

Final

Environmental Assessment Renovation and Addition to Building 1194 at NASA Langley Research Center

Lead Agency: National Aeronautics and Space Administration, Langley Research Center (LaRC), Hampton, Virginia

Proposed Action: Renovation and Addition to Building 1194 at NASA LaRC

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Abstract: NASA LaRC is proposing to renovate and construct a 3,700 square meter (40,000 square foot) addition to the Technical Library, Building 1194, located at LaRC in Hampton, Virginia. A parking area will also be constructed. Portions of the library are over 60 years old and the layout of the facility is inefficient. The purpose of the proposed action is to update the facility to meet current codes and standards, improve the overall layout of the library for better customer service and protection and security of documents, and provide space for a centralized Training Center and centralized Procurement Source Board activities. The library would remain open during the renovation and construction of the addition which would occur in three phases. The first phase would involve constructing the new addition to the library, the second phase would move most of the library into the new addition, and the last phase would rehabilitate and redesign the existing building to house the new Training Center and accommodations for the Office of Procurement. It is estimated that the project would begin in FY 05 and take approximately five years to complete. This Environmental Assessment (EA) identifies the key environmental issues and impacts of both the proposed action and the No-Action Alternative.

Final
ENVIRONMENTAL ASSESSMENT
RENOVATION AND ADDITION TO BUILDING 1194 AT NASA LaRC
HAMPTON, VIRGINIA

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1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 Introduction

According to NASA's Procedures and Guidelines, NPG 8580.1, Implementing the National Environmental Policy Act and Executive Order 12114, an Environmental Assessment (EA) must be prepared for major construction of facility and rehabilitation projects being performed by NASA. This EA has been prepared to assess potential environmental impacts associated with NASA Langley Research Center's (LaRC) proposal to renovate and add approximately 3,700 square meters (40,000 square feet) of office space and 4,366 square meters (47,000 square feet) of parking space to the Technical Library, Building 1194 located at LaRC in Hampton, Virginia.

Information contained in this EA will be used by NASA and the appropriate regulatory agencies to inform decision making and determine if the proposed action is a major federal action significantly affecting the quality of the human environment. If the proposed action is determined to be major and significant, an Environmental Impact Statement will be prepared. If the proposed action is determined not to be major and significant, a Finding of No Significant Impact (FONSI) will be issued and the action may proceed. This EA was prepared in compliance with the National Environmental Policy Act (NEPA), the Council on Environmental Quality's (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500-1508), NASA's policy and procedures contained in 14 CFR subparts 1216.1 and 1216.3, and NPG 8580.1.

NASA has prepared this EA based on the most current information contained in a 10% Conceptual Design Review, dated December 12, 2002. NASA requires that the calculations and figures in this EA are in metric units with the English equivalent provided in parenthesis.

A detailed description of the proposed action and the No-Action Alternative is provided in Chapter 2. Chapter 3 describes the existing conditions of various environmental resources that could be affected if the proposed action were implemented. Chapter 4 describes how those resources would be affected by implementation of the proposed action and the No-Action Alternative. Chapter 5 addresses the cumulative effects of other past, current, and future actions that may be implemented in the area of the proposed action.

1.2 Background

In 1917, the War Department purchased land in what is now Hampton, Virginia, for the joint use of the Army and the National Advisory Committee for Aeronautics (NACA), the forerunner organization for NASA. The site was designated the Langley Field after Professor Samuel Pierpont Langley, an early pioneer in flight. Congress had created NACA to supervise and direct the scientific study of the problems of flight and the Langley Field served as an experimental airfield and proving ground for aircraft. The facility was renamed Langley Memorial Aeronautical Laboratory in 1920 with the dedication of the first wind tunnel. When NASA succeeded NACA in 1958, the Langley Laboratory was officially designated Langley Research Center.

NASA LaRC is situated near the southern end of the lower Virginia Peninsula, approximately 241 km (150 miles) south of Washington, D.C. and 80 km (50 miles) southeast of Richmond, Virginia. LaRC is located within close proximity to several surface water bodies within the

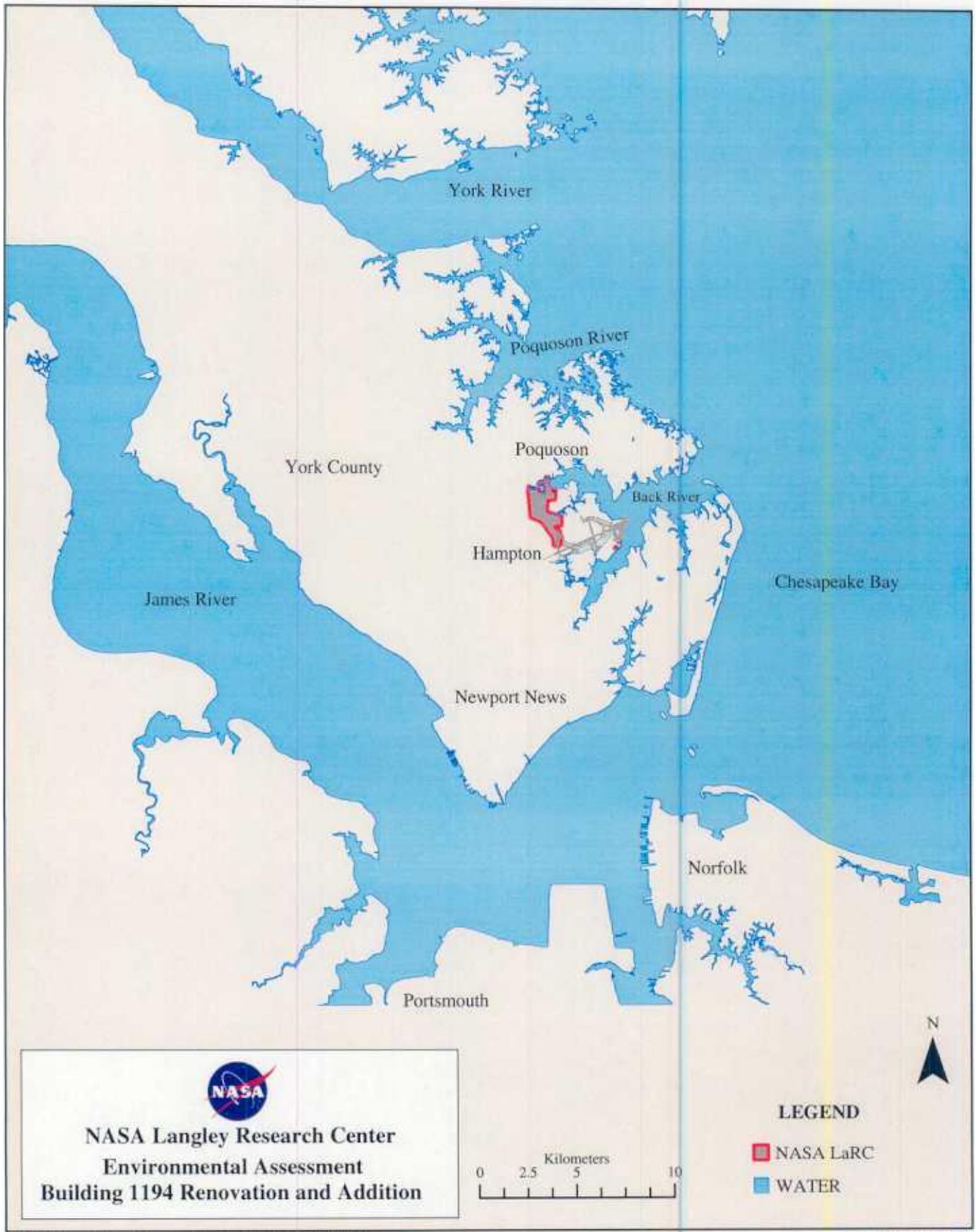
tidal zone of the Chesapeake Bay. The cities of Hampton, Poquoson, Newport News, Williamsburg, and York County form a major metropolitan statistical area around LaRC (Figure 1.1).

NASA LaRC is comprised of research facilities located in two areas which are approximately 3 miles apart. The two areas, commonly called the West Area and the East Area, are divided by the runways of Langley Air Force Base (LAFB), the headquarters of the Air Combat Command. The East Area is located on 8 hectares (20 acres) of land leased by NASA from LAFB. This area is the original 1917 portion of LaRC and contains several wind tunnels, research facilities, and administrative offices.

The West Area occupies 318 hectares (788 acres) of land and contains the major portion of LaRC with the great majority of the facilities located there. There are no housing or living accommodations at NASA LaRC. Access to the West Area of LaRC is through one of three gates which are manned 24-hours per day by security personnel. The Center uses a uniform badge identification system to ensure that physical access to LaRC facilities is granted to authorized personnel only. Prior to receiving a permanent badge, background checks and fingerprinting are performed on all personnel. Visitors to LaRC must be sponsored by permanently badged civil servants or contractors.

The Center has approximately 220 office and industrial type research facilities, the majority of which were built between 1958 and 1980. Large buildings, primarily brick, which house research laboratories, shops and offices, are interspersed among a number of large, wind tunnel facilities. Other property types include small, relatively recent office buildings, shed-type buildings used for small shops and storage. In addition, approximately 120 trailers located throughout LaRC are currently being used for temporary administrative offices, conference and training activities and miscellaneous activities. The trailers occupy approximately 6,500 square meters (70,800 square feet) of what is considered by the LaRC facility planning office as substandard office space. LaRC intends to greatly reduce or eliminate substandard office space as the trailers are not consistent with the architectural goals of LaRC's Master Plan.

Building 1194, the Technical Library at LaRC, which is located in the West Area, supports the aeronautics research activities that take place across the Center through the collection, classification, and dissemination of information. The library's mission is to provide timely and useful information in the most relevant format (printed and electronic) to all NASA LaRC employees and support personnel. Currently, the collection assets of the LaRC's Technical Library include over 70,000 books, including irreplaceable conference proceedings and out-of-print books, 800 current journal subscriptions and 40,000 back volumes. The library also houses the largest aerospace collection in the country which includes over 2 million documents containing unique NACA, foreign, military and industry research information dating back to 1915. In addition, the library has 20,000 controlled documents and is the largest NASA classified library collection dating back to the 1940's. For security reasons, accessibility to the library's physical collection and documents is divided into open and restricted access.




NASA Langley Research Center
Environmental Assessment
Building 1194 Renovation and Addition

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Figure 1.1 NASA LaRC Regional Location

The Technical Library presently contains approximately 4,700 square meters (51,200 square feet). It was originally built in 1942 and operated as a research model support shop and model fabrication and finishing shop. It has since undergone numerous renovations and additions, the most major being in 1972 to turn the building into a library facility. Additional renovations were later made to accommodate the increasing volume of resources and materials. As such, the facility layout is disjointed and has become functionally and spatially inadequate. Since the electrical and utility systems are outdated, the library's resources and materials are susceptible to damage from poor or fluctuating environmental conditions. Photographs of the exterior of Building 1194 are shown below.



Across the street from Building 1194 is a triangular-shaped open grassy area that measures approximately 6,300 square meters (68,000 square feet). The area is minimally landscaped with several ornamental trees and a limited number of parking spaces are located along two sides of the triangular space.

1.3 Purpose and Need for the Proposed Action

1.3.1 Purpose

The purpose of the proposed action is to upgrade Building 1194 to meet current codes and standards, correct the operational deficiencies of LaRC's Technical Library, provide space for Training Center and Procurement Source Board activities, and improve access, including sufficient parking. The proposed action would also contribute to LaRC's long-term goal of reducing the use of substandard office space.

1.3.2 Need

Due to its age, Building 1194 has mechanical and electrical equipment and utility systems that are outdated. The maintenance areas of concern center on portions of the building's HVAC system and roof integrity. Renovation of the existing building is needed to ensure the facility meets current building codes and standards and to help reduce the costs for maintaining and repairing the old equipment and systems.

The current layout of LaRC's Technical Library is inefficient. The main resource and lobby area of the library is located on the third floor and the area is fragmented by several hallways and

small foyers. Upon entering the front door of the library, personnel and customers must navigate through several hallways and use either the stairs or an elevator to access the library's main lobby area. Building an addition to the current facility and moving the Technical Library in to the new addition is needed to improve facility layout, improve customer service capabilities of the library and provide for more organized and secure storage areas for the library's valuable collection assets.

Renovation of Building 1194 is needed to provide centralized office space for LaRC's training and procurement offices. Currently, the Center's Office of Human Resources has training and classroom facilities that are dispersed throughout the Center, many of which are located in temporary trailers. A similar situation exists for LaRC's Office of Procurement. Source board evaluations and selections are performed at a variety of buildings and trailers located throughout the Center. The temporary facilities used for training and procurement activities do not have adequate space or required services and security for the activities. The temporary trailers are costly to maintain and as shown in the pictures below, the trailers are not very aesthetically pleasing.



2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

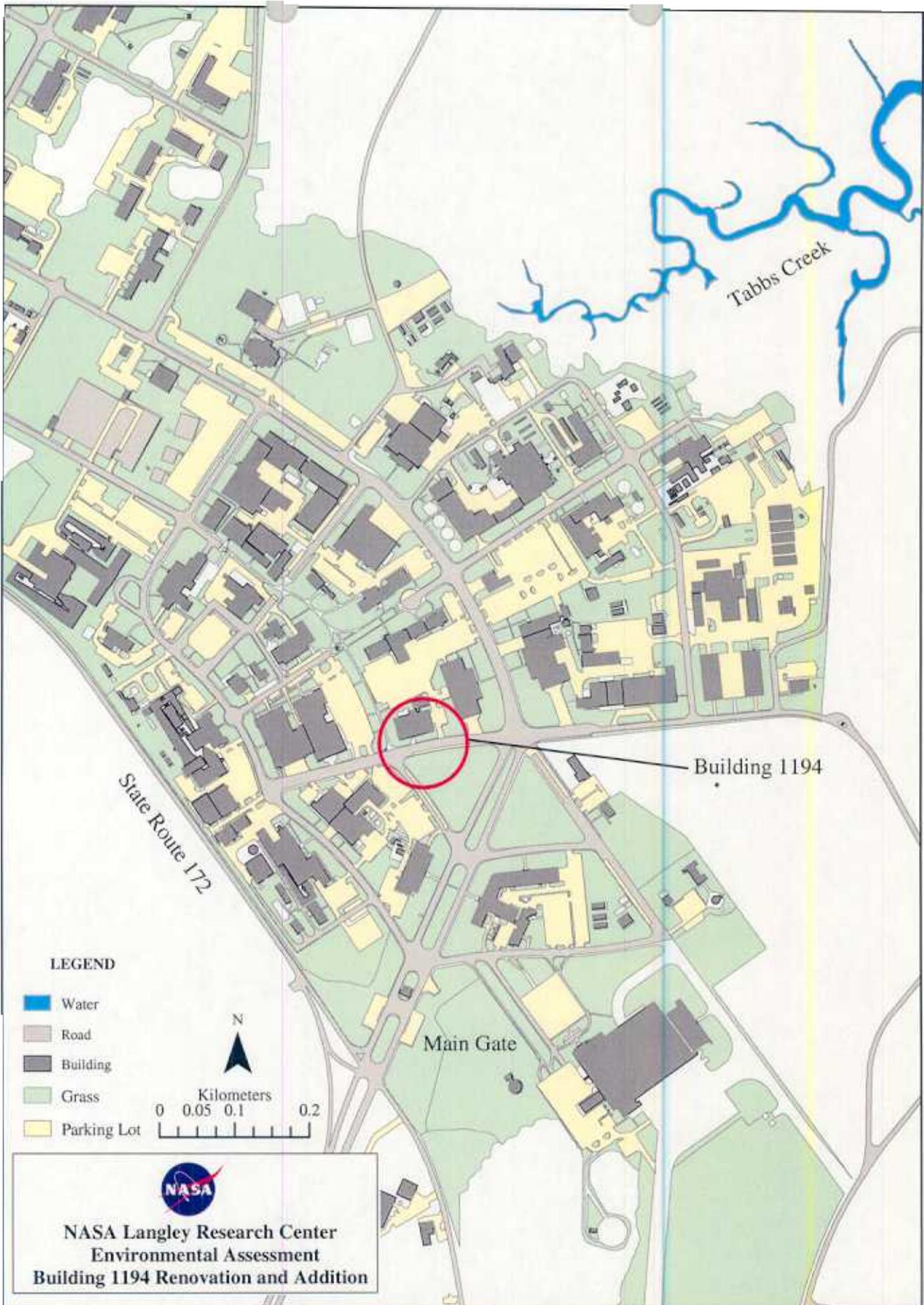
The proposed action involves renovating and constructing a 3,700 square meter (40,000 square foot) addition to Building 1194, the Technical Library at NASA LaRC, and constructing 4,366 square meters (47,000 square feet) of parking. The location of the building and proposed action are shown in Figure 2.1. Engineering drawings showing floor plans and parking lot footprint are located in Appendix B. Work on the proposed action is anticipated to begin in FY 2005.

