Final
Environmental Assessment

Family Housing Rehabilitation
U.S. Army Garrison West Point
West Point, Orange County, New York

United States Army Garrison West Point

West Point, New York

October 2005

DO #W911SD-04-F-0068

UNITED STATES ARMY GARRISON
WEST POINT, NEW YORK

FINDING OF NO SIGNIFICANT IMPACT (FNSI)

FAMILY HOUSING REHABILITATION PROJECT
for the
UNITED STATES MILITARY ACADEMY
WEST POINT, NEW YORK

I. NAME OF ACTION

Family Housing Rehabilitation Project by the United States Army Garrison West Point (West Point), Town of Highlands, Orange County, New York.

II. DESCRIPTION OF ACTION

a. West Point proposes to revitalize 44 senior officer, field grade, company grade, and noncommissioned officer historic family quarters, as well as six non-historic quarters, to current standards. This would include the whole neighborhood revitalization for six units in Professor's Row, 31 units in the Old English neighborhoods (23 in Old English South and 8 in Old English North), and seven special category quarters (Quarters 61, 109 [comprised of four units], 146, and 374), all of which are historic quarters. Additionally, six non-historic units in Bartlett Loop (Quarters 128A, 128B, 130A, 130B, 132A, and 132B) would be renovated. Renovations would follow the April 2004 U.S. Army Corps of Engineers (USACE) U.S. Military Academy – West Point, NY Revitalize 48 Historic Quarters Work Scopes and would include complete renovation of kitchens and baths, installation of air conditioning, lead-based paint and asbestos abatement, installation of radon mitigation, and exterior repairs such as window refurbishing and replacement of sanitary sewer lines, where needed.

b. Alternatives: Alternatives to the Proposed Action that were considered include the No Action Alternative. Under the No Action Alternative, West Point would not renovate and revitalize 44 the historic and six non-historic quarters on the Main Post. These quarters would continue to deteriorate, leading to increased maintenance and energy costs. Poor conditions would continue to adversely affect the morale, health, safety, and quality of life of the occupants. Furthermore, neglect and deterioration of the 44 historic units would lead to an adverse effect on the historic fabric of homes.

III. ANTICIPATED ENVIRONMENTAL EFFECTS

The principal environmental issues related to the implementation of the Proposed Action are:

(1) Potential for a slight increase in stormwater runoff as a result of the increase of impervious surfaces at the housing areas;
(2) potential for a slight increase in sedimentation and as a result of ground disturbing activities associated with utility upgrades;
(3) potential impacts to the historic fabric of the housing units resulting from the upgrades and renovation;
(4) exposure to asbestos and lead-based paint during renovations; and
(5) temporary increases in traffic as a result of the construction crew and construction vehicles during renovations.

Several of these potential impacts would be mitigated by careful design of the renovations and the use of good management practices and engineering controls. Mitigation measures must be addressed to diminish any potential significant adverse effects.

IV. MITIGATION MEASURES

Mitigation measures would be employed to address impacts from implementation of the Proposed Action including:

(1) Erosion and sedimentation controls would be used in accordance with West Point and NYSDEC standards and specifications, where required. It is not expected that disturbance under the Proposed Action Alternative would be over one-acre and these controls would most likely not be required.

(2) Where the project area includes over one acre of disturbance, West Point would obtain a NYDEC Construction Activity State Pollution Discharge Elimination System permit; however, it is not expected that there would be over one acre of disturbance.

(3) In order to avoid any adverse impacts to the historic fabric of the housing, the following measures would be taken:

- (a) The installation of exterior trash enclosures and air conditioning condensing units could involve excavation and site work in archaeologically sensitive areas that would be tested or monitored during construction, as required. These units would be located in well-concealed areas that are not visible from the façade or primary elevations. Vegetative screening of the air conditioning condensing units would minimize the visual effect of the installation. Trash enclosures, if attached to the buildings, would be done in a manner that does not harm historic fabric and is preferably reversible.
- (b) The installation of exterior condensers and bathroom and laundry vents would require masonry penetrations. These vents would be located in a discreet area with the least possible amount of loss of historic fabric.
- (c) Original kitchen/pantry fabric would remain intact. No butler pantry doors or glazed cabinets would be removed.
- (d) The removal of historic, or period, fixtures in the bathrooms would be considered an adverse effect. Features such as pedestal sinks and claw foot tubs are significant character-defining features to the buildings and the retention of these fixtures is important in maintaining the overall architectural character of the building. The fixtures would be retained provided they can be maintained in an operable and sanitary condition. Every attempt would be made to repair the original fixture when problems occur rather than replace it with a modern fixture.
- (e) To avoid the adverse effect of the abandonment of basement bathrooms with historic fixtures and finishes, these fixtures would be kept in situ or re-used in other locations in the building.
- (f) Bringing one historic home into ADA compliance could adversely affect these historic buildings by changing the layout of the primary spaces by including a full bathroom and converting a room to a bedroom on the first floor. These alterations would be carried out with the least amount of removal or covering of historic fabric and executed in a way that does not drastically disrupt the flow and spatial relationship of the primary spaces.
- (g) To avoid an adverse effect in Quarters 48B, where it is proposed to make changes to the entry vestibule to accommodate a first floor bathroom, the flow and spatial relationship of the primary spaces would not be disrupted. The elaborate finishes in the vestibule would not be altered or removed.
- (h) The removal of historic period lighting at Quarters 116 would not occur. These fixtures contribute to the architectural character of the building and would be rewired and kept in place if they are not beyond repair. In additional, all historic fixtures should be retained.
- (i) The DPW at West Point has specific guidelines, based on the Secretary of Interior's Standards for Rehabilitation, about masonry repair and repointing that would be consulted, but practicable treatment of these architectural elements would include careful cleaning of the joints to avoid damaging the masonry, and duplication of the old mortar in strength, composition, and texture to avoid changing the appearance of the masonry.
- (j) Coordination between the West Point Cultural Resource Manager, the Project Manager, and the Contracting Officer's representative would be performed throughout the project, and consultation between the State Historic Preservation Officer and West Point would be performed, as necessary, during renovation activities.
- (k) Temporary lane and road closers would take place to accommodate material deliveries and exterior renovations. Signs and barriers would be placed, accordingly.

(4) Areas suspected of containing lead-based paint or asbestos containing materials would be evaluated and abated in accordance with OHSA, U.S. Environmental Protection Agency, and Army regulations. Any hazardous materials identified would be taken off-post and disposed of by a qualified contractor.
(5) Both active and passive radon mitigation systems would be installed in renovated quarters, where radon exceeds USEPA recommended levels.

V. FACTS AND CONCLUSIONS

Implementation of the mitigation measures identified would reduce the potential impacts of the Project, resulting in no significant adverse impacts to the environment. An Environmental Impact Statement is, therefore, not required.

VI. DOCUMENT AVAILABILITY AND POINT OF CONTACT

The Draft EA was available for public review and comment for a period of 30 days, beginning on July 15, 2005 and ending on August 15, 2005. The Final EA and FNSI are available for public review at the following locations:

West Point Community Library
Building 622
U.S. Military Academy
West Point, New York

Village Clerk
Village of Highland Falls
303 Main Street
Highland Falls, New York

Town Clerk
Town of Highland
254 Main Street
Highland Falls, New York

Highland Falls Public Library
298 Main Street
Highland Falls, New York

Julia L. Butterfield Memorial Library
Routes 301 & 9D
Cold Spring, New York 10516

The Alice Curtis Desmond and Hamilton Fish Library
P.O. Box 265
Routes 403 & 9D
Garrison, New York 10924

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FINAL

ENVIRONMENTAL ASSESSMENT

FAMILY HOUSING REHABILITATION

UNITED STATES ARMY GARRISON
WEST POINT, NEW YORK

Prepared by:

The Louis Berger Group, Inc.
Washington, D.C.

