ADD: CONTINGENCY (10% OF TOTAL COST)</b>								\$ 3,774.75
<b>TOTAL ESTIMATED COST</b>								\$ 43,787.10

ACTIVITY <b>Marine Corps Base, Quantico, Virginia</b>	SPECIFICATION NO.	A-E FIRM NAME <b>The Onyx Group</b>		SHEET <b>1</b>	OF <b>1</b>			
PROJECT TITLE <b>Camp Barrett Priority Projects Camp Barrett Improvements</b>	ESTIMATE BY <b>TLS</b>	CHECKED BY		DATE <b>May 31,2000</b>				
	STATUS OF DESIGN <input type="checkbox"/> 45% <input type="checkbox"/> 100% <input type="checkbox"/> FINAL <input type="checkbox"/> PED <input type="checkbox"/>			EFA Chesapeake JOB ORDER NO.				
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		ENGINEERING ESTIMATE	
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL
<b>DIVISION 2 - SITE WORK</b>								
<b>Site Demolition</b>								
Remove Asphalt/Curb and Gutte	1	LS					32000.00	\$ 32,000.00
SUBTOTAL DEMOLITION								\$ 32,000.00
<b>New Construction</b>								
<b>Paving</b>								
Asphalt Road w. Curb and Gutte	1.00	LS					114000.00	\$ 114,000.00
Asphalt Paving	1.00	LS					79000.00	\$ 79,000.00
Base Course and Concrete Wall	1.00	LS					165000.00	\$ 165,000.00
SUBTOTAL PAVING								\$ 358,000.00
<b>Special Construction</b>								
	1.00	LS					17500.00	\$ 17,500.00
	4.00	LS					1250.00	\$ 5,000.00
SUBTOTAL SPECIAL CONSTRUCTION								\$ 22,500.00
<b>Landscaping</b>								
Landscape Allowance	1.00	LS					141000.00	\$ 141,000.00
SUBTOTAL LANDSCAPING								\$ 141,000.00
<b>Site Furnishings</b>								
Site Furnishing Allowance	1.00	LS					48700.00	\$ 48,700.00
SUBTOTAL SITE FURNISHINGS								\$ 48,700.00
<b>SUBTOTAL COST ALL SECTIONS</b>								\$ 602,200.00
<b>ADD: SIOH (6% OF TOTAL COST)</b>								\$ 36,132.00
<b>ADD: CONTINGENCY (10% OF TOTAL COST)</b>								\$ 60,220.00
<b>TOTAL ESTIMATED COST</b>								\$ 698,552.00

ACTIVITY <b>Marine Corps Base, Quantico, Virginia</b>	SPECIFICATION NO.	A-E FIRM NAME <b>The Onyx Group</b>	SHEET <b>1</b>	OF <b>1</b>				
PROJECT TITLE <b>WTBN Priority Projects Weapons Training Battalion Improvements</b>	ESTIMATE BY <b>TLS</b>	CHECKED BY	DATE <b>May 31,2000</b>	EFA Chesapeake JOB ORDER NO.				
	STATUS OF DESIGN [ ] 45% [ ] 100% [ ] FINAL [ ] PED [ ]							
DESCRIPTION	QUANTITY		MATERIAL COST		LABOR COST		ENGINEERING ESTIMATE	
	NUMBER	UNIT	UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL
<b>DIVISION 2 - SITE WORK</b>								
<b>Site Demolition</b>								
Remove Asphal	1	LS					23000.00	\$ 23,000.00
SUBTOTAL DEMOLITION								\$ 23,000.00
<b>New Construction</b>								
<b>Paving</b>								
Asphalt Road w. Curb and Gutte	1.00	LS					104000.00	\$ 104,000.00
Asphalt Paving	1.00	LS					75000.00	\$ 75,000.00
Concrete Slab (4")	1.00	LS					86000.00	\$ 86,000.00
SUBTOTAL PAVING								\$ 265,000.00
<b>Special Construction</b>								
	1.00	LS						\$ -
SUBTOTAL SPECIAL CONSTRUCTION								\$ -
<b>Landscaping</b>								
Landscape Allowanc	1.00	LS					150000.00	\$ 150,000.00
SUBTOTAL LANDSCAPING								\$ 150,000.00
<b>Site Furnishings</b>								
Site Furnishing Allowance	1.00	LS					65000.00	\$ 65,000.00
SUBTOTAL SITE FURNISHINGS								\$ -
								\$ 65,000.00
<b>SUBTOTAL COST ALL SECTIONS</b>								\$ 503,000.00
<b>ADD: SIOH (6% OF TOTAL COST)</b>								\$ 30,180.00
<b>ADD: CONTINGENCY (10% OF TOTAL COST)</b>								\$ 50,300.00
<b>TOTAL ESTIMATED COST</b>								\$ 583,480.00