The library would remain open during the renovation and addition project which would occur in three phases. The first phase would involve construction of the new addition, the second phase would move most of the Technical Library into the new addition, and the last phase would be to rehabilitate and redesign the existing building to house the new Training Center and provide accommodations for the Office of Procurement.

The new addition would be a two-story building that is attached to the current facility via a three-story connection. Exterior materials used on the new addition would be consistent with the adjacent existing building. The new addition would offer an improved functional and spatial layout for the Technical Library operations. Public access would be moved to the first floor, and the new addition would have an open common area that would contain the circulation and reference desks and open access resources. The second floor of the new addition would match the floor elevation of the third floor of the existing structure and have a separate security entrance with limited access to the library's restricted collection and classified documents.

Construction of the new addition would provide new utilities or extend existing utilities to support building systems. These systems would include domestic and fire system water, storm water, sanitary sewer, telephone and data, and electrical. In addition, the new library facility would have temperature, humidity and lighting controls to assure the preservation of historic and rare documents.

A new parking area would cover approximately 4,366 square meters (47,000 square feet) of space which would conform to the existing triangular shaped green space located across the street from Building 1194. Approximately 2,000 square meters (21,500 square feet) of open green space would be retained in the triangular area within the parking lot for landscaping and other landscape features. Spaces would be provided near the front entrance for disabled parking as well as short-term parking for document drop-off. Approximately 133 parking spaces would be provided and pavement at the parking area would be asphalt pavement over stone subbase. New concrete walks would be provided from the parking areas that would tie into the existing pedestrian walkway between Building 1205 and Building 1194. A 60-meter (200-foot) section of West Durand Street would be closed to provide an appropriate building site to construct the new addition. Traffic on West Walcott would be changed to two-way to accommodate the road closure and allow access to the new parking lot.



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Figure 2.1 Location of Proposed Project at NASA LaRC

Renovation of the existing Building 1194 would involve minor demolition of exterior and interior structures. The front entrance canopy and front entrance would be removed and modified as part of the new link design. The existing interior walls, doors and ceilings and other construction features within the building would be removed as required for the new floor plan. Due to the age of the facility, since part of the existing construction would be selectively demolished, part of the renovation work would involve removal of asbestos containing materials, lead based paint, fluorescent lightbulbs, PCB light ballasts, and CFC refrigerant from portions of the HVAC system.

All contractors performing work at NASA LaRC are required to comply with all applicable safety and health regulations, including Occupational Safety and Health Administration (OSHA) and NASA regulations. Contractors involved in the construction and renovation project would be required to prepare and follow a Health and Safety Plan that complies with the regulations to ensure the safety of human health and the environment during the project.

NASA LaRC carries out its operations in compliance with Federal, State and local environmental laws and requirements. Since the proposed action would involve handling asbestos, demolition contractors would obtain a permit from the LaRC Safety Office and follow approved procedures and requirements as directed in 40 CFR parts 61 and 763. In addition, in accordance with 16VAC 25-20-30, notification of the asbestos and demolition work would be sent to the Virginia Department of Labor and Industry and where applicable, EPA Region III Office.

Since the proposed action would involve disturbing approximately 0.6 hectares (1.5 acres) of land, LaRC would obtain the appropriate permits and comply with the Virginia Erosion and Sediment Control Law and Regulations, the Virginia Stormwater Management Law and Regulations and other applicable federal nonpoint source pollution mandates as required.

The proposed action would follow pollution prevention requirements under Executive Order 12856: Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements. Construction of the new addition and renovation of the library would incorporate sustainable design features in accordance with NASA's Policy Directive (NPD) 8820.3, "Facility Sustainable Design." In addition, the proposed action would comply with other environmental requirements in a manner acceptable to the relevant regulatory agency for handling, recycling, salvaging and disposing of all materials, including asbestos and lead, as well as disposal of inert and demolition wastes, as applicable.

2.2 No-Action Alternative

Under the no-action alternative, NASA would not construct an addition to or renovate Building 1194. The Technical Library would continue to operate with its current facility layout. Increased maintenance would be required on the existing out-dated mechanical and building systems. The library would eventually reach maximum capacity for storage of collection assets. Additionally, the substandard office space at LaRC would not be reduced and the Human Resources and Procurement Office activities would remain de-centralized occurring in various buildings and temporary trailers located throughout the Center.

2.3 Alternatives Considered But Not Carried Forward

Two alternatives were considered but eliminated from detailed analysis as they would not meet the need for NASA LaRC to upgrade and improve the building and operational deficiencies of the Technical Library, and provide for consolidated and centralized office space for training and procurement activities. One is to use other facilities at LaRC and to use other facilities located off LaRC property.

The first alternative, to use other facilities at LaRC, would entail moving the Technical Library to an existing facility on the Center. Currently there are no available facilities onsite that could be used for library operations, nor are there any facilities that could be reasonably renovated for this purpose. This alternative would not meet the need for the Center to upgrade the building's out-dated mechanical and electrical equipment, and it would not provide for centralized office space for the training and procurement activities. In addition, this alternative would not meet the Center's need to reduce or eliminate the use of substandard (trailers and prefabricated buildings) office space. As such, this alternative was eliminated from further consideration.

The second alternative, to use facilities that are located off of LaRC property, would be cost prohibitive as a long-term lease would be more costly than building and operating NASA-owned space. Also, locating the library and centralized procurement and training office space off site would be inefficient and disruptive in the day-to-day operations of LaRC personnel. In addition, there would be security and access issues involved with classified materials and information being stored at off-site facilities. This alternative was eliminated from further consideration because it would compromise the efficiency and security of the Center's operations.

3.0 AFFECTED ENVIRONMENT

This chapter describes relevant environmental conditions at LaRC for resources potentially affected by the proposed action and the No-Action alternative described in Chapter 2.0. In compliance with guidelines contained in NEPA and CEQ regulations, and NPG 8580.1, the description of the existing environment focuses on those environmental resources potentially subject to impacts.

For the environmental impact analysis process, the resources to be analyzed are identified and the expected geographic scope of potential impacts is defined. The environment includes all areas and lands that might be affected, as well as the natural, cultural, and socioeconomic resources they contain or support.

3.1 Resources Eliminated From Detailed Consideration

Several resources were not evaluated in this EA because it was determined that implementation of the proposed action is unlikely to have any impacts to these areas of concern. A brief explanation of the reasons why each resource has been eliminated from further consideration in this EA is provided below.

Wetlands. The US Army Corps of Engineers (Corps) and the US Environmental Protection Agency (USEPA) define wetlands as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. LaRC has a 1999 Corps confirmed delineation of wetlands at the Center. No wetlands occur in the vicinity of Building 1194 or in the area proposed for construction of the new addition. As such, this resource was eliminated from further consideration.

Socioeconomic. The proposed action would occur over a period of approximately three years. There would be no increase in the number of NASA employees as a result of this project. The work would be performed by construction and renovation contractors from the regional work force or from elsewhere in Virginia. Because these are temporary jobs that would be filled by existing regional work force, there would be no effect on area population or increase in the demand for housing or public services in the region. Therefore, the proposed action would have a negligible effect on the socioeconomic character of the surrounding communities and this resource was eliminated from further analysis.

Climate. Climate is the prevalent long-term weather conditions in a particular area. Climatic elements include precipitation, temperature, humidity, sunshine and wind velocity and phenomena such as fog, frost, and hail storms. The construction and minor demolition activity associated with the proposed action would have no measurable effect on the local climate and this resource was eliminated from further analysis.

Visual Resources. The aesthetic quality of an area or community is composed of visual resources. Physical features that make up the visible landscape include land, water, vegetation and man-made features, such as buildings, roadways and structures. The proposed construction of an addition to and renovation of the Technical Library would provide enhanced visual quality

at the Center as the exterior façade of the building would receive a “face lift” and the new addition would tie in to the existing architectural theme at LaRC. Since no negative impacts are expected on the visual resources from the proposed action, this resource was eliminated from further analysis.

Threatened and Endangered Species. The proposed construction of an addition to and renovation of the Technical Library would occur on previously disturbed land that is part of a developed urban setting. According to a facility-wide threatened and endangered species survey conducted in 1995 at LaRC, no threatened or endangered species and no critical habitats are known to occur in the vicinity of the proposed action. As such, this resource was eliminated from further analysis.

Fish and Wildlife. This resource was eliminated from further analysis due to the lack of suitable habitat and the developed nature of the area around the Technical Library. It is expected that implementation of the proposed action would not significantly affect any fish and wildlife at the Center.

Environmental Justice. Populations that are subject to environmental justice considerations are not located within or near the location of the proposed action. Therefore, this resource was eliminated from further analysis.

Wild and Scenic Rivers. None of the waterways within the NASA LaRC property qualify for the provisions of the Wild and Scenic Rivers Act, therefore, analysis of this resource was not carried forward in this EA.

Since NASA LaRC does not have any *prime or unique farmland*, or *conservation areas*, these resources were eliminated from further analysis.

3.2 Human Environment

3.2.1 Land Use

NASA LaRC is located along the northern tip of the City of Hampton immediately adjacent to the City of Poquoson and several surface water bodies within the tidal zone of the Chesapeake Bay. To the east of LaRC, lie the northwest and southwest branches of the Back River, beyond which is the Chesapeake Bay. The Langley Air Force Base (LAFB) dominates land use along the southern edge of LaRC. To the west of LaRC, lies one of the least developed areas of the City of Hampton, although office /research parks are in the early stages of development.

LaRC has a current Facilities Master Plan that supports the Center’s strategic approach to programmatic facility planning and prioritization. Figure 3.1 presents the ten functional zones identified in the Facilities Master Plan for the West Area of NASA LaRC. The Technical Library, Building 1194 and adjacent land proposed for construction of an addition and parking lot are located within the General Research/Support Zone. Since the triangular grassy area across the street from the library is relatively flat, the LaRC Soccer and Volleyball Clubs use the area during the warmer months in the evenings and on weekends for games and tournaments. Other large open grassy areas exist at LaRC that could accommodate the soccer and volleyball activities.

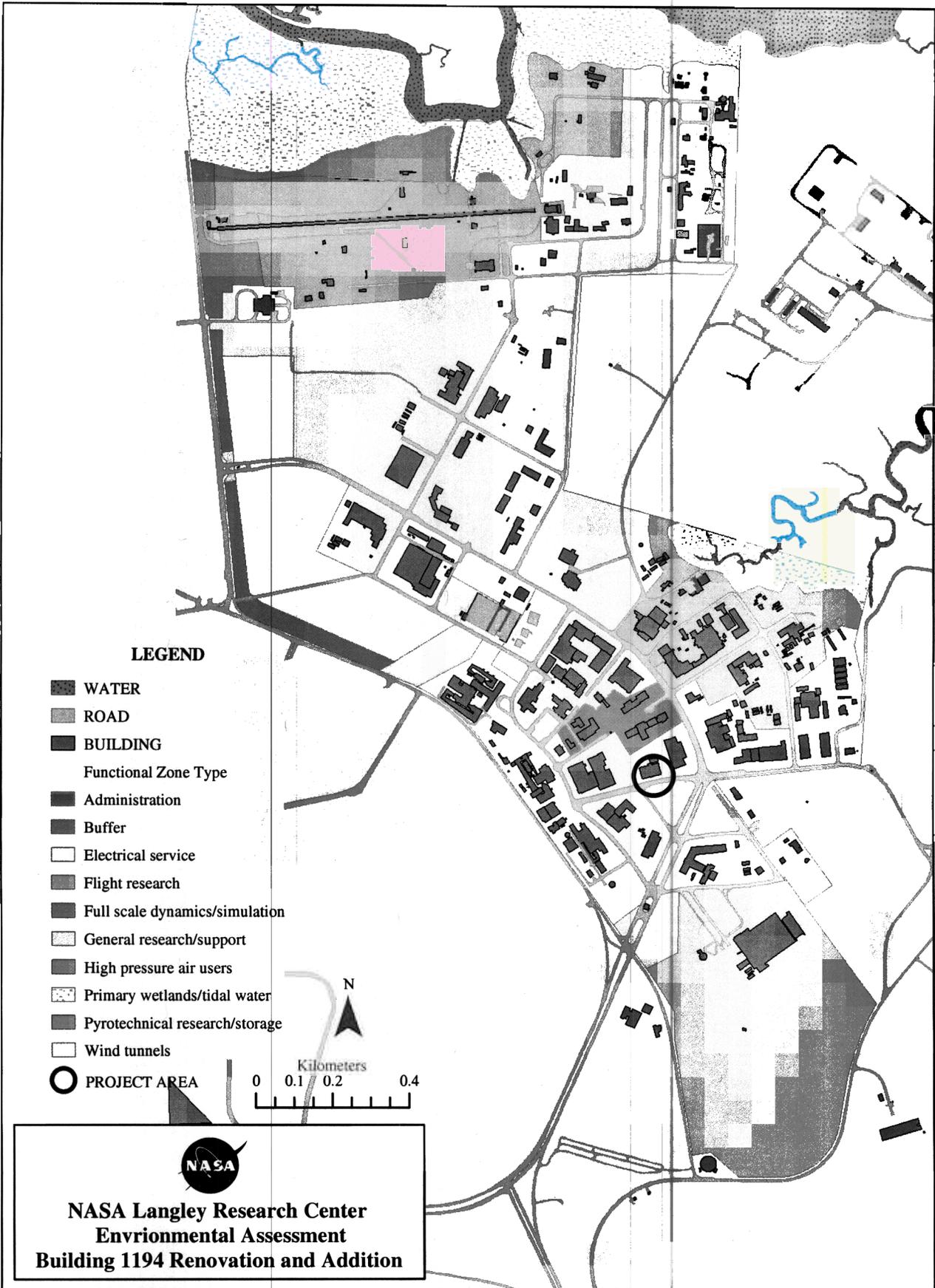
Building 1194 and the site for the proposed construction are not within the 30-meter (100-foot) Resource Protection Area buffer or the 152-meter (500-foot) Resource Management Area buffer required by the Chesapeake Bay Preservation Act which is administered by the Chesapeake Bay Local Assistance Department. The project area lies within the coastal zone which is regulated by the Coastal Zone Management Act (CZMA). Federal agency activities within the coastal zone must be carried out in a manner that is consistent to the maximum extent practicable with the enforceable policies. All federal actions are subject to this consistency requirement if they would affect natural resources, land uses, or water uses in the coastal zone. The Virginia Department of Environmental Quality (DEQ) oversees activities in the coastal zone through a number of enforceable programs that pertain to fisheries management, subaqueous lands management, wetlands management, dunes management, non-point source pollution control, point source pollution control, shoreline sanitation, air pollution control, and coastal lands management. Not all of these programs are applicable to the proposed action, as explained in the following sub-sections. The remaining programs are discussed in relevant resource sections (e.g., air quality and water resources).