October 2005

DIRECTORATE OF PUBLIC WORKS
UNITED STATES ARMY GARRISON
WEST POINT, NEW YORK

ENVIRONMENTAL ASSESSMENT

FAMILY HOUSING REHABILITATION

OCTOBER 2005

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EXECUTIVE SUMMARY

This Environmental Assessment (EA) was prepared to address the effects of the revitalization of 44 historic and six non-historic quarters for faculty at the U.S. Military Academy (USMA) at the United States Army Garrison, West Point (West Point), New York. The EA was prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321-4347), the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA, 40 CFR Parts 1500-1508, and 32 CFR 651, Environmental Analysis of Army Actions.

NEED AND PURPOSE OF THE PROPOSED ACTION

The need for the proposed action is to provide quality housing on the Main Post of the USMA to attract quality faculty, as well as to correct existing deficiencies and hazards to provide for a high quality of life and preserve and protect West Point's existing historical assets. The purpose of the proposed action is for West Point, through its directorate of Housing and Public Works, to revitalize 44 historic quarters in order to meet current standards of comfort, habitability, safety, energy conservation, and to extend the life of the homes commensurate with historic preservation standards.

The 44 historic quarters proposed for revitalization were built between 1824 and 1910 and are located within the National Historic Landmark District. The specific areas include Professor's Row, Old English North, and Old English South neighborhoods and seven special category quarters including Quarters 61, 109 (4 units), 146, and 374 (see Figure 1-2). In addition, six units in Bartlett Loop would be renovated, but are not historic. All units have varying deficiencies and potential hazards, including worn and deteriorated kitchen and bathroom fixtures and accessories, inadequate electrical systems, lack of air conditioning, cracked plaster walls and ceilings, and the presence of lead-based paint (LBP). Specifically in the Professor's Row housing, there are air leaks around the windows, exterior paint is peeling, and roofs, gutters, and leaders have deteriorated and been damaged by snow and ice build-up. Left unchecked, these deficiencies will diminish the historical integrity of the housing units Quality of life directly affects West Point's goal of attracting and maintaining the highest caliber faculty. Of all of the quality of life issues, the communities where West Point instructors and their families live are the single most influential.

PROPOSED ACTION ALTERNATIVE

West Point proposes to revitalize 44 historic senior officer, field grade, company grade, and noncommissioned officer family quarters, as well as six non-historic quarters at Bartlett Loop, to current standards. In addition, six non-historic field grade officer units on Bartlett Loop would be renovated. In total, 50 housing units would be included in the renovation project. As part of this project, two of the housing units (one in Bartlett Loop and one in Old English South) would be made handicap accessible and Americans with Disabilities Act (ADA) compliant. Renovations would follow the April 2004 U.S. Army Corps of Engineers (USACE) *U.S. Military Academy – West Point, NY Revitalize 48 Historic Quarters Work Scopes* (Appendix A).

NO ACTION ALTERNATIVE

Under the No Action Alternative, West Point would not renovate and revitalize 44 historic and six non-historic quarters on the Main Post. These quarters would continue to deteriorate, leading to

increased maintenance and energy costs. These conditions would adversely affect the morale, health, safety, and quality of life of the occupants. Furthermore, neglect and deterioration of the 44 historic units would lead to an adverse effect on the integrity of these historic structures.

ENVIRONMENTAL AND SOCIOECONOMIC CONSEQUENCES

Table ES-1 presents a comparison of the Proposed Action Alternative and the No Action Alternative and their potential impacts to the natural and human environments. In summary, the implementation of the family housing renovation under the proposed action would be expected to enhance living and safety conditions for the Academy faculty living on-post. No significant impacts would be expected to the natural and human environment. Minor impacts would be expected, to include alterations to historic structures, short-term increases in air emissions, and short-term increase in noise.

Mitigation measures discussed in the document, particularly in the area of cultural resources, would be employed to minimize these and other potential impacts. The cumulative effects to West Point or the surrounding communities, of the proposed action would also not be expected to be significant.

CONCLUSION

The Proposed Action Alternative would not have any significant adverse effects on any environmental resources or socioeconomic conditions at West Point or to areas surrounding the post.

TABLE ES-1: SUMMARY OF IMPACTS

Resource Areas	Proposed Action Alternative	No Action Alternative
Water Resources	Short-term negligible impacts from ground disturbing activities. Since the majority of renovations would be interior, long-term impacts would be negligible.	No impacts.
Geology, Topography, Soils	No impacts to geology or topography are expected. Replacement of sanitary sewer lines and staging areas would have negligible short-term impacts.	No impacts.
Air Quality	Project emissions would be below the *de minimus* level. Impacts would be short-term and minor during construction. No operational emissions would occur.	No impacts.
Cultural Resources	Implementation of the project, which would include the recommendations in the Effects Determination, would result in no adverse effects to the historic fabric and characteristic features of these historic properties. Because no adverse effect would occur, impacts to cultural resources would be minor.	The historic quarters would continue to deteriorate, leading to increased maintenance and energy costs. Morale, health, and safety would be adversely impacted and there would be an adverse impact on the fabric of the historic structures, resulting in moderate impacts to cultural resources.
Health and Human Safety	There would be beneficial impacts as lead-based paint and asbestos containing materials would be removed from the housing units. Material use and disposal would follow the policies and procedures of the West Point Environmental Management Branch. Anti-terrorism/force protection requirements do not apply to this action.	Lead-based paint and asbestos containing materials would remain in the units. This would require care and will eventually require remediation.
Noise	Short-term minor noise impacts from construction activities would occur. All applicable regulations would be followed and construction activities scheduled to create the least noise disturbance.	No impacts.
Transportation	Impacts to transportation as a result of the proposed family housing renovation would be short-term and minor. There would be no long-term impacts to transportation	No impacts.
Environmental Justice and the Protection of Children	There would not be disproportionately high and adverse human health or environmental effects to minority or low-income populations. Beneficial impacts to the population living in the housing would occur from the removal of LBP and ACM and radon mitigation.	No impacts.

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1.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

1.1 Background

The U.S. Military Academy (USMA or Academy) at West Point was established in 1802 and was the nation's first service academy. It is located on the oldest continuously occupied United States military post, the U.S. Army Garrison West Point (West Point). The mission of the USMA is, "To educate, train, and inspire the Corps of Cadets so that each graduate is a commissioned leader of character committed to the values of Duty, Honor, Country; professional growth throughout a career as an officer in the United States Army; and a lifetime of selfless service to the nation" (USMA, 2003a). West Point is located on a 16,000-acre (6,475 hectare) reservation on the Hudson River, approximately 50 miles (80 kilometers) north of New York City. Figure 1-1 provides the regional location for the USMA at West Point. The Main Post, consisting of approximately 2,500 acres (1,012 hectare), is where the majority of the academic, residential, and support facilities are located. It is the home to approximately 4,200 cadets, with 1,200 new cadets entering the Academy each year. In addition, West Point is also home to over 4,200 military personnel and family members, who live at West Point or in the immediate area, and a civilian workforce of approximately 4,100 personnel (A. Bjornsen, West Point, pers. comm., 2005). West Point is unique in that, along with its primary function of education and training, it also incorporates functions of a military base and contains a 2,500 acre (1,012 hectare) National Historic Landmark District (NHLD) that includes most of the Main Post's housing. Figure 1-2 shows the U.S. Army Garrison West Point, Main Post area.