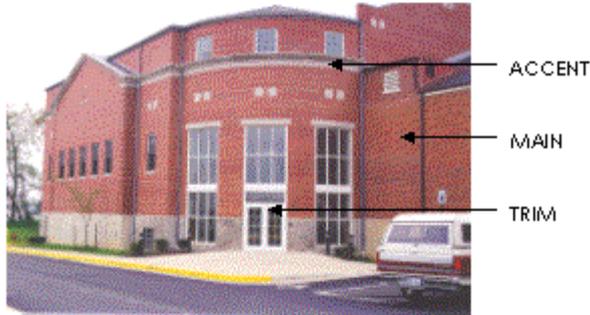
## MAINSIDE EXTERIOR FINISHES

### PERMANENT BUILDINGS

Exterior finishes for permanent buildings are illustrated for brick buildings and painted structures. Each group of materials or colors is divided into:

Main - for most of the exterior surface  
 Accent - cornices, window sills, etc.  
 Trim - doors, windows, etc.

#### BRICK BUILDINGS



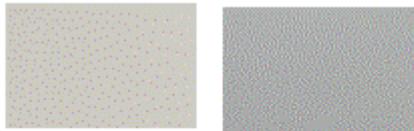
#### PAINTED BUILDINGS



Main: HC-172      Accent: HC-65      Trim: Platinum Gray  
*Paint Chips shown are from Benjamin Moore Paints.*

### TEMPORARY BUILDINGS

Temporary buildings are to be painted to blend with the surrounding visual environment.



Main: HC-172      Accent: Platinum Gray  
*Paint Chips shown are from Benjamin Moore Paints.*

## GUADALCANAL EXTERIOR FINISHES

### PERMANENT BUILDINGS

Exterior finishes for permanent buildings are illustrated for painted buildings and concrete masonry unit (CMU) buildings. Paint colors and CMU types are divided into:

Main - for most of the exterior surface  
 Accent - cornices, window sills, etc.  
 Trim - doors, windows, etc.

#### PAINTED BUILDINGS



Main: HC-83      Accent: HC-134      Trim: HC-105  
*Paint Chips shown are from Benjamin Moore Paints.*

#### CONCRETE MASONARY UNIT BUILDINGS

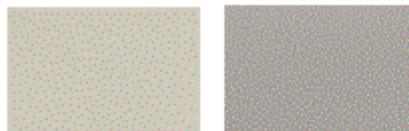


Main: Grey Rockface      Accent: Grey Groundface      Trim: Classic Bronze

*CMU shown are from Prairie Stone.  
 Metal door/window finish shown is from Kawneer.*

### TEMPORARY BUILDINGS

Temporary buildings are to be painted to blend with the surrounding visual environment.



Main: HC-83      Accent: HC-105  
*Paint Chips shown are from Benjamin Moore Paints.*

## ROAD & PAVING MATERIALS

### ROAD INTERSECTIONS

Major road intersections to be highlighted along vehicular routes are to be paved in "stamped concrete" or integrally colored concrete in a brick red finish that is stamped in a brick pattern.

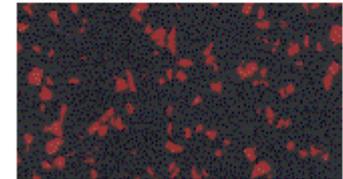


### WALKS

Sidewalks and pedestrian paths that connect destinations such as buildings, parking lots and plazas are to be paved in broom finished uncolored concrete.

### PATHS

Running, jogging or bicycle paths are to be paved in "rubberized asphalt" or asphalt with crumb rubber integrated into the mix.



### CURBS AND GUTTERS

Curbs and gutters along the perimeter of sidewalks, islands and parking lots are to be made of uncolored concrete.

### PARKING LOTS

Permanent parking lots are to be surfaced with asphalt. Parking lots that are used intermittently or located in sparsely populated areas, such as on the ranges or on the west side of the Base, can be designed as "pervious parking lots" and would be grass areas with structural reinforcement.



*Structural reinforcement shown is from Invisible Structures, Inc.*

*NOTE: Material samples are for illustrative purposes only. Similar materials or colors may be selected as appropriate for individual circumstances and as approved by the Base. Colors indicated are xerox facsimiles and intended for reference only. Actual color samples and source of manufacturer may be reviewed by inspecting the color board located at Public Works Division, Planning Section, MCB Quantico.*



MATERIALS PALETTE  
 BASE EXTERIOR ARCHITECTURE PLAN

MCB QUANTICO, VA



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