Fisheries Management. The proposed renovation and addition would have no adverse effect on the conservation and enhancement of finfish and shellfish resources, the promotion of commercial and recreational fisheries, or designated sustainable fish habitats.

Subaqueous Lands Management. The proposed action would not involve encroachment into, on or over State-owned subaqueous lands.

Dunes Management. There are no sand covered beaches or sand dunes in the vicinity of Building 1194 and adjacent land proposed for renovation and addition.

Shoreline Sanitation. The proposed construction and renovation site is not adjacent to any shoreline or tidal areas, therefore, there would be no effect on shoreline sanitation.



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Figure 3.1 Functional Zones at NASA LaRC

3.2.2 Noise

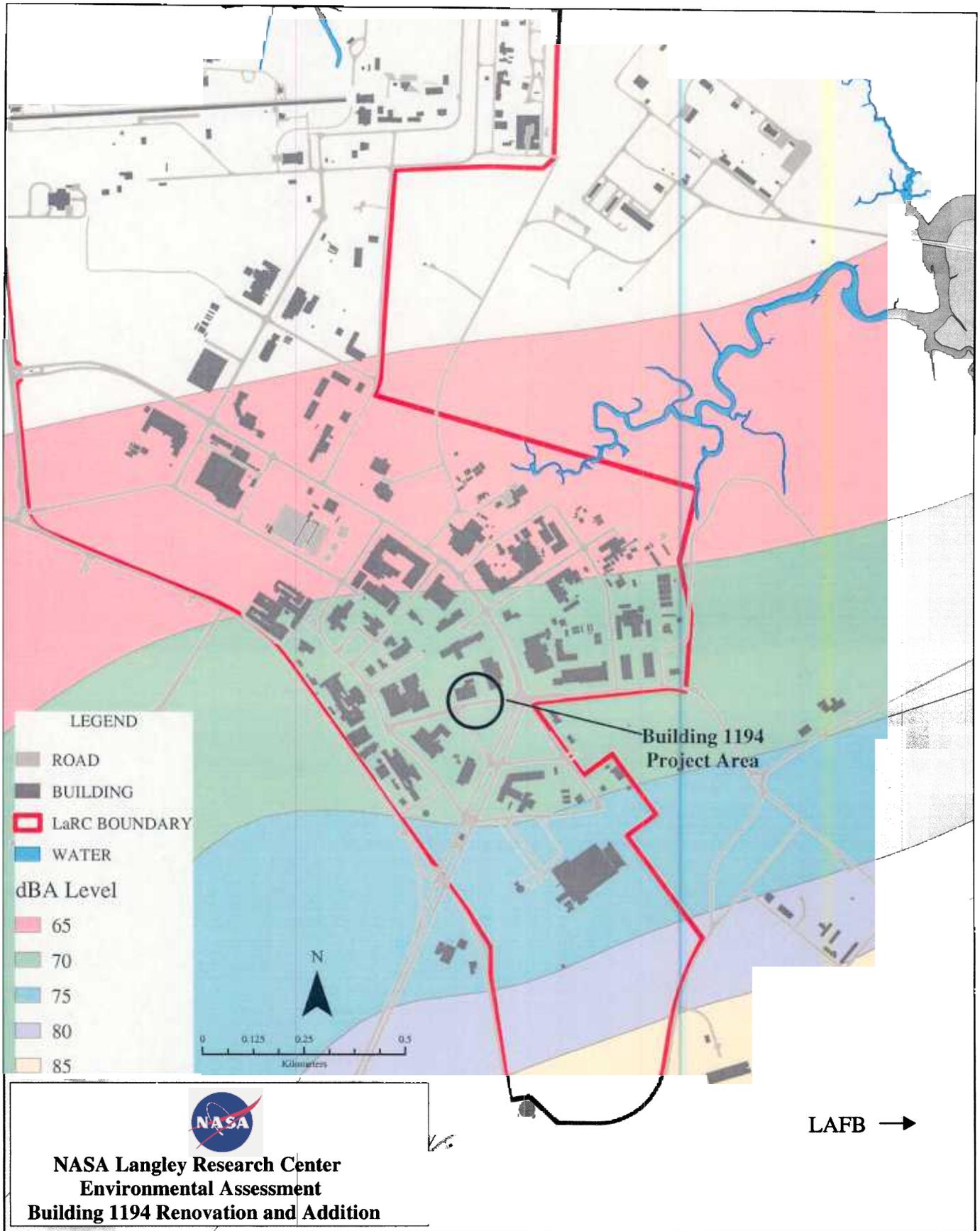
Sound levels are measured using a logarithmic scale expressed in decibels (dB) and the measurement is further refined by using an A-weighted decibel (dBA) scale that emphasizes the range of sound frequencies that are most audible to humans. Most people are exposed to sound levels of 50 to 55 dBA or higher on a daily basis. For comparison purposes, normal conversation is approximately 60 dBA, a train approaching a subway platform 90 dBA, and at 120 dBA, sound can be intense enough to induce pain.

The aircraft operating from LAFB are the dominant and most wide spread noise source in the area. LAFB prepared an Air Installation Compatible Use Zone (AICUZ) report in 1997 that analyzed the existing noise environment at LAFB and the surrounding area. The report identified that noise levels at NASA LaRC resulting from the LAFB aircraft operations ranged from 65 to 85 dBA. Figure 3.2 shows the noise contours at LaRC.

Several NASA LaRC facilities located close to the Center's property line periodically produce noise levels higher than ambient levels outside the property line. Primary noise sources at NASA LaRC include wind tunnels, compressor stations, and substations. Most of the wind tunnels are closed-loop tunnels in which the test gas medium is re-circulated and the noise generated by the tunnel is contained largely within the building. In addition, many of the facilities operate only at certain times of the year, often for periods of ten minutes or less. Noise level surveys conducted on the various wind tunnels during peak operating mode have identified noise levels ranging from 45 to 80 dBA.

NASA conducts its research and testing operations with caution and awareness to restrict noise within the guidelines established by the Occupational Safety and Health Act of 1970 (29 CFR 1910 et. seq.) and minimizes environmental noise impacts to the maximum extent possible

The daily operation of motor vehicles in and around LaRC is considered a minor source of noise. Vehicles on the Center are driven at slow speeds (10-25 mph) and normal traffic flow is typically very light resulting in noise levels well below 50 dB (light traffic).



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Figure 3.2 | Noise Contours for LaRC from LAFB Flight Operations

3.2.3 Ground Transportation

Access to NASA LaRC is through one of three gates: the main gate is located off of State Route 172 and the Wythe Creek Gate is located off of Wythe Creek Road. There is also the Durand Gate on East Durand Street at the common boundary between LAFB and NASA LaRC. The main thoroughfare through the Center is Langley Boulevard which is a two-way single lane roadway leading from the main gate to the Wythe Creek Gate. Smaller secondary roads and parking lots lead off of Langley Boulevard. Building 1194 is located on West Durand Street and is adjacent to the Center's main intersection of Langley Boulevard and East and West Durand Streets. Traffic at NASA LaRC generally flows without delays and minimal congestion occurs during morning and mid-afternoon hours. Since the parking areas located adjacent to Building 1194 are shared by several other large facilities, parking for library visitors and users is typically limited.

3.2.4 Cultural Resources

Cultural resources are defined as any district, site, building, structure, or object that possess the quality of significance in American history, architecture, archaeology, engineering or culture. Cultural resources are associated with significant events and persons who have made contributions to our nation's history. These resources represent the works of a master, or exemplify characteristics of a type, period or method of construction, or possess high artistic values. Cultural resources are typically divided into three categories: archaeological; architectural; and traditional.

3.2.4.1 *Archaeological and Architectural Resources*

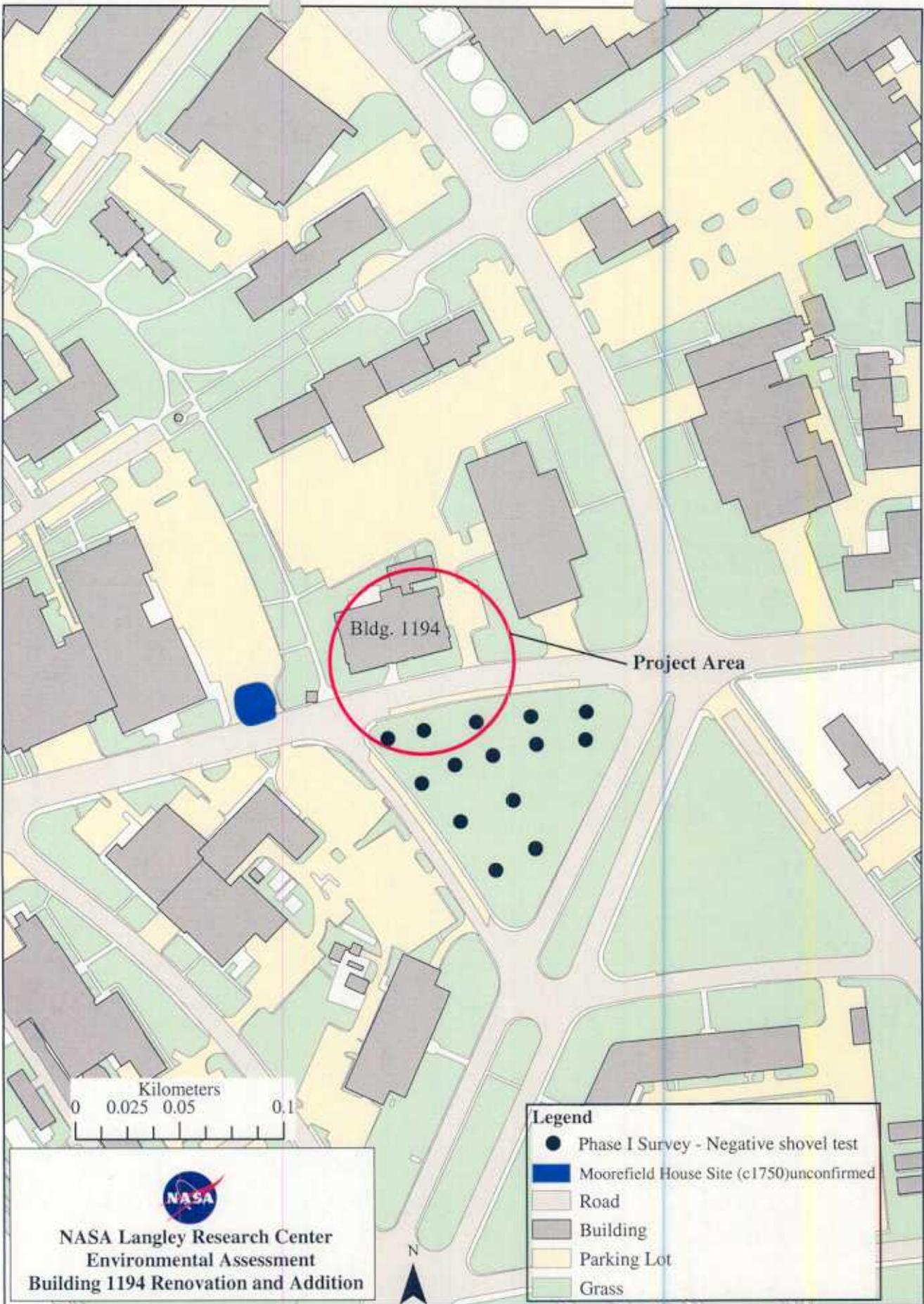
Archaeological resources are locations where prehistoric, historic activity measurably altered the earth or produced deposits of physical remains (e.g., arrowheads, bottles). *Architectural resources* include standing buildings, dams, canals, bridges, and other structures of historic significance. Usually, architectural resources must be more than 50 years old to be considered for inclusion in the National Register of Historic Places (NRHP). There are a few exceptions made for buildings under 50 years old which are exceptionally important.

Since the mid-1970's, areas of the Center have undergone a Phase I Archaeological Survey. The surveys have identified twenty-one archaeological sites including both prehistoric and historic sites. Several Phase II Archaeological Surveys have also been conducted to determine National Register eligibility. No archaeological sites at LaRC that have been surveyed were determined eligible for listing in the National Register.

In 1995, a Phase I Archaeological Survey was performed at the site of the proposed addition to Building 1194. Shovel tests performed during the survey were negative. According to the Center's Master Plan, the area closest to the proposed construction site that has potential historic contexts is the "Moorefield Plantation House Site." The site is based on documents and/or surface features, photos and collections and has not been subjected to any surveys to confirm the location. Figure 3.3 shows the location of the proposed action in relation to the 1995 Phase I Archaeological Survey and to the Moorefield Plantation House Site.

Building 1194 was originally built in 1942 to operate as the West Area Model Shop. At the time, the facility had a high bay area that housed paint and machine shops and contained minimal office space. In 1972, Building 1194 underwent a major renovation. A second floor was added to the high bay area and the facility developed into a library. Pictures of the major renovation project are shown below. Classrooms were added to the rear of the building in 1977 and an elevator was added to the front of the building in 1986. In 1998 and 1990 the Library saw the additions of offices along the front of the building to the west of the present-day staircase and to the southeast corner of the building.





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Figure 3.3 Phase I Archaeological Survey and Potential Historic Site

NASA LaRC has five National Register properties that are also National Historic Landmarks (NHL). Three of the properties, the Variable Density Tunnel, the Full Scale Tunnel and the Eight-Foot High Speed Tunnel, are located on LaRC's East Area and are several miles from the site for the proposed action. The two NHL properties that are located in LaRC's West Area are the Lunar Landing Research Facility and the Rendezvous Docking Simulator. Figure 3.4 shows that neither property is within the vicinity of the proposed action.

3.2.4.2 *Traditional Resources*

Traditional resources are resources associated with cultural practices and beliefs of a living community that are rooted in its history and are important in maintaining the continuing cultural identity of the community.

No traditional or Native American sites have been identified at LaRC. No federally recognized Indian tribes or reservations are located in Virginia. The Commonwealth of Virginia recognizes the Chickahominy, Eastern Chickahominy, Pamunkey, Mattaponi, and the Nansemond tribes in eastern Virginia (Virginia Indian Council 1997). The Bureau of Indian Affairs (BIA) identifies the Chickahominy, Eastern Chickahominy, Pamunkey, and Mattaponi as Tribal Designated Statistical Areas in eastern Virginia (BIA 1998).