As part of fulfilling its mission, the USMA at West Point provides a challenging academic program that consists of a core of 31 courses providing a balanced education in the arts and sciences. In order to carry out this program, the Dean of the Academic Board provides academic instruction at the college level to the cadets, using as faculty military officers and civilians in thirteen academic departments (USMA, 1999). Currently there are 19 Congressionally-appointed professors USMA (PUSMA) that are department heads. The remaining teaching staff is comprised of 62 Academy professors that are military and 13 visiting professors, or endowed chairs, that are civilian. Attracting and keeping the highest caliber faculty to teach and guide the Corps of Cadets is a continuing goal of the USMA at West Point.

This Environmental Assessment (EA) analyzes the potential impacts related to the rehabilitation of family housing at the USMA at West Point in Orange County, New York. The EA has been prepared pursuant to Section 102(2)(c) of the National Environmental Policy Act of 1969 (NEPA), (42 USC 4321 *et seq*.), the regulations of the Council on Environmental Quality (CEQ) that implement NEPA procedures (40 CFR 1500-1508), and 32 CFR 651, Environmental Analysis of Army Actions. The information presented within this document will serve as the basis for deciding whether implementing the proposed action would result in a significant impact to the environment, requiring the preparation of an Environmental Impact Statement, or that no significant impacts would occur, and therefore a Finding of No Significant Impact (FNSI) would be appropriate.

FIGURE 1-1: UNITED STATES ARMY GARRISON AT WEST POINT REGIONAL LOCATION

FIGURE 1-2: UNITED STATES ARMY GARRISON AT WEST POINT

1.2 Need and Purpose

The need for the proposed action is to provide quality housing to attract quality faculty to the USMA, as well as correct existing deficiencies and hazards to provide for a high quality of life and preserve and protect West Point's existing historical assets. The purpose of the proposed action is for West Point, through its Directorate of Housing and Public Works, to revitalize 44 historic and six non-historic quarters in order to meet current standards of comfort, habitability, safety, energy conservation, and to extend the life of the homes commensurate with historic preservation standards.

The 44 historic quarters proposed for revitalization were built between 1824 and 1910 and are located within the NHLD of West Point. Specifically included are Professor's Row, Old English North, and Old English South neighborhoods, and seven special category quarters including Quarters 61, 109 (4 units), 146, and 374 (see Figure 1-2). In addition, six units in Bartlett Loop would also be renovated, but are not historic. These units have varying deficiencies and potential hazards, including worn and deteriorated kitchen and bathroom fixtures and accessories, inadequate electrical systems, lack of air conditioning, cracked plaster walls and ceilings, and the presence of lead-based paint (LBP). Specifically, in the Professor's Row housing, there are air leaks around the windows, exterior paint is peeling, and roofs, gutters, and leaders are deteriorated and have been damaged by snow and ice build-up. The six non-historic quarters have similar deficiencies. Left unchecked, these deficiencies will diminish the historical integrity of the housing units. Quality of life directly affects West Point's goal of attracting and maintaining the highest caliber faculty. Of all of the quality of life issues, the communities where West Point instructors and their families live are the single most influential.

1.3 Proposed Action

West Point proposes to revitalize 44 senior officer, field grade, company grade, and noncommissioned officer historic family quarters, as well as six non-historic quarters at Bartlett Loop, to current standards. This would include the whole neighborhood revitalization for six units in Professor's Row, 31 units in the Old English neighborhoods (23 in Old English South and 8 in Old English North), and seven special category quarters (Quarters 61, 109 [comprised of four units], 146, and 374), all of which are historic quarters. Additionally, six non-historic units in Bartlett Loop (Quarters 128A, 128B, 130A, 130B, 132A, and 132B) would be renovated. The date each unit was constructed is shown in Table 1-1. The locations of the units included in the proposed action are identified in Figure 1-2.

1.4 Alternatives

1.4.1 Proposed Action Alternative

Under this alternative, West Point would complete whole house revitalization of 44 historic family quarters, including 37 senior office historic quarters in the Old English North and South housing areas and Professor's Row, and seven other company grade and non commissioned officer units. In addition, six non-historic field grade officer units on Bartlett Loop would also be renovated. In total, 50 housing units would be included in the renovation project. As part of this project, two of the housing units (one in Bartlett Loop one in Old English South) would be made handicap accessible and American with Disabilities Act (ADA) compliant.

Renovations would follow the April 2004 U.S. Army Corps of Engineers (USACE) *U.S. Military Academy – West Point, NY Revitalize 48 Historic Quarters Work Scopes* (Appendix A). This document lists a garage in Old English North as an evaluated structure, which is not included in this EA as a separate structure. Furthermore, the work scope considers Quarters 109 as one unit, but it is actually four

separate units and will be considered as such in this EA. These discrepancies account for the difference between the 48 quarters evaluated in the work scopes and the 50 quarters evaluated in this EA.

TABLE 1-1: HOUSING CONSTRUCTION DATES

Housing Unit	Year Built
Quarters 103 A & B	1826 – 1828
Quarters 105 A & B	1826 – 1828
Quarters 107 A & B	1824
Quarters 109	1875
Quarters 21 A, B, & C	1910
Quarters 29	1891
Quarters 30	1894
Quarters 32 A & B	1908
Quarters 34 A & B	1908
Quarters 42 A, B, & C	1908
Quarters 45 A, B, & C	1908
Quarters 48 A, B, & C	1908
Quarters 118 A & B	1909
Quarters 120 A & B	1909
Quarters 128 A & B	1948
Quarters 130 A & B	1948
Quarters 132 A & B	1948
Quarters 61	1885
Quarters 146	1858

Generally, for the 50 quarters, interior renovations would include complete renovation of kitchens and baths and installation of air conditioning. Plumbing, heating, fire protection/detection, and electrical systems in all units would be upgraded to meet all current codes and address existing issues such as livability, fire hazards, and safety hazards. Those units with LBP and asbestos containing materials (ACM) would undergo abatement to remove these materials from all affected and/or disturbed areas, including basement areas. Passive radon system piping would be installed in all quarters and active systems would be installed in all quarters exceeding U.S. Environmental Protection Agency (USEPA) and Army level standards. Additionally, select chimneys would be repaired and stainless steel liners installed where needed; loose, cracked, and/or detached plaster would be removed and replaced with gypsum board; telephone and TV outlets would be replaced or installed; and interiors would be painted.

Exterior repairs would occur for a portion of the quarters, including window refurbishing and lead abatement for Professor's Row and Bartlett Loop. The replacement of sanitary sewer lines would occur on an as-needed basis for approximately half of the units being rehabilitated.

Revitalization of the units would be phased according to their geographic areas or neighborhoods. Renovations would require between four to six months of work per unit and approximately six units would be rehabilitated at a time. This may vary for those units that are geographically isolated from

others, such as Quarters 21, 61, and 146. As quarters become vacant, scheduling may be adjusted to take advantage of the vacancies.

Construction staging areas for the revitalization project would be located proximate to the units affected, and to the extent practicable, be on paved areas, including existing parking areas. Since residents would not be in the homes during construction, staging would not result in a loss of parking spaces. In the Old English North units, some disturbance to grassed areas may occur for staging in order to maintain access to other units not under renovation.

All homes under this alternative are located within the West Point NHLD; however, the Bartlett Loop homes are not considered historic structures.

1.4.2 No Action Alternative

Under the No Action Alternative, West Point would not renovate and revitalize the 44 historic and six non-historic quarters on the Main Post. These quarters would continue to deteriorate, leading to increased maintenance and energy costs. Poor conditions would continue to adversely affect the morale, health, safety, and quality of life of the occupants. Furthermore, neglect and deterioration of the 44 historic units would lead to an adverse effect on the historic fabric of homes.