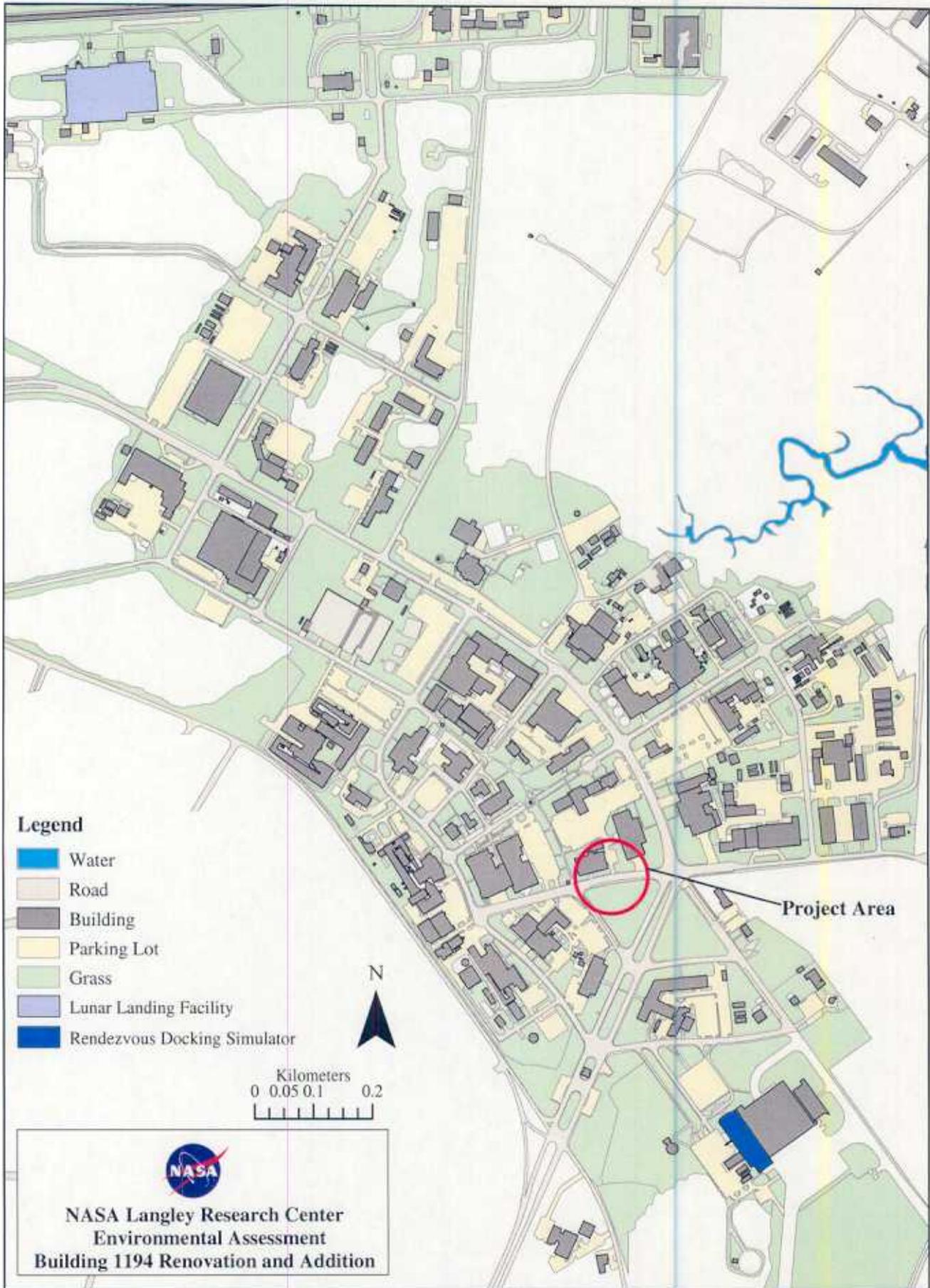
3.2.5 **Hazardous, Regulated and Solid Waste**

NASA LaRC's policy is to minimize the volume and toxicity of wastes generated by mission operations to the extent technically and economically feasible. Source reduction, recycling, recovery and reuse are utilized whenever possible.

LaRC is an EPA-permitted large quantity generator of hazardous waste. The Center is not authorized to transport hazardous waste off site, store hazardous waste beyond a 90-day accumulation period, or treat or dispose of hazardous waste on site. The LaRC Environmental Management Office (EMO) oversees the Center's waste management program. The EMO uses appropriately permitted contractors to transport and dispose of hazardous wastes. In addition, the EMO maintains all records of the Center's waste disposal including manifests and certificates of destruction.

Waste generated from remediation projects such as paint removal and spill cleanup are sampled and analyzed to ensure proper waste characterization and disposal. Wastes that are nonhazardous, nonregulated solid materials are consolidated and sent for disposal to a local landfill. Remediation and spill debris material that contain hazardous waste or exhibit hazardous characteristics are sent to a permitted hazardous waste disposal facility.

LaRC complies with all Federal and State regulations applicable to asbestos. The LaRC EMO ensures appropriate disposal of all asbestos waste generated from facility remediation projects. Asbestos removal contractors are required to obtain applicable permits and use only permitted landfills for disposal. Asbestos waste is double-bagged and wetted and shipped in closed containers.



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Figure 3.4 LaRC West Area National Historic Landmark Sites

LaRC ensures the proper management and disposal of materials containing polychlorinated biphenyls (PCBs). All large transformers at the Center that contained PCBs have been removed or drained and filled with non-PCB oil. Many of the older facilities at the Center still have small PCB light ballasts or capacitors. The EMO ensures that PCB materials are properly packaged, transported and disposed of at an approved disposal facility.

NASA LaRC generates large volumes of municipal solid waste. The major items are paper, wood, metals, cardboard, plastics, grass and tree clippings, glass, and remediation and maintenance wastes. Scrap metals such as aluminum, copper and steel, and excess materials having salvage value are recycled. Scrap materials of little or no value such as building materials, tree and shrub trimmings, and broken concrete are transported to a licensed landfill for disposal. LaRC recycles more than 317,514 kilograms (700,000 pounds) of materials annually. This includes paper and cardboard; oil; oil filters; metal (scrap aluminum, copper, ferrous metals); organics and yard waste (which are composted); fluorescent bulbs; batteries (lead acid, nickel cadmium); and antifreeze.

NASA LaRC is on the EPA's Superfund National Priorities List and has completed remediation and decision documents for all but two sites, the Construction Debris Landfill, and Site 15-Treatment Facility. Neither of these sites is near the site for the proposed renovation and addition to Building 1194.

3.2.6 Pollution Prevention

It is the policy of all NASA Centers that facility projects planned, designed, and constructed under Agency authority or control will incorporate sustainable design principles to the maximum extent possible to reduce life-cycle costs, implement pollution prevention (P2) principles, and minimize facility impacts on natural resources while maximizing occupant health, safety, and productivity. The essential elements of NASA's sustainable design include the following:

- Energy efficiency and water conservation
- Site selection to minimize environmental and transportation impact, and, if possible, to enhance the environment
- Use of sustainable materials (e.g., reused, recycled, recyclable, nontoxic, low-embodied energy content, renewable)
- Emphasis on durability and efficiency of materials and equipment
- A healthy environment, not limited to indoor quality, noise control, and natural lighting
- Features in support of enhanced worker productivity
- Design for personnel safety and security
- Design for decommissioning and disposal
- Enhanced building operation and maintenance characteristics
- A philosophy that defines integrating operations and maintenance experience into the facility acquisition process
- A philosophy that defines facility operational objectives then tests and verifies that all building systems and components have been properly installed are free of latent defects, and will perform to the level intended

The extent to which these sustainable design principles can be adopted varies based upon individual facility project concerns.

3.3 Physical Environment

3.3.1 Air Quality

NASA LaRC is located within the Hampton Roads Intrastate Air Quality Control Region (AQCR), which is presently in attainment with all six criteria pollutants regulated by the Virginia Air Pollution Control Law and the Regulations for the Control and Abatement of Air Pollution. The six parameters currently monitored by the regulators are: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone, (O₃), particulate matter (PM), sulfur oxides (measured as SO₂), and lead (Pb). The VDEQ monitors the air quality for the NASA/Hampton vicinity at the Virginia School for the Deaf and Blind, 700 Shell Road in Hampton. This monitoring station is located approximately 10 kilometers (6 miles) southwest of NASA LaRC.

VDEQ also manages the state's air Operating Permit Program. LaRC has a State Operating permit that limits emissions from specific sources of air pollutants as well as Centerwide air pollutant emissions. Specific permit requirements vary according to the air pollution source, but they generally include physical, operational, record keeping and reporting requirements. LaRC qualifies as a synthetic minor because its air emissions are below the prescribed thresholds in its state-operating permit and thus, does not require a Federal Operating Permit.

3.3.2 Soils

The soils at LaRC range in texture from clay and silt to fine gravel, with most of the soils being fine to medium sandy loam. The surface is a deposited loam from two to six feet in depth. In a soil survey conducted by Old Dominion University in 1994, Tomotley-Altavista-Dragston units including the soils of the Augusta and Seabrook series were found in the area.

Tomotley soils consist of fine sandy loam and clay loam soils that occur on nearly level, broad, low-lying flats. Surface water ponding occurs in some areas as these soils have moderately slow permeability. Altavista soils consist of fine sandy loam and occur in higher topographic areas within the Tomotley series and have a moderate permeability. Dragston soils are deep and somewhat poorly drained. These soils are found on low-lying stream terraces on the coastal plain. Minor amounts of Dragston soils were encountered in depressions within the Seabrook soils during the soil survey. Seabrook soils are fine sands occurring on low terraces along drainageways, specifically along the banks of Brick Kiln Creek. These soils have a rapid permeability.

3.3.3 Water Resources

Water resources include surface waters, groundwater, and floodplains located at LARC as well as areas potentially affected by runoff from the Center.

3.3.3.1 Surface Waters

NASA LaRC is located on the small coastal basin of the Back River, a tidal estuary of the Chesapeake Bay. The Brick Kiln Creek runs along the western boundary of NASA LaRC,

joining the northwest branch of the Back River, and drains approximately 40 percent of the West Area at the Center. Tabbs Creek, which drains a majority of the remaining West Area and part of LAFB, flows in a northerly direction to join the Back River near the confluence of its northwest and southwest branches. A small portion of the West Area in the south drains to Tides Mill Creek and the East Area drains to the Back River. The local waterways are influenced by tides in the Chesapeake Bay.

NASA LaRC operates under a water discharge permit from the Hampton Roads Sanitation District (HRSD) and two discharge permits from the DEQ Virginia Pollutant Discharge Elimination System (VPDES). HRSD Permit No. 0085 allows LaRC to discharge non-hazardous industrial wastewater and sanitary sewage to the HRSD sanitary sewer system. LaRC obtains weekly samples to ensure compliance with permit requirements.

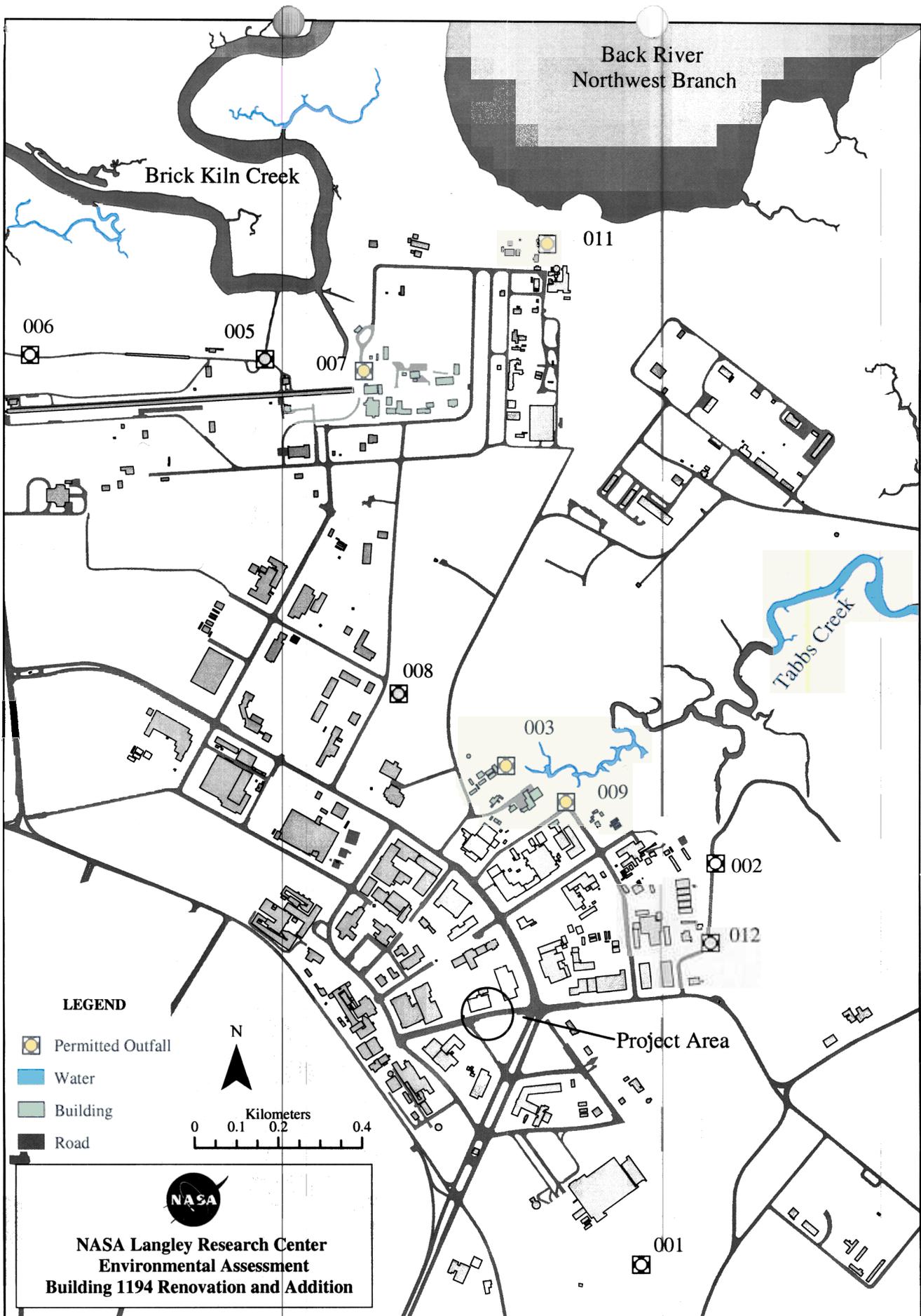
VPDES Permit No. 0024741 regulates the industrial wastewater and stormwater discharge from the Center. LaRC has ten permitted outfall locations at the West Area and two at the East Area for discharge of industrial wastewater and stormwater to local receiving waters. Frequent sampling and monitoring of the outfall effluent is required to ensure compliance with permit limits. Figure 3.5 shows the location of the proposed action in relation to the West Area outfalls. LaRC has few water pollution sources due to the relatively low level of industrial operations at the Center. The major pollutants are the chemicals used to treat the boilers and cooling towers, however, these pollutants are in accordance with permit requirements.

VPDES Permit No. VAR040092 is the Center's General Permit for Small Municipal Separate Storm Sewer Systems (MS4). The permit requires that LaRC has Best Management Practices (BMP's) in place with measurable goals to prevent or mitigate stormwater and/or sewer system pollution from facility activities. These BMPs include employee training, preventive maintenance, visual inspections, spill prevention and response, sediment and erosion control, good housekeeping, and record keeping and reporting. BMPs are also employed in the Center's pesticide and herbicide program.

NASA LaRC does not draw water from the surface water resources, nor does it have any collection or treatment facilities. Since the Center obtains all of its water from independent sources and the public water system, and does not sell the water or operate as an interstate commerce carrier, LaRC is exempt from the SDWA and Virginia Waterworks Regulations.

3.3.3.2 Groundwater

Groundwater at NASA LaRC is often brackish because of the Chesapeake Bay's close proximity and marine deposits found in the soil. The recharge of groundwater in the area is by precipitation filtering down into the surface sediments. Groundwater movement at LaRC is tidally influenced at locations near Brick Kiln Creek and Tabbs Creek. A total of 32 shallow wells (depth up to 6 meters or 20 feet), 7 intermediate wells (75 feet or 22.9 meters), and 5 deep wells (depths over 29 meters or 95 feet) have been installed over the years to identify/monitor potential contamination of groundwater at NASA LaRC.



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Figure 3.3 NASA LaRC West Area Outfalls

Since 1995, samples collected from the monitoring wells at LaRC have not shown contamination of the groundwater. Currently, groundwater level measurements are obtained from the monitoring wells on a quarterly basis and analysis of the groundwater is conducted annually.

3.3.3.3 Floodplains

Floodplains are the flood-prone, lowland areas adjoining inland and coastal water including areas of offshore islands. The 100-year floodplain area is considered the area where there is a one percent chance of flooding in any given year. These floodplain areas are delineated by a floodstage elevation on maps prepared by the Federal Emergency Management Agency (FEMA). Approximately one-third of LaRC is within the 100-yr floodplain. The stillwater elevation for the 100-year floodplain for LaRC is estimated by FEMA to be 2.6 m (8.5 ft) above mean sea level (MSL). The stillwater level for the 500-year floodplain is 2.9m (9.8 ft) above MSL. FEMA has estimated 100-year floodwater levels with accompanying waves at about 3.3 m (11 feet) above MSL near the Center. Building 1194 and the site for the proposed building expansion are not within the 100- or 500-year flood zone.

3.4 Biological Resources

3.4.1 Vegetation and Trees

While the West Area of LaRC occupies 318 hectares (788 acres) of land, only 64 hectares (159 acres) has natural terrestrial vegetation which occurs mainly around LaRC's perimeter. Much of the native vegetative cover has been removed from the Center and the majority of land consists of lawns and open areas composed of ornamental and accent trees and shrubs around facilities and structures, creating a "campus-type" setting. The area surrounding Building 1194 consists primarily of paved parking and walkway areas with several other buildings located within close proximity. Across the street from Building 1194 there is a large triangular open grassy area that has several ornamental trees sparsely distributed. As such, the immediate area around the library is basically developed urban and offers little natural habitat.

4.0 ENVIRONMENTAL IMPACTS

This Chapter describes the potential impacts or effects of the proposed action and the No-Action alternative on the selected environmental resources. Analysis of the impacts will follow the same sequence of environmental resources discussed in Chapter 3. The cumulative effects on the environment of the proposed action on other past, present, and reasonably foreseeable actions at NASA LaRC are presented in Chapter 5.

4.1 Human Environment

4.1.1 Land Use

4.1.1.1 Proposed Action

Implementation of the proposed action would involve construction of a 3,700 square meter (40,000 square foot) addition to LaRC's Technical Library and a 4,366 square meter (47,000 square foot) parking lot. It would also involve minor demolition of existing exterior and interior structures of the library for renovation. The proposed action would be similar to and compatible with the existing land use in the area classified as General Research/Support. Although construction of the new parking lot would eliminate portions of the grassy field area currently used by the LaRC Soccer and Volleyball Clubs, several alternative sites are available at LaRC that could be used for these recreational activities.

The renovation and addition would involve removal of soil and minor vegetation, however, implementation of the proposed action should not affect coastal resources or uses. LaRC would develop and implement erosion and sediment controls and a stormwater management plan for construction activities in order to minimize impact to State waters. The controls would remain in place throughout the entire term of the project. Additionally, Best Management Practices (BMP's) as specified in LaRC's MS4 Phase II General Permit would be employed to provide the maximum protection for stormwater runoff during the project.

LaRC has made the determination that implementation of the proposed action would be consistent with the Virginia Coastal Zone Management Program goals and enforceable programs, and no significant environmental impacts to land use would occur.

4.1.1.2 No-Action Alternative

Under the No-Action Alternative, there would be no addition or renovation to Building 1194 and it would continue to operate with its current facility layout. This action would not be consistent with the LaRC's goal to update and maintain permanent facilities and eliminate temporary and substandard office space throughout the Center. This alternative would result in continued inefficient land use at LaRC as temporary trailers would still be used for training and procurement activities.

4.1.2 Noise

4.1.2.1 Proposed Action

Increased noise levels would be temporary and intermittent and occur only while construction and demolition activities took place. Given the industrial nature of the Center and the location of

Building 1194 in relation to the surrounding community, noise from the renovation and addition would not be significant or unique. Regular noise from heavy equipment and truck traffic would be more perceptible on site and less perceptible in nearby offsite areas. Building contractors would designate areas where hearing protection would be required, and where possible, use BMP's to minimize noise levels. Implementation of the proposed action would not result in substantial impacts to noise levels in and around the project area.

4.1.2.2 No-Action Alternative

Under the No-Action Alternative, no increase in traffic noise or surrounding noise from construction and demolition activities would occur. LaRC personnel would continue to be subject to the intermittent noise from wind tunnel operations, and the high noise levels generated by aircraft flyovers from LAFB. Implementation of this alternative would have no effect on the noise environment at LaRC.

4.1.3 Ground Transportation

4.1.3.1 Proposed Action

Implementation of the proposed action would close a 60-meter (200-foot) section of West Durand Street flanked by the alley located east of Building 1194 (west of Building 1225), and West Walcott Street. This area would provide an appropriate building site to construct the new addition. In order to maintain access to the rear of Building 1225 as well as vehicular access to Building 1194 for shipping and receiving purposes, traffic from Langley Boulevard onto West Durand Street would be routed through the alleyway east of Building 1194. It is proposed that traffic along West Walcott Street would become two-way traffic to allow access into the new parking area. If this two-way approach is not desirable, traffic may remain one-way, as it currently exists. The proposed action should not negatively impact normal traffic flow or transportation.

4.1.3.2 No-Action Alternative

Under the No-Action Alternative, there would be no addition or renovation to Building 1194 and existing traffic patterns surrounding the facility would not be impacted or changed.

4.1.4 Cultural Resources

4.1.4.1 Proposed Action

The proposed action would take place within close proximity to the site of the Moorefield Plantation House which is an unconfirmed historic site. Results of the shovel tests from 1995 Phase I Archaeological Survey that was performed at the site of the proposed action were negative. Although construction of an addition to Building 1194 would involve ground disturbance activities, no impact to archaeological resources is expected. If unanticipated archaeological resources were encountered during construction activities, the project would be placed on hold and the resources would be handled in compliance with NASA and Federal regulations.

Despite being over 60 years old, Building 1194 has not been determined to be historically significant due to major renovations that occurred during its lifetime. In October of 2002, LaRC

submitted a package regarding the proposed action to the Virginia State Historic Preservation Office (SHPO) for a determination of historical significance. The SHPO requested additional information which was forwarded by LaRC in November of 2002 (the complete package is included in Appendix A). As of November 2003, the SHPO has not provided a response or determination and as such, LaRC considers that the Technical Library is not historically significant and is not eligible for listing on the National Register. Additionally, the two National Historic Landmarks located at the West Area of LaRC would not be impacted by the proposed renovation and addition, as they are not located near the Building 1194.

Impacts are not expected to traditional resources under the proposed action since no traditional resources have been identified at LaRC. There are no federally recognized Indian lands or resources at LaRC, and federally recognized or other Indian groups in Virginia have identified no issues.

4.1.4.2 No-Action Alternative

Under the No-Action Alternative, no addition or renovation to Building 1194 would occur. No impacts to cultural resources are expected under this alternative and existing resources would continue to be managed in compliance with NASA and federal regulations.

4.1.5 Hazardous, Regulated and Solid Waste

4.1.5.1 Proposed Action

As part of the proposed action, portions of the existing Building 1194 would be selectively demolished. Due to the age of the facility, some of the renovation work would involve removal of asbestos containing materials (ACM), lead based paint, fluorescent lightbulbs, PCB light ballasts, and CFC refrigerant from portions of the HVAC system. Information contained in the most current conceptual design document for the project is not detailed enough to provide accurate estimates in this EA on the quantities of hazardous and regulated materials that would be generated. However, any hazardous or toxic materials encountered during the minor demolition and renovation would be handled, removed and disposed of in accordance with Virginia Waste Management Regulations, OSHA, and LaRC's established waste disposal requirements. Additionally, Building 1194 underwent a fairly comprehensive asbestos survey in 1991 that identified the locations of ACM throughout the facility and all renovation and repair projects at LaRC must be reviewed and approved by the LaRC Environmental and Industrial Hygiene Offices.

Implementation of the proposed action would involve removing approximately 1,376 cubic meters (1,800 cubic yards) of soil for construction of the new addition and surrounding parking area. LaRC requires that any excavated soils at the Center be tested prior to being removed from the property. The sampling and test parameters comply with local landfill requirements. If possible, concrete, asphalt, and metal debris generated from the renovation would be recycled. All other debris would be removed by the contractor and disposed of offsite at a permitted landfill. The volume of debris generated from the proposed action should not have any significant impacts on any of the local landfills.

The proposed site for construction of the addition to the library is not in the vicinity of any of the Center's NPL and remediation sites. As such, implementation of the proposed action would not have any impact on CERCLA issues at LaRC.

4.1.5.2 No-Action Alternative

Under the No-Action Alternative, no addition or renovation would occur and thus, no impact would occur on hazardous, regulated or solid waste at LaRC.

4.1.6 Pollution Prevention

4.1.6.1 Proposed Action

The proposed action would include sustainability planning, designing, and construction techniques. As previously mentioned, materials would be recycled wherever possible during the demolition phase of the renovation. Construction would include pollution prevention methods described in Section 3 which are more energy efficient and would reduce waste and pollution in comparison to traditional construction methods. The sustainable design of the proposed action would be evaluated using the Leadership in Energy and Environmental Design "LEED" program and Federal Energy Star program. NASA's policy for LEED ratings for new facilities is included in Appendix A. Implementation of the proposed action should not have a significant impact on LaRC's natural resources. It could have a positive impact on the Center's pollution prevention goals as it would eliminate out-dated facility systems and provide renovated and new office space that is energy efficient.

4.1.6.2 No-Action Alternative

Under the No-Action Alternative, there would be no renovation or addition to Building 1194 and no use of pollution prevention and sustainable design principles.

4.2 Physical Environment

4.2.1 Air Quality

4.2.1.1 Proposed Action

Implementation of the proposed action would not add any new stationary air sources and would not require modification of the Center's Air Operating Permit. During the construction phase of the proposed action, there would be periods of intermittent emissions from fugitive dust and vehicle exhaust. However, these emissions would be kept to a minimum by enforcing control methods as outlined in 9 VAC 5-50-60 et seq. of the Regulations for the Control and Abatement of Air Pollution. Such actions include the use of watering for dust control, covering of open equipment while conveying materials, and prompt removal of any spilled or tracked dirt and other materials from paved streets. In addition, the proposed action would not involve any open burning of debris.

In order to reduce the potential for asbestos release into the environment during the demolition portion of the project, standard emission control procedures would be followed in accordance with NESHAPS Asbestos Regulations (40 CFR parts 61 and 763). Any friable asbestos containing materials would be removed and properly disposed of during the first phase of the

proposed renovation to Building 1194. Implementation of the proposed action should not result in significant impacts to air quality at LaRC.

4.2.1.2 No Action

Under the No Action Alternative, Building 1194 would not be renovated and the new addition would not be built. A portion of the building's HVAC system is very old and uses R-22 refrigerant. Over time, increased maintenance would be required on this system and the potential for leaks and releases of HCFC's to the environment would increase. Implementation of the No Action Alternative could result in a very minor, localized impact to air quality.

4.2.2 Soils

4.2.2.1 Proposed Action

Implementation of the proposed action would result in excavation of approximately 1,500 cubic meters (1,800 cubic yards) of topsoil and subsurface soil. Construction of the new addition would be slab on grade with a driven concrete pile foundation. The majority of the excavation would be at a depth of 0.9 meters (three feet). The deepest excavation would be at 2.4 meters (8 feet) for a new elevator. Construction of the new parking lot would involve removal of 0.2 meters (8 inches) of topsoil and the area would be asphalt pavement over stone subbase. To the extent possible, construction contractors would be required by LaRC to follow BMP's as specified in the Center's erosion and sediment control and stormwater management plans and the Center's Phase II MS4 General Permit. Contractors would be required to use existing concrete areas at the construction site for staging equipment and stockpiling of any soils and materials. As such, implementation of the proposed action should have minimal effects on soils at LaRC.

4.2.2.2 No Action

Under the No Action Alternative, construction of an addition and renovation of the Technical Library would not occur and baseline soil conditions would remain unchanged.

4.2.3 Water Resources

4.2.3.1 Proposed Action

Implementation of the Proposed Action would result in minimal direct and indirect impacts to water resources at LaRC. The construction and renovation would follow all enforceable provisions of the Virginia Coastal Zone Management Act, and would comply with provisions of Executive Order 11988, Floodplain management, and the Chesapeake Bay Preservation Act.

The Proposed Action would involve minor modification of the Center's storm drainage system. An existing 48-inch drain line currently lies under the site for the proposed new addition and this active line would have to be diverted around the new structure. Construction of the new addition and parking lot would result in a loss of vegetative open ground, an increase in impervious ground cover and the potential for an increase in stormwater runoff. As such, new storm manholes would be constructed and new storm drainage structures and piping would be provided for drainage of the new facility and parking lot. A new sanitary sewer line, approximately 85 meters (280 feet) would be provided from the new addition with connection to an existing line located in the area between the existing Building 1194 and the parking lot adjacent to Building

1205. Implementation of the proposed action would not require any changes to LaRC's existing HRSD and VPDES water discharge permits.

The total project area would disturb approximately .006 sq. km (1.5 acres) of land and in accordance with Virginia State Law 9 VAC 25-180-10 et seq., a General Virginia Pollutant Discharge Elimination System (VPDES) permit for construction activity would be required. This permit regulation governs storm water discharges from construction activities during the life of the project. In order to obtain the permit, LaRC would develop and implement a storm water pollution prevention plan for the project. The plan would identify potential sources of pollution expected to affect the quality of storm water discharges from the construction site. In addition, the plan would include practices that would be used to reduce the pollutants.

The Proposed Action would result in a minor and temporary increase in suspended solids in the storm water and receiving streams in the area during construction. Once the project is complete, there should be no long-term or major impacts to the quality or quantity of water going to the receiving streams. In an attempt to mitigate the increase of suspended solids during the project, the project design would include specific guidelines to handle soil and erosion as a result of the proposed construction activity. The guidelines would be consistent with standards included in the Virginia Erosion and Sediment Control Handbook in order to ensure compliance with the Virginia Erosion and Sediment Control Laws and Regulations. LaRC would ensure that contractors follow erosion and sediment control BMP's throughout the duration of the proposed project.

The proposed project should not have a significant impact on groundwater resources at LaRC. None of the Center's 32 groundwater monitoring wells are located at or near the construction site. Additionally, Building 1194 and the proposed construction site are not within the 100 or 500-year flood zone.