1.5 Alternatives Considered But Not Carried Forward

Demolition of the current housing and construction of modern buildings on the same site as the existing buildings was considered, but not carried forward as a valid alternative. This alternative would require complete demolition of the existing buildings, which are located within a National Historic Landmark District. Consultation with the State Historic Preservation Officer (SHPO) and Advisory Council on Historic Preservation (ACHP) would be required, as well as Historic American Buildings Survey/ Historic American Engineering Record (HABS/HAER) documentation of the historic quarters. Demolition of these buildings would have unacceptable impacts to the NHLD and would not be consistent with the purpose and need for action.

2.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

This chapter describes the existing condition of environmental resources potentially affected by the proposed housing renovations. The boundaries of the affected environment vary according to the nature of the potential impact and the aspect of the environment under consideration. Certain potential impacts (*e.g.*, impacts on topography or drainage patterns) are site-specific and are likely to be contained entirely within the project boundaries. Other impacts (*e.g.*, potential economic impacts or impacts to traffic patterns) may affect areas outside of the identified project area.

This chapter also evaluates the potential environmental consequences of the Proposed Action and No-Action alternatives. Implementation of the Proposed Action Alternative would involve rehabilitation of historic and non-historic family housing units at the U.S. Army Garrison West Point, in Orange County, New York.

Potential impacts of the Proposed Action Alternative are discussed in this chapter in terms of short- and long-term impacts. Short-term impacts are those of a limited duration, such as the impacts that would occur during the housing improvements. Long-term impacts are those of greater duration, including those that would endure for the life of the proposed project and beyond, including impacts associated with the operation of the homes. These terms are further qualified as being negligible, minor, moderate, or major. Impact thresholds for each resource are established in the environmental consequences section for that resource. While impacts to cultural resources are qualified in these terms, their impacts are also determined Criteria of Adverse Effect, as set forth in the National Historic Preservation Act. For impacts judged to be less than significant, a range is given to facilitate comparisons among the alternatives, using the terms of negligible, minor, and moderate. Impacts that are "major" for a resource are considered to be a significant impact.

An examination for applicability to the Proposed Action was made in regard to Army regulations under NEPA, found in 32 CFR 651, Environmental Analysis of Army Actions. It was determined that certain environmental and socioeconomic resources that frequently receive attention in NEPA analyses would not be applicable to the Proposed Action. The following are the resources areas that have been dismissed from analysis, and the reason for their dismissal:

- Wetlands – No wetlands occur in the area of the proposed housing renovations and thus, none would be impacted by the Proposed Action.
- Groundwater – Under the Proposed Action, renovation activities would occur above ground with minimal ground disturbing activities, resulting in no impacts to groundwater. Trenching activities are not expected to impact groundwater.
- Floodplains – The review of Federal Emergency Management Agency (FEMA), National Flood Insurance Program map panel 361215110005C shows that all of the housing areas proposed for renovation are located in Zone X. This designation is for areas outside both the 100-year and 500-year floodplains (FEMA, 1987). Because the housing areas are located outside of the floodplain, there would be no impact to floodplains from the Proposed Action.
- Natural Resources – The majority of the renovations proposed are interior renovations and would not impact natural resources in the area of the housing units. These resources include wildlife and wildlife habitats, vegetation, and threatened and endangered species. The exterior renovations that are proposed are minor and would not extend beyond the existing housing footprint. Ground disturbance that would occur as part of the trenching for sanitary sewer lines would be minimal and occur in areas of maintained lawn, and would not impact natural

resources. After renovations, the number of residents and their activities would be the same as the current condition and would not have an impact on natural resources in the area of the housing units.

- Visual Resources – The Proposed Action includes only minor renovations to the exterior of the historic housing that would not impact the view from these homes to the rest of the installation, or from the installation and surrounding areas to the homes. Other potential visual resource issues will be addressed under Cultural Resources. Since no views or viewsheds would be altered, there would be no impact to visual resources.
- Land Use – The renovation of historic housing units at West Point would not change the current land use of the site or adjacent areas. All sites would remain in use for housing with only interior and minor exterior renovations made to the housing units.
- Coastal Zone – The majority of the renovations that would occur to the historic housing at West Point are interior renovations and would not impact the coastal zone at West Point.
- Socioeconomics – The renovation of the historic housing units would not create new employment at West Point or otherwise alter existing socioeconomic conditions, such as unemployment and housing characteristics. The employment of small crew, approximately 15 construction workers, would not be expected to impact the socioeconomics of the area. All socioeconomic factors (unemployment, housing, income, population) are expected to remain unchanged once the action is implemented.

Information in this chapter is derived from both primary and secondary sources, as noted. Primary sources of information involved site visits and analysis by project personnel, which are referenced as such. Secondary information includes documents such as the *Master Plan Report Plan for the Year 2007 United States Military Academy, West Point, New York* (USMA, 1999), the *Integrated Natural Resources Management Plan: 1998 through 2003* (USMA, 1998), the *Integrated Cultural Resources Management Plan* (USMA, 2001), and the *Cultural Resource Effects Determination Whole Neighborhood Revitalization for Family Housing Quarters* (USMA, 2004). In keeping with the CEQ NEPA statute, and the Council on Environmental Quality regulations directive to avoid unnecessary paperwork, delay, and bulk in environmental documents, this EA incorporates information from these environmental documents by reference wherever appropriate and relevant (see 40 CFR 1500.4(j) and 1502.21). Other secondary sources of information are referenced as appropriate.

2.1 Water Resources

Due to its proximity to various water bodies, the proposed housing renovation at West Point could potentially affect the water resources of the region. Water resources potentially impacted include surface water and stormwater management features. Each topic is discussed below.

2.1.1 Affected Environment

2.1.1.1 Surface Water

The major surface water feature at West Point is the Hudson River, which creates the eastern border of the post. Numerous small tributaries on West Point drain into the Hudson River. The Hudson River originates at Lake Tear of the Clouds in the Adirondack Mountains and flows 314 miles (505 kilometers) to its mouth in the Upper New York Bay. Over 13,514 square miles (35,001 square kilometers) of watershed drain into the Hudson River. The portion of the river that flows between West Point and Constitution Island is an oligohaline estuarine reach. The water quality in this portion of the river is characterized by rapidly changing salinities from 1 to 5 parts per thousand (ppt) and moderate enrichment of nitrogen and phosphorous. The Hudson River meets the New York State

Department of Environmental Conservation (NYS DEC) toxic and hazardous materials water quality standards and no contaminants attributable to West Point have been detected in the river (USMA, 1998).

In addition to the Hudson River, numerous lakes, ponds, and streams are located throughout West Point. Many of the lakes and ponds were formed from artificial dams that have raised water levels within former wetland areas. Figure 2-1 shows water resources on the Main Post of West Point. Surface water features near each housing area are listed below, with distance to the Hudson River noted:

- Old English North: Old English North is located approximately 1,500 feet (457 meters) west of the Hudson River. No other surface water features are located in the immediate area, or down gradient, of Old English North.

- Old English South: The Old English South housing area lays parallel to and approximately 500 feet (154 meters) west of the Hudson River. Although near the river, these quarters are separated from this surface water feature by steep topography. This housing area also lies perpendicular to Kinsley Farm Brook. This stream is classified as Class B by the NYS DEC. Class B waters are those that are best used for swimming and other contact recreation, but not for drinking water.

- Professor's Row: Professor's Row is located approximately 1,500 feet (457 meters), west of the Hudson River. No other surface water features are located in the immediate area, or down gradient, of Professor's Row.

- Bartlett Loop: Sinclair Pond Brook, a tributary to Crows Nest Brook, is located approximately 1,000 feet (308 meters) north of the Bartlett Loop housing area. This stream is designated as Class C Surface Water of New York State. Class C waters are capable of supporting fisheries and other non-contact recreation activities.