4.2.3.2 No Action

Under the No Action Alternative there would be no construction, addition, or renovation of Building 1194, and there would be no impacts to the water resources at LaRC

4.3 Biological Resources

4.3.1 Vegetation and Trees

4.3.1.1 Proposed Action

Implementation of the Proposed Action would result in minimal effects to vegetation and trees within the project vicinity. Since the site is previously disturbed land, there would be no loss of designated forest areas. Construction of the new addition would occur on an existing road and a small portion of green space located in front of Building 1194. Several willow oaks and a linden tree, all approximately 30 years old, as well as a small amount of green space would be removed as a result of the excavation.

LaRC would ensure that necessary measures are taken to protect trees and vegetation located at the perimeter of the construction and renovation area. Trees and areas would be marked and/or fenced to ensure vehicular traffic, staging of machinery and stockpiling of soil does not occur in

order to minimize soil compaction in the vicinity of the trees. New landscaping would conform to Federal guidelines for beneficial landscaping and avoid the introduction of potentially invasive species.

4.3.1.2 No Action

Under the No Action Alternative, there would be no loss of green space or trees and the library would continue to operate under its current conditions.

5.0 CUMULATIVE EFFECTS

This section provides a brief definition of cumulative effects, a description and evaluation of past, present, and reasonably foreseeable actions relevant to the proposed action.

The Council on Environmental Quality (CEQ) regulations require that all federal agencies include cumulative impacts in their environmental analyses (40 CFR 1508.25(c)). Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). This includes those that may be "individually minor but collectively significant actions taking place over time" (40 CFR 1508.7).

In this EA, the geographic extent is the area surrounding Building 1194 and the time frame focuses on the timing of the proposed action (FY 04 or 05) and would continue into the foreseeable future. An effort has been made to identify all actions that are being considered and that are in the planning phase at this time.

With the exception of the major renovation that was performed on Building 1194 back in 1972 (as described in Section 3.2.4), it appears that no past actions have occurred at NASA LaRC that would have an impact on the proposed action.

At present, there are no actions occurring at the Center that would have an impact on the proposed action.

During the timeframe FY05 to FY07, LaRC has proposed a number of actions that are independent of the proposed action and would be implemented irrespective of a decision on the renovation and addition to Building 1194. These actions include construction of a new facility to serve as temporary office space for employees during various office renovations scheduled throughout the Center. This facility would not be located near Building 1194. Additionally, LaRC plans to demolish up to fourteen buildings located throughout the Center. None of the buildings is located near Building 1194. An EA and FONSI have already been completed for the proposed building demolition project.

As previously mentioned, LaRC plans to reduce or eliminate substandard office space and temporary trailers located throughout the Center. These actions (trailer removal) are not considered major actions by LaRC, however, implementation of the proposed action to renovate Building 1194 would have a positive affect on the Center's goal to move personnel from substandard office space, to permanent offices. Renovating and building an addition to Building 1194 would allow the Center to remove temporary trailers and open up green space, thus having a positive environmental impact.

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7.0 LIST OF PERSONS CONTACTED

Mr. Jan Benson, Environmental Engineer, Environmental Management Office, NASA LaRC, Hampton, VA.

Mr. Carter Ficklen III, Industrial Hygienist, HAZMED, NASA LaRC, Hampton, VA.

Mr. Alan Farrow, Head, Capital Investment Planning Office, NASA LaRC, Hampton, VA.

Ms. Mary Gainer, GIS Analyst, Capital Investment Planning Office, NASA LaRC, Hampton, VA.

Mr. Garland H. Gouger, Jr., Library and Media Services Branch, NASA LaRC, Hampton, VA.

Ms. Kandyce Goodliff, President, LaRC Volleyball Club, NASA LaRC, Hampton, VA.

Mr. Rodney Harris, Facilities Master Planner, Capital Investment Planning Office, NASA LaRC, Hampton, VA.

Mr. Mahyar Malekpour, President, LaRC Soccer Club, NASA LaRC, Hampton, VA.

Mr. James McGrath, Air Program Environmental Specialist, SAIC, NASA LaRC, Hampton, VA.

Mr. Michael Stubbs, Contracting Officer, Office of Procurement, Service and Contracting Branch, NASA LaRC, Hampton, VA.

Mr. Gregory Sullivan, Environmental Engineer, Environmental Management Office, NASA LaRC, Hampton, VA.

APPENDIX A
REGULATORY CORRESPONDENCE

September 17, 2003

418

Ellie L. Irons
Environmental Impact Review Program Manager
Commonwealth of Virginia
Department of Environmental Quality
Box 10009
Richmond, Virginia 23240-0009

Dear Ms. Irons:

I am writing to inform you that NASA Langley Research Center (LaRC) is in the process of preparing an Environmental Assessment (EA) for the proposed rehabilitation and addition to the Technical Library, Building 1194, located at LaRC in Hampton, Virginia. The proposed action involves rehabilitating the existing building to meet current codes and standards, improve the facility layout, reduce maintenance and repair costs, and protect irreplaceable research data. The proposed action also includes adding 40,000 square feet of office space to the Library to provide for a centralized training center and procurement evaluation and selection activities. The project is anticipated to start in FY 05 and take approximately four years to complete.

As portions of the Library are over 50 years old, we have already begun correspondence with the Virginia Department of Historic Resources to ensure compliance with the National Historic Preservation Act.

The draft EA should be completed during the second week of December 2003. At that time, we will provide the necessary copies for your review, comment, and coordination with other State Departments and agencies. If you or your staff wishes to receive further information about this action, please contact the undersigned at (757) 864-3320.

Cordially,



Jan Benson
Environmental Engineer
Environmental Management Office

cc:

101/CRM

418/OSEM

418/EMO

✓418/J. A. Benson

418/JABenson:pdj AFS:8800 9-16-03 (43320)



Langley Research Center



Date: November 25, 2002
Number of pages (incl. cover sheet:) 2
Subject 1194 Addition: Additional Info.

To: Susan Smead
Va. Dept. of Historic Resources

Phone (804) 367-2323, ext. 110
Fax: (804) 367-2391
CC:

From: Rodney Harris
1 N. Dryden St., M.S. 446
NASA - Langley Research Center
Hampton, VA 23681-2199
Phone: 757-864-6118
Fax: 757-864-8096
Email: rodney.t.harris@larc.nasa.gov

REMARKS: * As requested * For your review Please comment * For your use

Ms Smead:

Here is the information you requested. I am sending you a hardcopy via the mail. Let me know if you have any questions.

Thank you,

Rodney Harris

2002-1495

Rec'd. 10/31/02



VIRGINIA DEPARTMENT OF HISTORIC RESOURCES
PROJECT REVIEW FORM

This application may be completed for all projects that will be federally funded, licensed, or assisted. Allow 30 days from receipt for the review of a project. All information on the form must be completed before review of a project can begin.

DHR Use Only
Date _____
Received: _____

GENERAL INFORMATION

1. Project Name: ADDITION TO BUILDING 1194
2. Project Location (City or County): HAMPTON
3. Federal Agency (providing funding, assistance, license, or permit): _____
NASA / LANGLEY RESEARCH CENTER MS 446
4. Agency Contact Person, Address, and Phone: RODNEY HARRIS, LANGLEY RESEARCH CTR, HAMPTON, VA 23681, 757-864-6118
5. Other Federal Agencies involved (include names and addresses of contacts): _____
NONE
6. Name and Firm of Applicant: SAME AS #4
7. Address and Phone Number of Applicant: SAME AS #4

DESCRIPTION AND LOCATION

A photocopy of a 7.5 minute USGS topographic quadrangle, or a clearly labeled portion thereof, showing the exact boundaries of the project area must be attached to the application. The map should not be reduced or enlarged.

8. USGS Quadrangle Name: Newport News North
9. Number of acres included in the project: _____
10. Has this project been previously reviewed by the DHR?
Yes: _____ No: Do Not Know: _____ (If yes, give the DHR file no., if known)
11. Have any architectural or archaeological surveys of the area been conducted?

Yes: No: Do Not Know:
(If yes, list author, title, date of the report. Jody Cook, NPS, Cultural Resources Survey Report for the West Area, February, 1998)

12. Project Description

A. Explain any ground disturbance that might occur (e.g. excavating for sewer or utility installations, digging footings, grading roads, or developing erosion controls). Describe existing land use within the project area (e.g. plowed, residential, forest, etc.). Mention any previous modifications (e.g. grading, plowing, filling). Excavation (Utilities and Foundations)

Parking Lot Construction. Adjacent Facility Modifications (See Below)

B. Are any structures more than 50 years old within or adjacent to the project area?
Yes: No: Do Not Know:
(A photograph of each structure over 50 years of age keyed to the USGS quad within or adjacent to the project area must be submitted.) B-1199 (Tech Library), B-1225 (Adv. Machine Shop), B-1229 (Struct. Mech/Dynamics Lab)

C. Does the project involve the rehabilitation, alteration, removal, or demolition of any structure, building, designed site (e.g. park, cemetery), or district that is 50 years or older?
Yes: No: Do Not Know:
(If yes, describe extent of alterations to property. Attach additional page(s) if necessary.)

To the best of my knowledge, I have accurately described the proposed project and its likely impacts.

[Signature] 10-24-02
Signature of Applicant/Agent Date

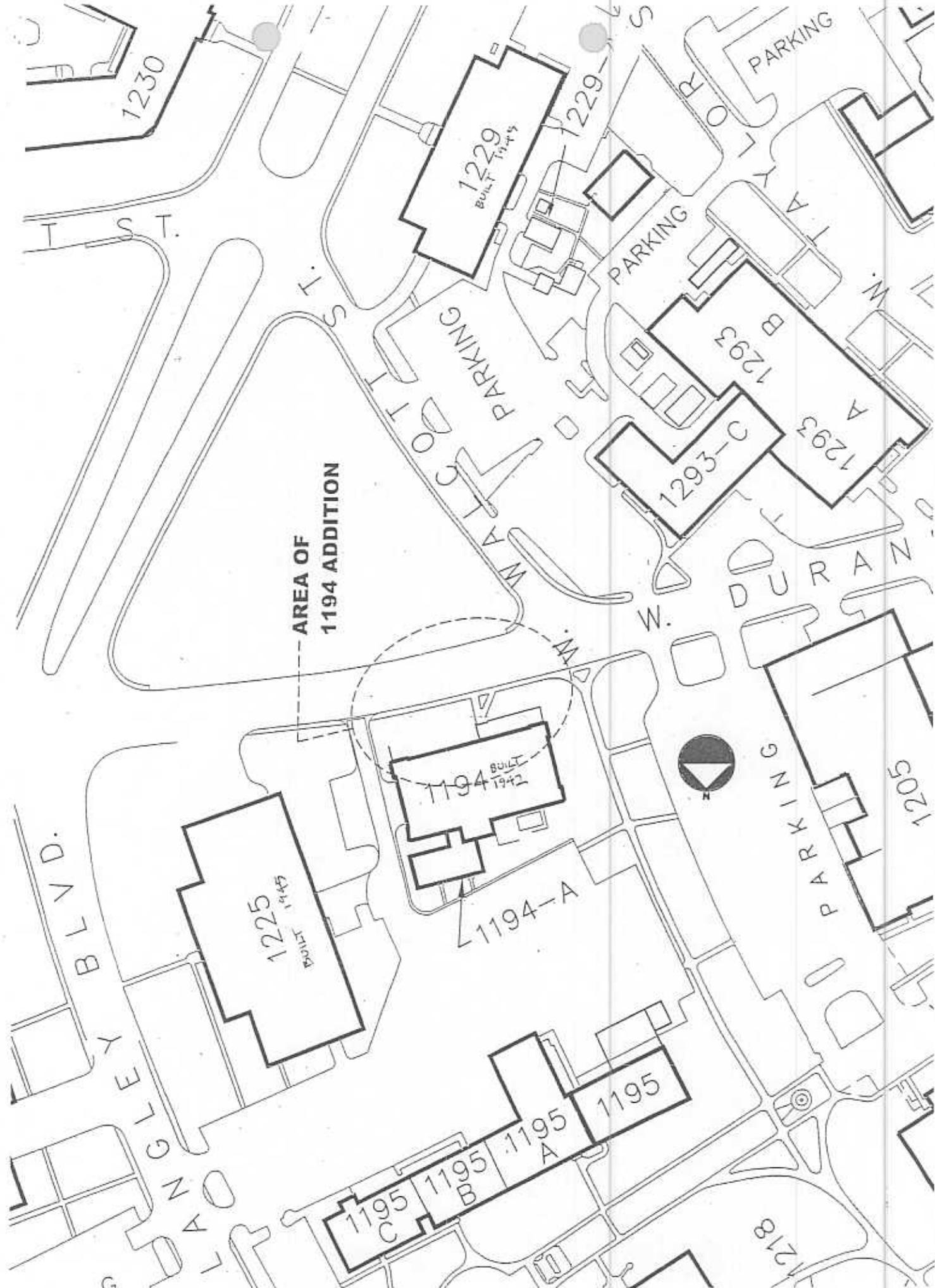
When completed, send this form and all required attachments to the address below. If you have any questions, please contact the Division of Resource Services and Review at (804) 367-2323, ext.106.

Department of Historic Resources
Division of Resource Services and Review
2801 Kensington Avenue
Richmond, VA 23221

This space for DHR response only: Dear Mr. Harris -
Comments Clarification and additional info needed to complete review - please locate project site on maps (USGS with topo lines preferred) and identify National Register listed and eligible properties (Main In Space thematic properties, etc), so relationship between these and subject building is clear. Thank you.
Signature [Signature] Date 11/14/02
Phone Number [Signature] DHR File No. 2002-1495
(804) 367-2323 x410

E-mail - SSmead@dhr.state.va.us

P.S. Maps sent with application are enclosed - if you ~~would~~ would like please mark on these and return (fax to 804-367-2391)



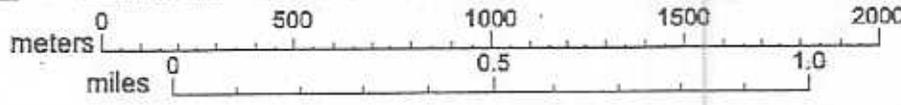
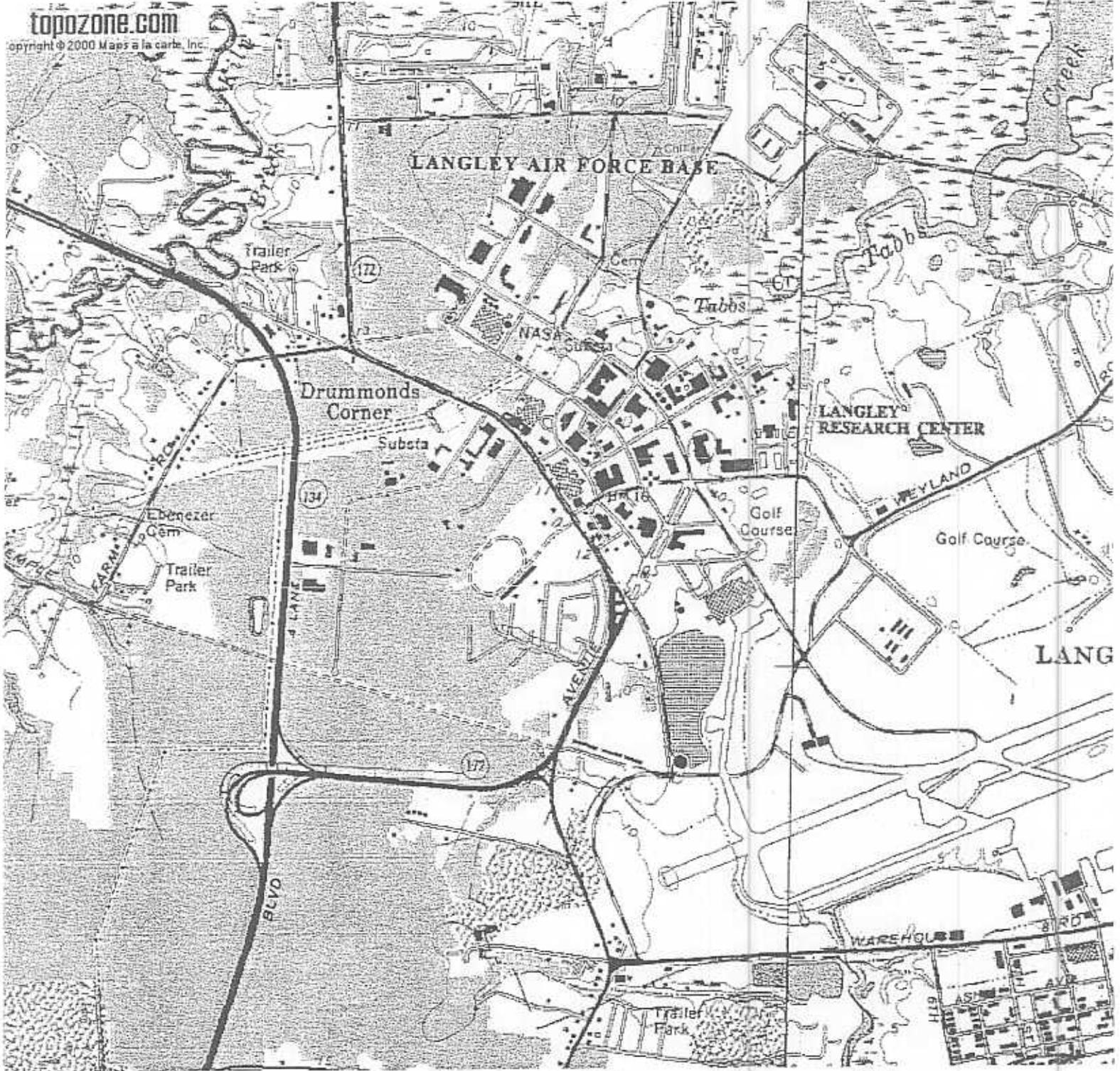
AREA OF
1194 ADDITION

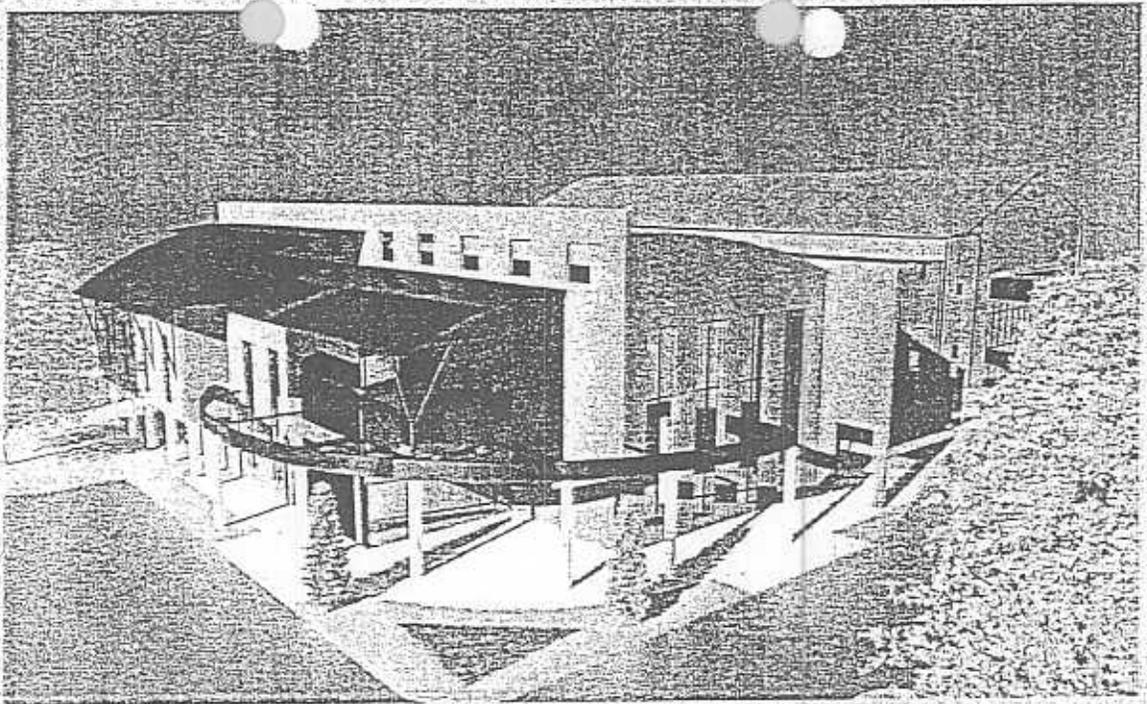


TopoZone.com

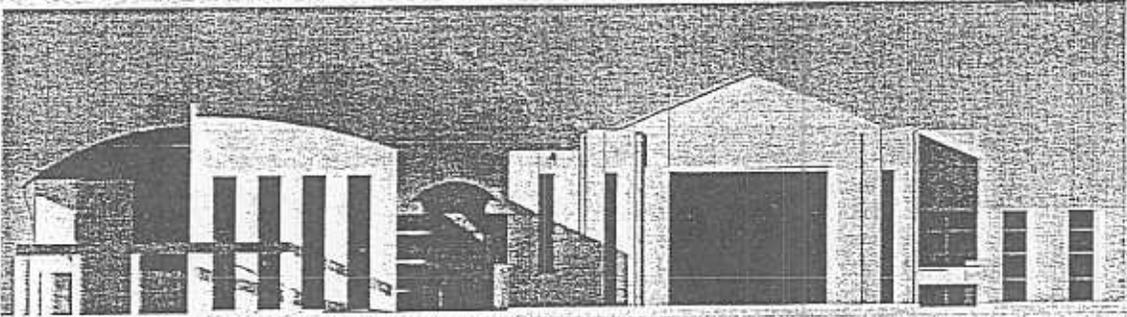
Target is UTM 18 377275E 4105488N - NEWPORT NEWS NORTH quad [Quad Info]

7.5

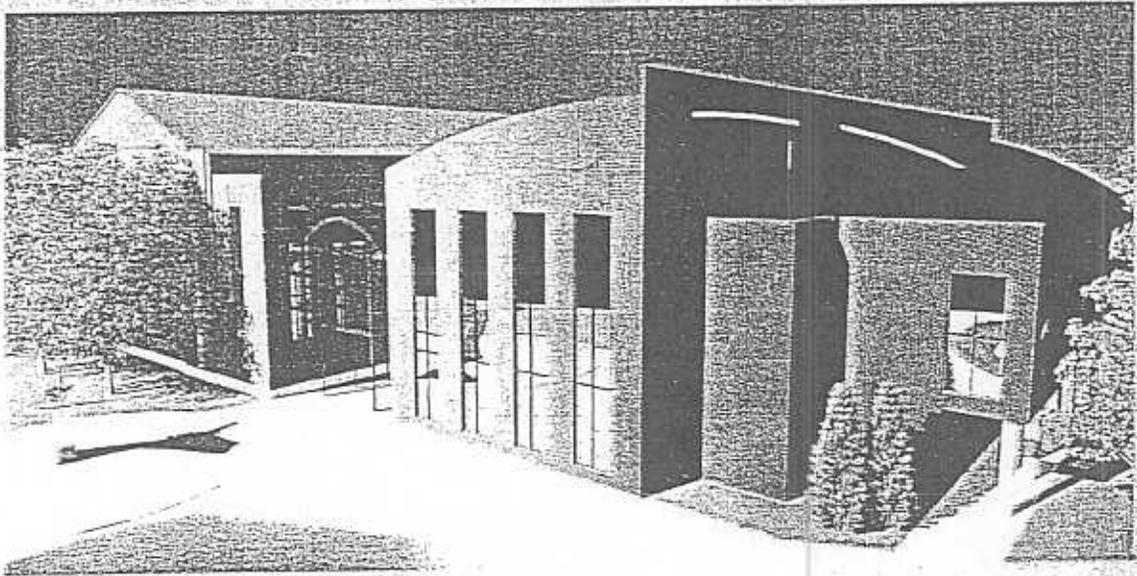




PERSPECTIVE AT ENTRY



WEST ELEVATION

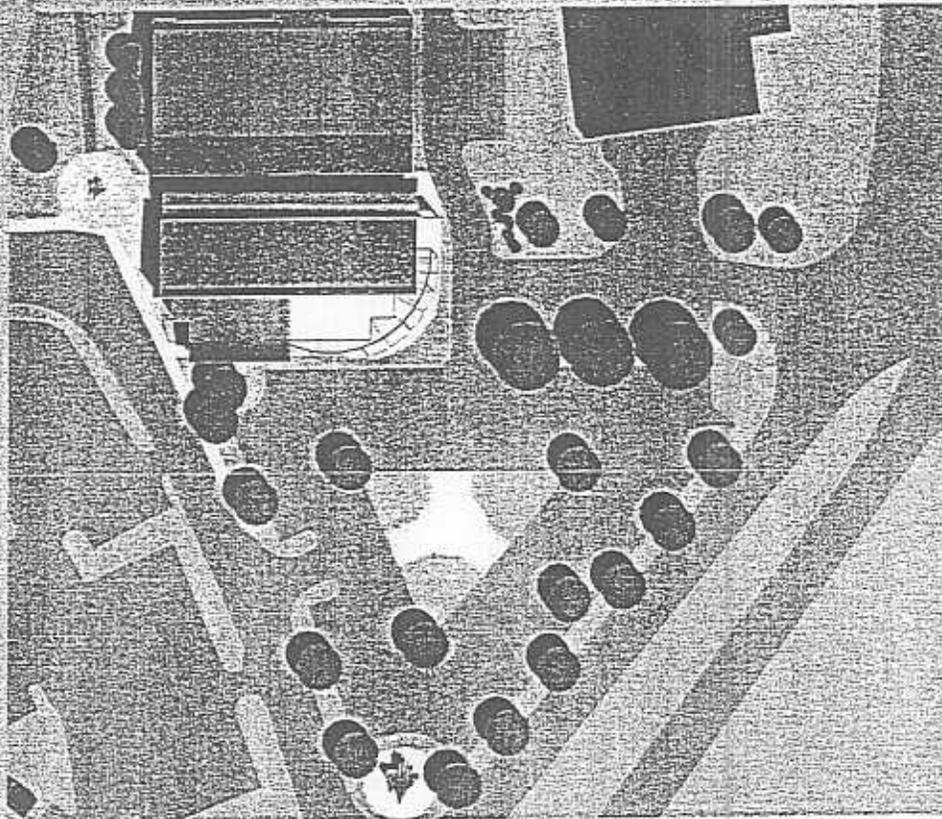


PERSPECTIVE



NASA Technical Library Renovations Concept 2





OPTION WITH DRIVE LANE ACCESS



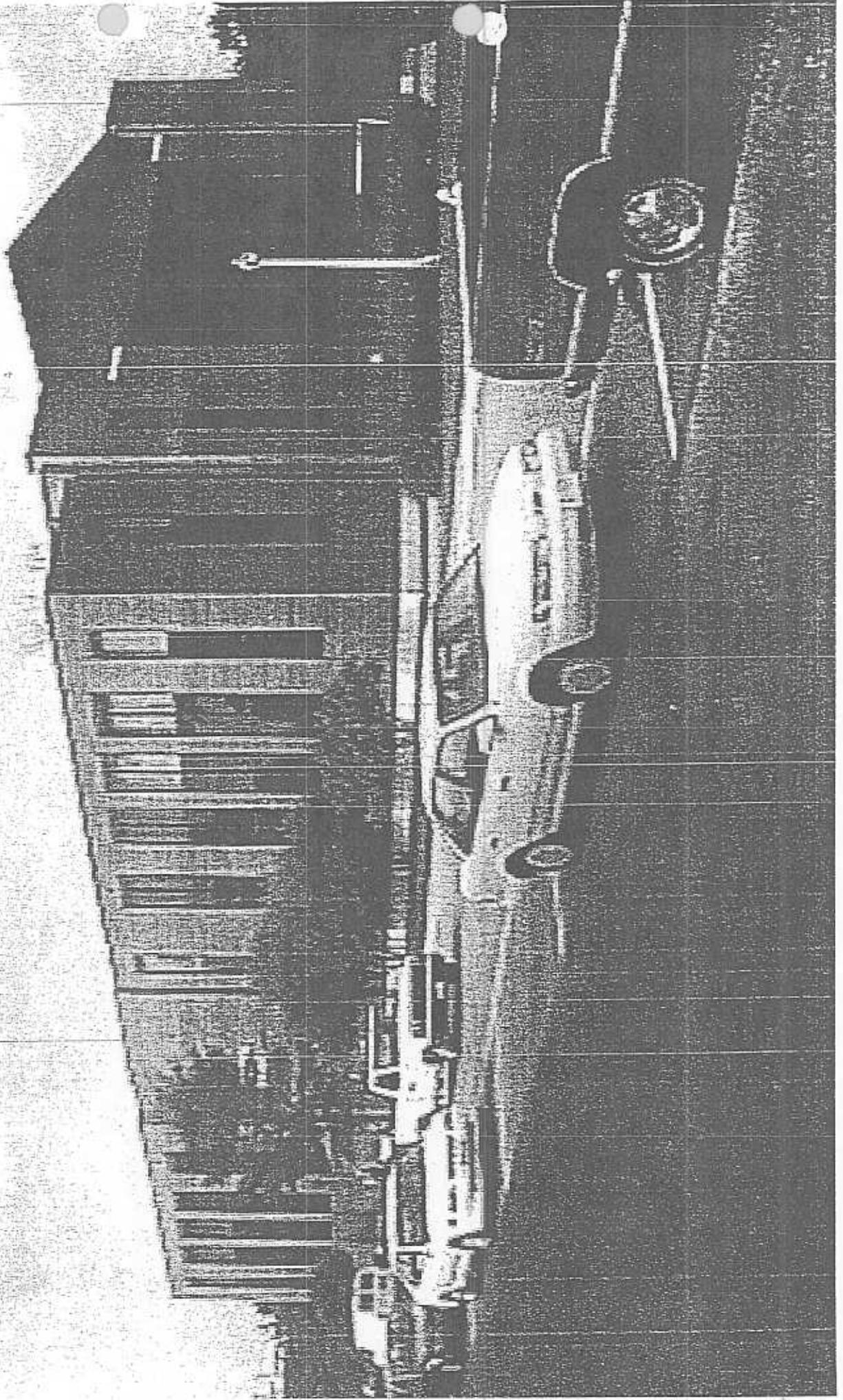
OPTION WITHOUT DRIVE LANE ACCESS



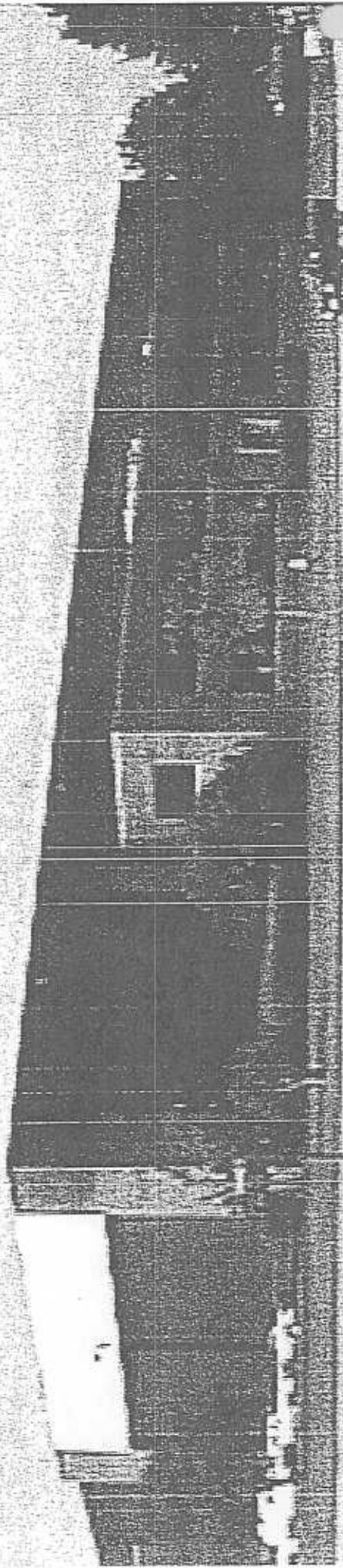
NASA Technical Library Renovations Site Plan Options