- Special Category Quarters: Located at the intersection of Lee Road and Washington Road, Quarters 374 lies approximately 400 feet (122 meters) south of Sinclair Pond Brook. Sinclair Pond Brook flows into Crows Nest Brook, which ultimately flows into the Hudson River. The four units in Quarters 109 and Quarters 146 are located approximately 1,500 feet (457 meters) southeast of the Hudson River at its closest point. Quarters 61, the most southern of the special category quarters lies approximately 600 feet (183 meters) east of Lusk Reservoir, a Class A surface water that serves as a potable water supply for more than 50 percent of the USMA.

The surface water features around the housing areas, with the exception of Sinclair Pond Brook, are subject to the Protection of Waters Regulatory Program under the NYS DEC. This program is designed to prevent undesirable activities on water bodies by establishing and enforcing regulations that are compatible with the preservation, protection and enhancement of the present and potential values of the water resources; protect the public health and welfare; and are consistent with the reasonable economic and social development of the state. A Protection of Waters Permit is required for disturbing the bed or banks of a stream with a classification and standard of C(T) or higher. The "C" classification indicates waters that are capable of supporting fisheries and other non-contact recreation activities, and the "(T)" indicates water bodies that may support a trout population. A project is considered minor if there is disturbance of less than 50 linear feet (15 meters) along any 1,000 feet (304 meters) of watercourse. Projects that exceed this threshold are considered major.

FIGURE 2-1: WEST POINT WATER RESOURCES

2.1.1.2 Stormwater Management for Surface Water Features

The USEPA delegated stormwater responsibility for the National Pollutant Discharge Elimination System (NPDES) Permit to New York in October 1992. New York State issued its State Pollutant Discharge Elimination System (SPDES), General Permit GP-93-06, in August 1993. This was issued pursuant to Article 17, Titles 7, 8, and Article 70 of the Environmental Conservation Law. This permit was reissued in January 2003 to incorporate NPDES Phase II requirements. The permit requires, at a minimum, that an erosion and sediment control plan be prepared for any construction activity that disturbs one or more acres (0.4 hectares) of land.

A full Storm Water Pollution Prevention Program (SWPPP) would be required if the project is:

- located in a Total Maximum Daily Load (TMDL) watershed;
- discharging into an impaired 303(d) listed water;
- greater than one acre (0.40 hectares) of land disturbance;
- or is planned construction other than single family residences or not on agricultural property.

The SWPPP should be prepared in accordance with sound engineering practices and identify potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharges. The SWPPP should also describe and ensure the implementation of practices that would be used to reduce the pollutants in stormwater discharges and to assure compliance with the terms and conditions of the permit. All SWPPP's should include erosion and sediment controls.

There is currently no base-wide SWPPP for West Point. Conveyance systems for stormwater on the main post of West Point include open ditches, grassed channels, paved open channels, and pipe. Stormwater drainages at West Point are shown in Figure 2-2. The outfalls for the stormwater system discharge into the Hudson River (USMA, 1999).

2.1.2 Water Resources Environmental Consequences

To assess the magnitude of water quality impacts to water resources in the area of the proposed family housing renovation, the following impact thresholds were used:

Negligible - Impacts are chemical, physical, or biological effects that would not be detectable, would be well below water quality standards or criteria, and would be within historical or desired water quality conditions.

Minor - Impacts (chemical, physical, or biological effects) would be detectable, but would be well below water quality standards or criteria and within historical or desired water quality conditions.

Moderate - Impacts (chemical, physical, or biological effects) would be detectable, but would be at or below water quality standards or criteria; however, historical baseline or desired water quality conditions would be altered on a short-term basis.

FIGURE 2-2: WEST POINT SURFACE DRAINAGE

Major - Impacts (chemical, physical, or biological effects) would be detectable and would be frequently altered from the historical baseline or desired water quality conditions; and/or chemical, physical, or biological water quality standards or criteria would be locally, slightly and singularly, exceeded on a short-term and temporary basis.

Proposed Action Alternative

Implementation of this alternative would consist mostly of interior renovations. Exterior repairs would occur for a portion of the quarters including window refurbishing and lead abatement for Professor's Row and Bartlett Loop and the replacement of sanitary lines on an as-needed basis for approximately half of the units being rehabilitated. In addition, under this alternative, there would be no alterations to existing stormwater conveyance.

As a result of this ground disturbance activities associated with exterior renovations under this alternative there could be short-term negligible adverse impacts to the water quality of the Hudson River, Kinsley Farm Brook, and Sinclair Pond Brook. Activities that would cause ground disturbance under this alternative include the replacement of sanitary lines as-needed and some disturbance to grassed areas could occur around the Old English North units for staging in order to maintain access to those units not undergoing renovation. These impacts would be short-term, because after the renovation is completed, soils that were disturbed would be revegetated.

The replacement of sanitary lines and the use of grassed areas for staging areas is not expected to cause more than one acre (0.40 hectares) of disturbance and would not require a NYS DEC Construction Activity SPDES Permit or SWPPP. Ground disturbance from these activities could impact water quality, as runoff from these disturbed sites carries sediment or other pollutants off-site and into the stormwater conveyance system. This would eventually flow into the Hudson River, or its tributaries, via stormwater outfalls. However, the amount of sediments transferred to these water bodies from the proposed activities would be minimal within the context of the large flows of the Hudson River, and any adverse impacts that would occur would be negligible. In addition, because the exterior renovations would not create any additional impervious surfaces, there would be no additional increase in stormwater runoff that could have the potential to impact surface water features.

There would not likely be any adverse impacts from the proposed action alternative to water resources as a result of overland runoff from the areas being renovated. This distance separating the housing areas from the base's surface waters and the minimal ground disturbance, only small quantities of sediment would be expected in overland runoff, because the ground disturbance is minimal. Furthermore, whatever sediment was produced would be largely intercepted by vegetation between the housing and streams.

No Action Alternative

No additional impacts to surface water would be expected to occur from implementation of the No Action Alternative.

2.2 Geology, Topography, and Soils

2.2.1 Affected Environment

This subsection describes the geological and topographical resources existing in the proposed project area.

2.2.1.1 Geology

West Point is located in the Hudson Highlands, which is a low, rugged mountain range, which is part of the Upland Section of the New England Physiographic Province, that begins in Reading, Pennsylvania, and runs northeasterly through New Jersey and New York to Connecticut and Massachusetts. These hill formations form a zone of folded and faulted metamorphic and igneous rocks that are subjected to extensive weathering and erosion (USMA, 1998). This area generally has shallow soils over bedrock and consists primarily of glacial deposits. Bedrock exposures are common and the bedrock geology consists of granite, gneisses, and schist. In the Stony Lonesome area, Gneiss/pegmatite has been identified as the bedrock type. This rock is very hard and difficult to excavate (USMA, 1997).