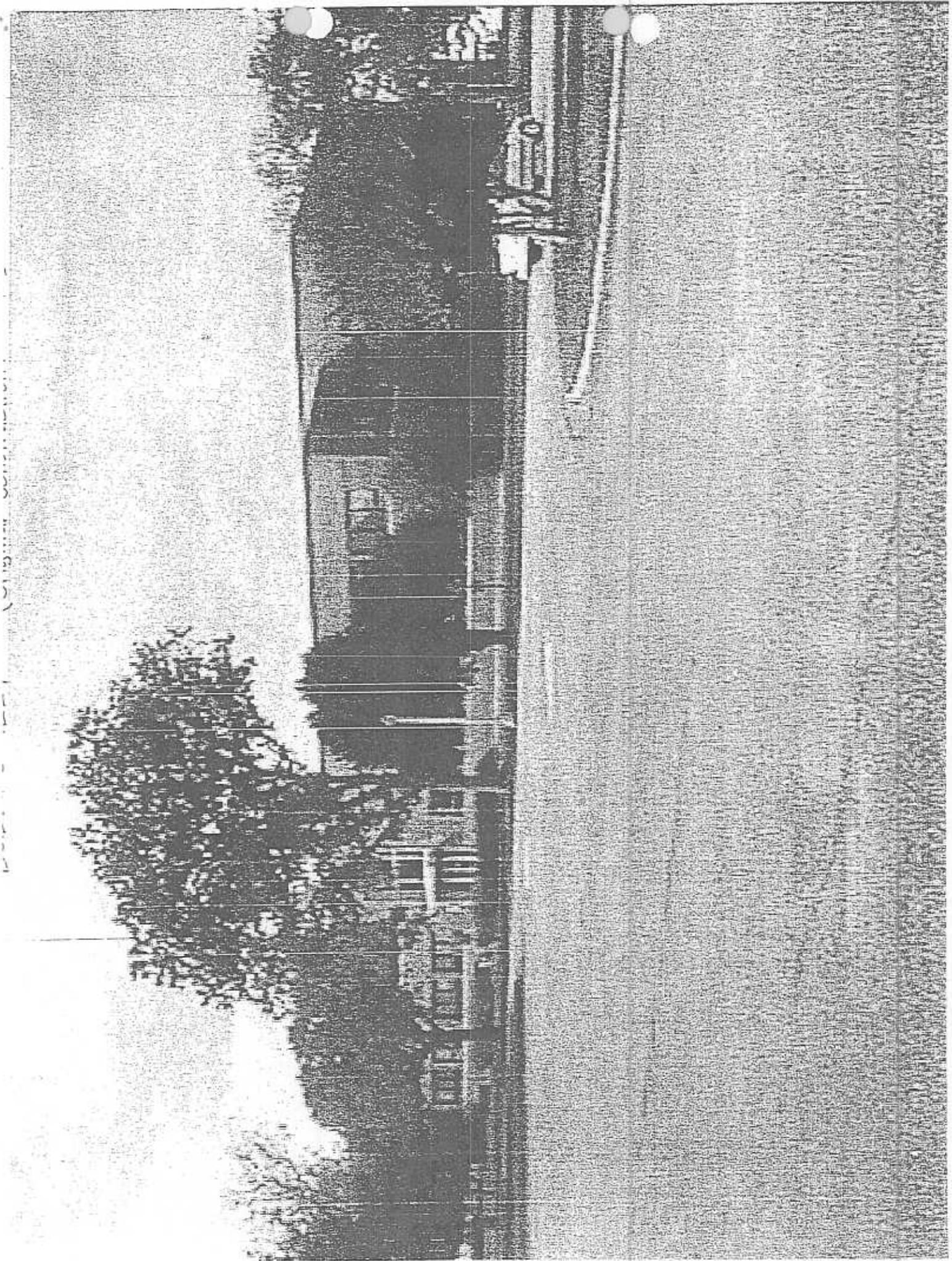


1951 Chevrolet 1951 Chevrolet 1951 Chevrolet



WILKINS 1722 VIRGINIA COLONIALS 1112

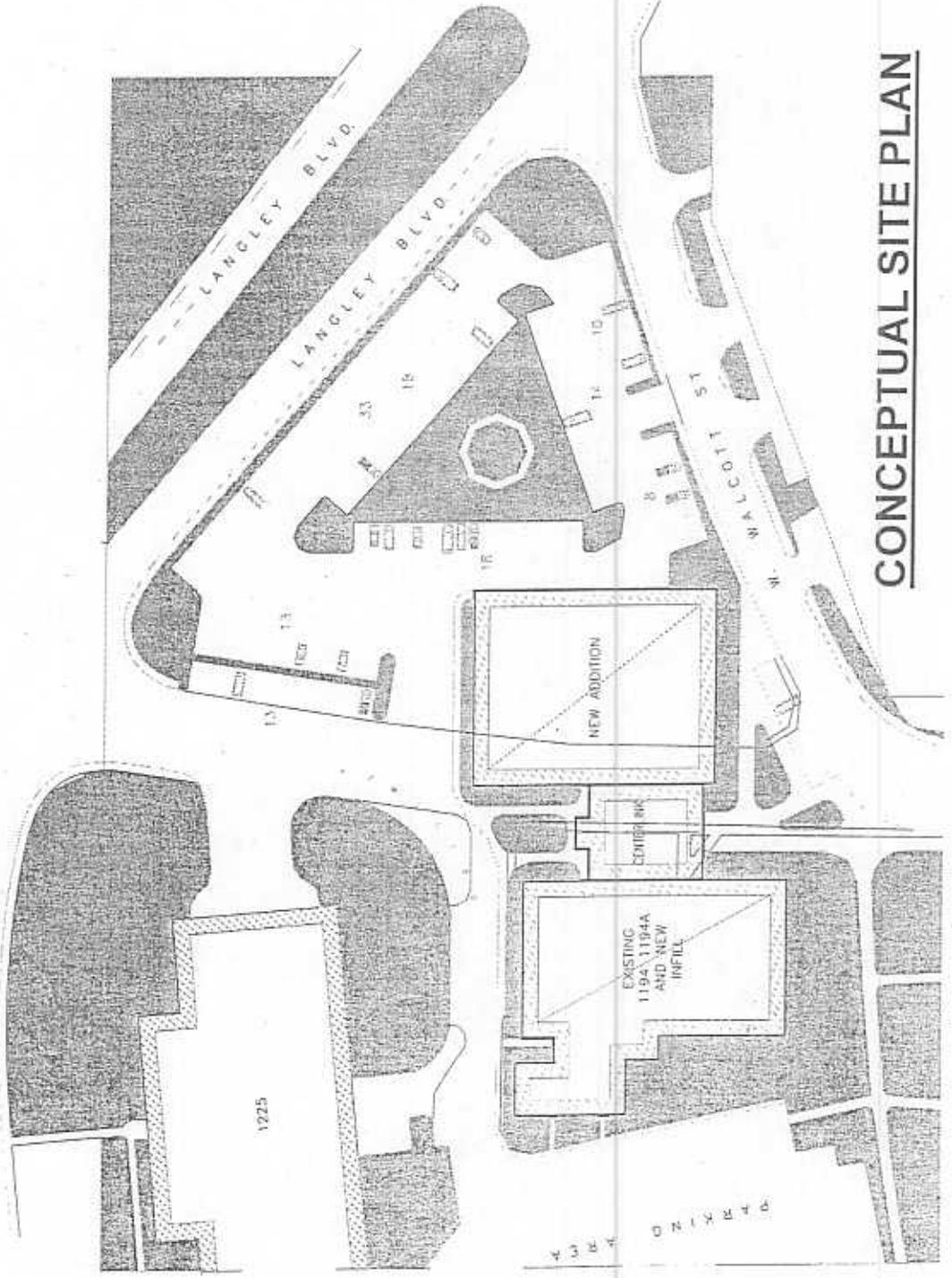




APPENDIX B

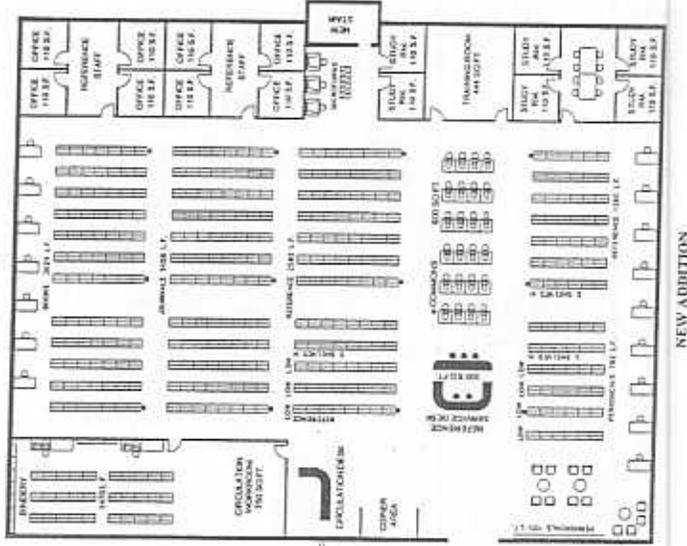
ENGINEERING DRAWINGS OF THE PROPOSED PROJECT

Conceptual Design Review
Rehabilitation and Addition to Building 1194
Conceptual Site Plan



CONCEPTUAL SITE PLAN

Conceptual Design Review
Rehabilitation and Addition to Building 1194
Conceptual Floor Plans



NEW ADDITION



EXISTING 1194/194A & NEW INFILL

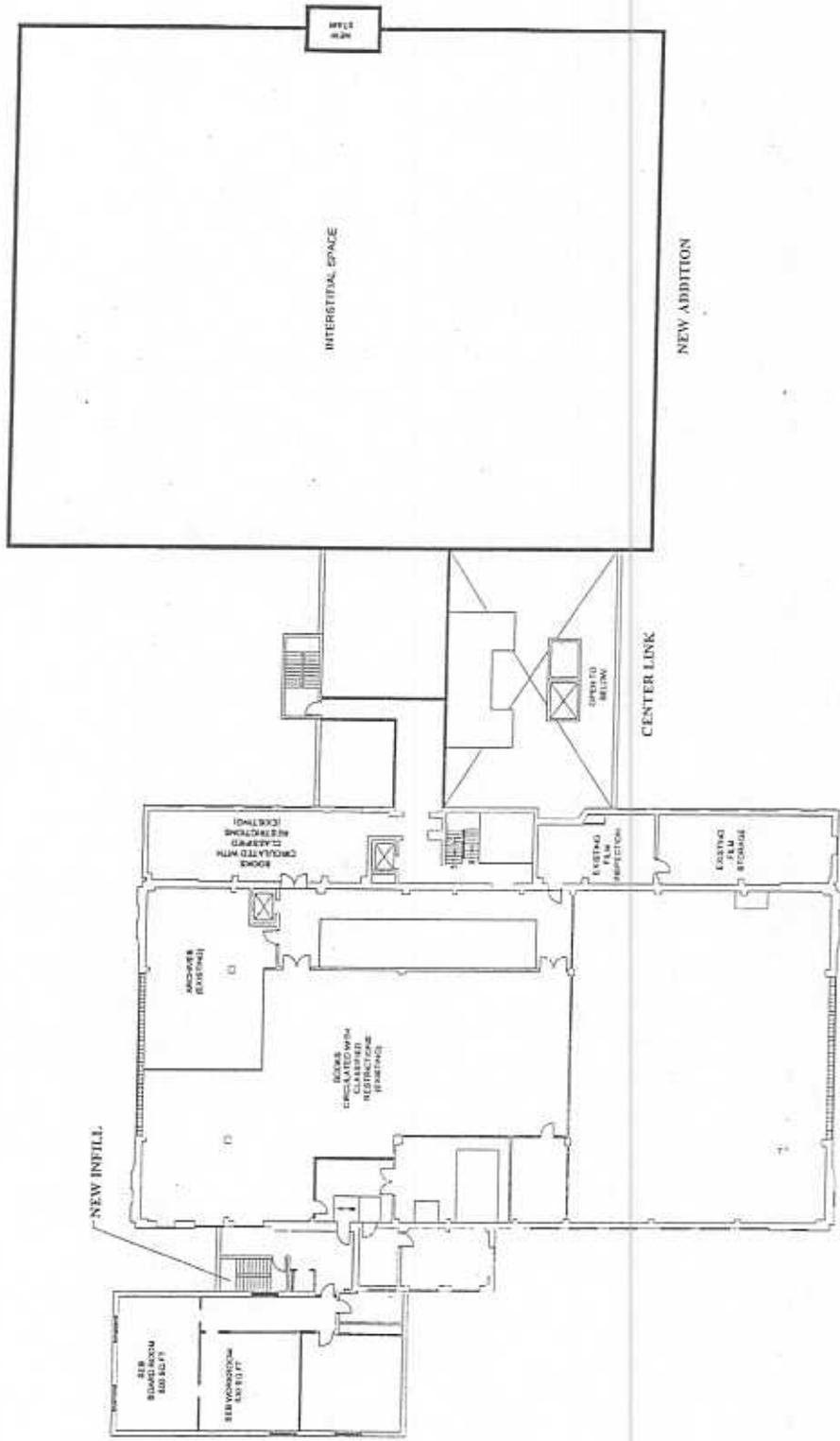
FIRST FLOOR PLAN
 SCALE
 0 10 20 30 40 50

CONCEPTUAL FIRST FLOOR PLAN

Conceptual Design Review

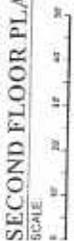
Rehabilitation and Addition to Building 1194

Conceptual Floor Plans



EXISTING 1194/194A & NEW INFILL

SECOND FLOOR PLAN
SCALE



CONCEPTUAL SECOND FLOOR PLAN