2.2.1.2 Topography

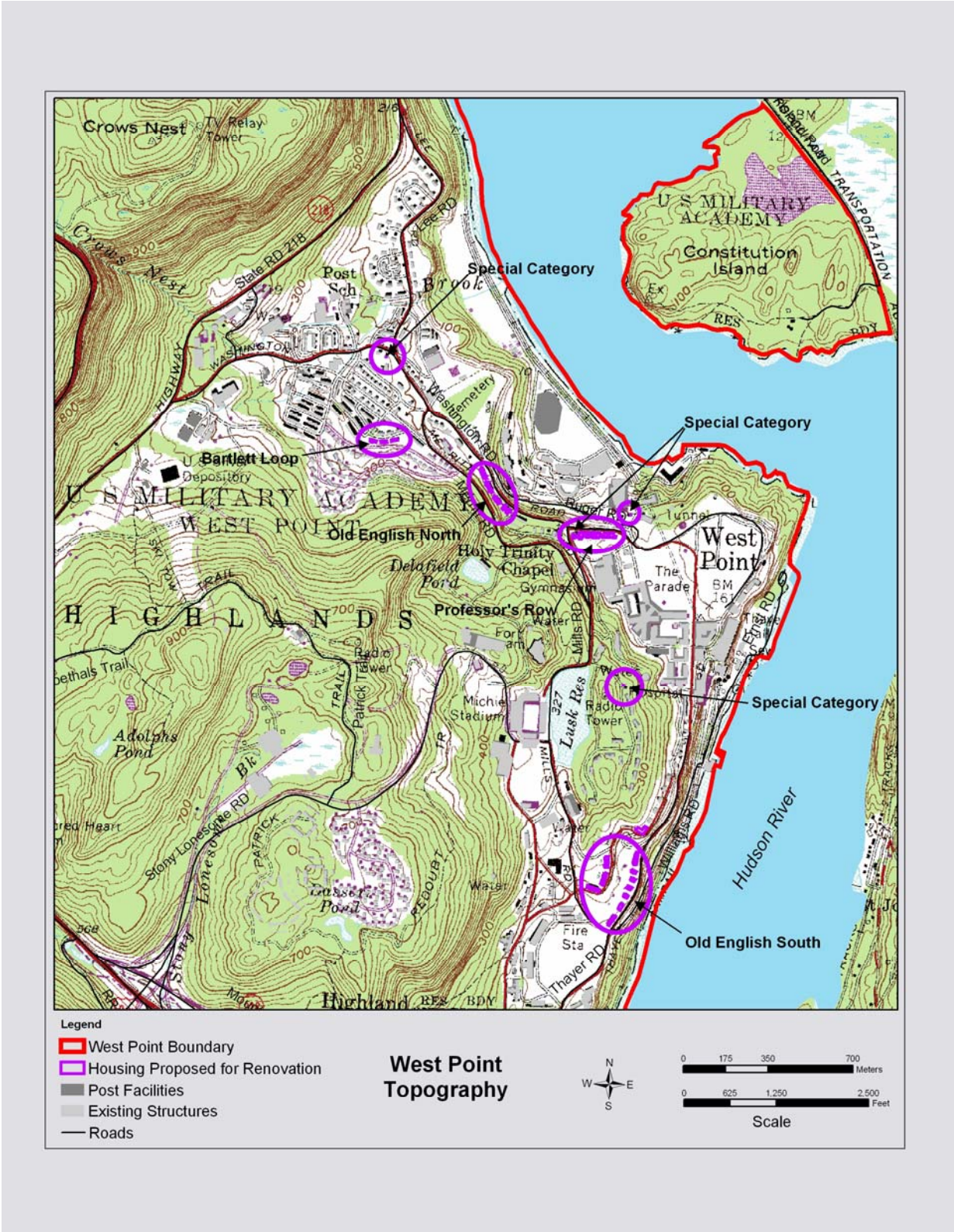
Topography at West Point has been shaped by the geologic history of glacial forces and differential weathering of ancient rock, which resulted in the formation of the Hudson Highlands. The general topography of the post is described as having moderately steep hills and numerous escarpments with slopes ranging from 10 to 60 percent. In between the hills are small plains, basins, and narrow valleys with slopes less than 3 percent (USMA, 1998). The topography on the Main Post of West Point is shown in Figure 2-3. The topography in the proposed project areas is as follows:

- Old English North: The topography of Old English North, located approximately 180 feet (55 meters) above mean sea level (amsl), is relatively level.
- Old English South: The topography of Old English South, located approximately 180 feet (55 meters) to 160 feet (49 meters) amsl, is gently sloping.
- Professor's Row: The topography of Professor's Row, located approximately 180 feet (55 meters) amsl, is relatively level.
- Bartlett Loop: The topography of Bartlett Loop, located approximately 230 feet (70 meters) amsl, is relatively level.
- Special Category Quarters: The topography of the Special Category Quarters ranges from approximately 160 feet (49 meters) to almost 300 feet (91 meters) amsl and each lot varies from relatively level to gently sloping terrain.

2.2.1.3 Soils

Soils at West Point can be characterized as shallow, stony, and boulder-strewn. The soils are less than 6 feet (1.8 meters) deep, and were formed from glacial till and alluvium derived from glacially transported sediment. Soils in the hilltops and hillsides are well drained and contain only shallow soils with frequent outcrops, while low-lying areas, such as depressions on hill summits and parts of the small floodplains in the valleys, contain deeper and poorer draining soils. The dominant soil at West Point is the Hollis-Rock Outcrop Association. This association is characterized as steeply sloping, excessively-drained and well-drained, medium-textured soils overlying crystalline bedrock, on mountainous uplands. Other soils types on the post include sandy loams, gravelly loams, gravelly sandy loams, silt loams, gravelly silt loams, stony, and extremely stony (USMA, 1998).

FIGURE 2-3: WEST POINT TOPOGRAPHY



In the Soil Survey of Orange County, the Hollis-Rock Outcrop map unit is described as, "mostly forested, good habitat for wildlife and unsuited to farming or community development. The soils are shallow and are well-drained to excessively-drained. The rate of water movement is moderate or moderately rapid" (USDA SCS, 1981). The Orange County Soil Survey shows 43 mapping units on West Point. Soils on the Main Post at West Point are shown in Figure 2-4. In the proposed project areas, much of the proposed work will occur on previously cut and filled areas, and not on native soils. Soils in the area of each family housing area are discussed below:

Old English North:

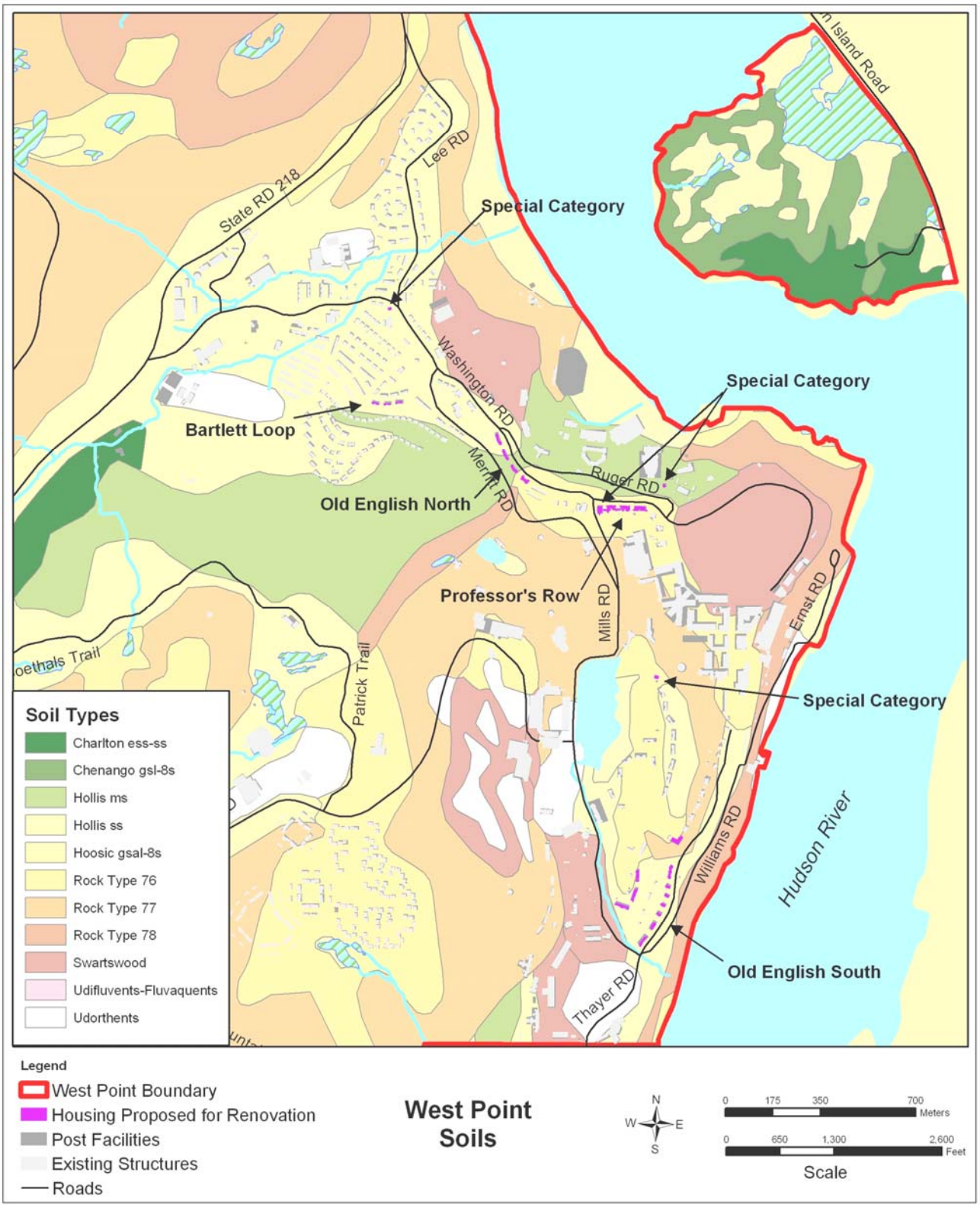
- Hollis soils, sloping (HLC) – This mapping unit is classified as shallow, well-drained to somewhat excessively-drained, and sloping and gently sloping. These soils were formed in glacial till deposits derived from crystalline rock that is dominantly schist, gneiss, and granite. This unit is found on hillcrests, hilltops, valley sides, and ridges of the mountainous uplands. Most areas with this unit are either idle or forests, with a few pastured or used for hay. This unit usually does not have a perched water table above the bedrock and has moderate to moderately rapid permeability. Available water capacity is very low or low, runoff is medium to rapid, and bedrock is at a depth of 10 to 20 inches (25 to 51 cm). This unit is limited for most crops and is poorly suited to most urban and recreation uses because of the shallowness over bedrock and associated dryness. Deep excavation is very difficult as a result of the hardness of the underlying rock. This unit has severe limitations for the development of dwellings with or without basements, local roads and streets, shallow excavations, small commercial buildings, and lawns and landscaping.

- Hollis soils, moderately steep (HLD) – This unit is classified as shallow, well-drained to somewhat excessively-drained, moderately steep and steep soils formed in glacial till deposits derived from crystalline rock that is dominantly schist, gneiss, and granite. They are on hillsides, valley sides, and ridges of mountainous uplands. There is usually no perched water table above the bedrock. Permeability is moderate or moderately rapid. Available water capacity is very low or low, and runoff is rapid. These soils are not suited to most urban and recreation uses because of the slope and shallowness over bedrock. Deep excavation is difficult because of the hardness of rock.

- Rock outcrop-Hollis complex, sloping (ROC) – This unit is composed of exposed bedrock and the shallow, somewhat excessively drained to well drained Hollis soils. The ROC unit can be found on hillcrests, hilltops, and ridges of the mountainous uplands. There is no free water perched above the bedrock in this unit, except where the rock is poorly jointed. This unit has moderate or moderately rapid permeability, low or very low water capacity, medium to rapid runoff, and a bedrock depth of 10 to 20 inches (25 to 51 cm). This complex of rock and soil is not suited to crop production, timber production, or urban uses. This unit has severe limitations for the development of dwellings with or without basements, local roads and streets, shallow excavations, small commercial buildings, and lawns and landscaping.

Old English South: The soil mapping unit found within the Old English South Housing Unit includes Hollis soils (HLC). The properties of this unit are described above.

FIGURE 2-4: WEST POINT SOILS



Professor's Row: Soil units at Professor's Row is composed of Rock outcrop-Hollis complex, moderately steep (ROD). This unit is composed of exposed bedrock and the shallow, somewhat excessively-drained to well-drained Hollis soils. The ROD unit can be found on hillcrests, hilltops, and ridges of the mountainous uplands. There is no free water perched above the bedrock in this unit, except where the rock is poorly jointed. This unit has moderate or moderately rapid permeability, low or very low water capacity, rapid to very rapid runoff, and a bedrock depth of 10 to 20 inches (25 to 51cm). Most areas of this unit are forested with sparse plant cover in areas of exposed bedrock. This complex of rock and soil is not suited to crop production, timber production, or urban uses. This unit has severe limitations for the development of dwellings with or without basements, local roads and streets, shallow excavations, small commercial buildings, and lawns and landscaping.

Bartlett Loop: The soil mapping unit found around the Bartlett Loop includes the Hollis soils. The properties of this unit are described above.

Special Category Quarters: The soil mapping units found within the Special Category Quarters Housing Units includes the Hollis soils (HLC and HLD), Rock outcrop-Hollis complex, moderately steep (ROD), and Rock outcrop-Hollis complex, sloping (ROC). The properties of this unit are described above.

2.2.2 Geology, Topography, and Soils Environmental Consequences

To assess the magnitude of impacts to geology, topography, and soils in the area of the family housing units proposed for renovation, the following impact thresholds were used:

> *Negligible* – Geology, topography, or soils would not be impacted or the impact to these resources would be below or at the lower levels of detection. Any impacts would be slight.
>
> *Minor* – Impacts to geology, topography, or soils would be detectable. Impacts to undisturbed areas would be small. Mitigation would be needed to offset adverse impacts and would be relatively simple to implement and would likely be successful.
>
> *Moderate* – Impact on geology, topography, or soils would be readily apparent and result in a change to the character of the resource over a relatively wide area. Mitigation measures would be necessary to offset adverse impacts and would likely be successful.
>
> *Major* – Impact on geology, topography, or soils would be readily apparent and substantially change the character of the resource over a large area both in and out of the park. Mitigation measures necessary to offset adverse impacts would be needed, extensive, and their success would not be guaranteed.

Proposed Action Alternative

As previously noted, implementation of this alternative would consist mostly of interior renovations. Exterior repairs would occur for a portion of the quarters including window refurbishing and lead abatement for Professor's Row and Bartlett Loop and the replacement of sanitary lines on an as-needed basis for approximately half of the units being rehabilitated. In addition, under this alternative, there would be no additional landscaping, grading, or major excavation; consequently, no adverse impacts to geology or topography are expected.

Activities that would have adverse impacts to soils under this alternative include the replacement of sanitary lines as-needed, and the use of grassed areas for vehicle staging. Trenching associated with the replacement of the sanitary sewer lines would require several hundred feet of trench, about three

feet (1 meter) wide with shoring. The depth of the trenches would vary between approximately 5 feet (1.5 meters) and 12 feet (3.7 meters). The replacement of sanitary lines and the use of grassed areas for staging areas is not expected to cause more than one acre (0.40 hectares) of disturbance and would not require a NYS DEC Construction Activity SPDES Permit.

Resulting adverse impacts to soils from installing new sanitary lines would be short-term and negligible. Installing new sanitary lines would require digging a narrow trench from the house to the main sewer line, which would expose soils and make them more vulnerable to erosion. These impacts would be negligible because the area impacted would be small (only a few square meters), localized, and after the work has been completed, the trench would be filled with the soil that was originally excavated, and reseeded.

General soil impacts from using the grassed area near the Old English North housing area as a staging area could result in areas of localized soil compaction and soil disturbance. The parking of vehicles on this grassed area would compact soils, which could inhibit plant growth and decrease the site's ability to hold and absorb stormwater, which would ultimately increase surface runoff. Soil disturbance could also occur if the soil moisture is so high that it would not be able to support the weight of the vehicle. These adverse impacts, however, would be negligible and short-term because they would only impact a small area, and would be mitigated by restricting the use of the site based on ground moisture conditions to prevent rutting by equipment whenever possible. In addition, after the renovation is complete, any ruts that were caused by vehicles would be filled and seeded. Depending upon the degree that the site has become compacted, the area could be tilled and reseeded.

No Action Alternative

Because no ground disturbing activity would occur, the No Action Alternative would not impact the current geologic, topographic, or soil conditions at West Point and/or the surrounding area.

2.3 Air Quality

The USEPA defines ambient air in 40 CFR Part 50 as "that portion of the atmosphere, external to buildings, to which the general public has access." In compliance with the 1970 Clean Air Act (CAA) and the 1977 and 1990 Clean Air Act Amendments (CAAA), the USEPA has promulgated ambient air quality standards and regulations. The National Ambient Air Quality Standards (NAAQS) were enacted for the protection of the public health and welfare, allowing for an adequate margin of safety. To date, the USEPA has issued NAAQS for six criteria pollutants: carbon monoxide (CO), sulfur dioxide (SO_2), particles with a diameter less than or equal to a nominal 10 micrometers (PM_{10}), ozone (O_3), nitrogen dioxide (NO_2), and lead (Pb). Areas that do not meet NAAQS are called non-attainment areas.

2.3.1 Air Quality Affected Environment

The USEPA has classified the New York – North New Jersey – Long Island area, including the area of the proposed project (Orange County, New York), as in severe non-attainment for the criteria pollutant ozone. The NAAQS for ozone are presented in Table 2-1.

To regulate the emission levels resulting from a project, federal actions located in non-attainment areas are required to demonstrate compliance with the general conformity guidelines established in 40 CFR Part 93 *Determining Conformity of Federal Actions to State or Federal Implementation Plans* (the Rule). The proposed renovation of family housing is located within an area designated by the

USEPA as a severe ozone non-attainment area; therefore, a General Conformity Rule applicability analysis is warranted.

TABLE 2-1: AMBIENT AIR QUALITY STANDARDS FOR OZONE

Pollutant	Federal Standard	New York Standard
Ozone (O_3)[1]		
1-Hour Average	0.12 ppm	0.12 ppm
8-Hour Average	0.08 ppm	0.08 ppm

[1] Federal primary and secondary standards for this pollutant are identical.
Source: EPA, 2002; NYS DEC nd.

Section 93.153 of the Rule sets the applicability requirements for projects subject to the Rule through the establishment of *de minimis* levels for annual criteria pollutant emissions. These *de minimis* levels are set according to criteria pollutant non-attainment area designations. Projects below the *de minimis* levels are not subject to the Rule. Those at or above the levels are required to perform a conformity analysis as established in the Rule. The *de minimis* levels apply to direct and indirect sources of emissions that can occur during the construction and operational phases of the action.

To determine the applicability of the Rule to this action, emissions were estimated for the ozone precursor pollutants – oxides of nitrogen (NO_x) and volatile organic compounds (VOC). Annual emissions for these compounds were estimated for each of the project actions (construction and operation) to determine if they would be below or above the *de minimis* levels established in the Rule. The *de minimis* for severe ozone areas is 25 tons per year (TPY) (22,680 kilograms per year (kgpy)) for each ozone precursor pollutant. Sources of NO_x and VOC associated with the proposed project include emissions from construction equipment, construction crew commuting vehicles, and painting of interior building surfaces (VOC only). There would be no operational emissions as a result of the proposed action.

In addition to evaluation of air emissions against *de minimis* levels, emissions are also evaluated for regional significance. A federal action that does not exceed the threshold emission rates of criteria pollutants may still be subject to a general conformity determination if the direct and indirect emissions from the action exceed ten percent of the total emissions inventory for a particular criteria pollutant in a non-attainment or maintenance area. If the emissions exceed this ten percent threshold, the federal action is considered to be a “regionally significant” activity, and thus, the general conformity rules apply.

2.3.1.1 Ambient Air Quality

Ambient air quality is monitored in Orange County by a network of stations meeting EPA’s design criteria for State and Local Air Monitoring Stations (SLAMS) and National Air Monitoring Stations (NAMS). There is one monitoring station for ozone located in Orange County that has been in operation since 1995. This monitor is located at 1175 Route 17k, in Montgomery, New York. On average, this monitor exceeded the standard for ozone one time in 2001, 2002, and 2003. This station did not exceed the standard for ozone in 2000 or 2004.

Table 2-2 shows the existing one-hour ozone monitoring data within Orange County, New York.

TABLE 2-2: EXISTING ONE-HOUR OZONE MONITORING DATA WITHIN ORANGE COUNTY, NEW YORK

Monitoring Station	Year				
	2000	2001	2002	2003	2004
#360715001-1 – 1275 Route 17k, Montgomery, New York	0.100/0.096	0.111/0.108	0.134/0.099	0.109/0.107	0.123/0.106

Values are in parts per million (ppm); 1st/2nd highest data
NAAQS: One-hour average = 0.12 ppm (a value >0.125 ppm is an exceedance)
Source: U.S. EPA, AIRS Data, April 2005

2.3.1.2 Meteorology/Climate

Temperature is a parameter used in calculations of emissions for air quality applicability. Climate at West Point can be characterized as a humid, continental climate with a mean high temperature of 86°F (30 °C) in July and a mean low temperature of 27°F (-2.8 °C) in January. Summers are warm with periods of high humidity and winters are cold, with extended periods of snow cover and are influenced by the cold Hudson Bay air masses that are brought into the area. The climate at West Point is also influenced by an air mass that flows from the North Atlantic Ocean bringing cool, cloudy, and damp weather to the region (USMA, 1998).

2.3.2 Air Quality Environmental Consequences

A project construction and operations-related General Conformity Applicability Analysis was performed for the proposed construction activities under each alternative. There would be no operational emissions under the Proposed Action or No Action alternatives. The General Conformity applicability analysis estimated the level of potential air emissions (VOC and NO_x) for the action alternatives. It is assumed that the No Action Alternative would not impact air quality beyond existing conditions; therefore, it was not included in the analysis. Appendix B contains a detailed description of the assumptions and methodology used to estimate potential emissions for the construction phase of the proposed family housing renovation at West Point. There would be no operational impacts. Impact levels to determine impacts to air quality, based on the result of the applicability analysis, are as follows:

Negligible — There would be no net increase in emissions from current levels.

Minor — Emissions would be greater than 0 tons/year and below 10 tons/year (9,072 kgpy).

Moderate — Emissions would be greater than 10 tons/year (9,072 kgpy) and less than conformity *de minimus* levels (25 tons/year (22,680 kgpy)).

Major — Emissions would be equal to or greater than conformity *de minimus* levels (25 tons/year (22,680 kgpy)).

Proposed Action Alternative

Table 2-3 summarizes the total emissions associated with the construction phase of the family housing renovation project under the Proposed Action Alternative. There would be no operational emissions under this alternative. Under this action, construction-related emissions would be temporary and only occur during the six-month construction period for each housing phase, lasting a total of two and a half to three years.

TABLE 2-3: TOTAL PROJECT EMISSIONS

Activity	Total Annual Emissions –TPY (kgpy)		*De minimis* values –TPY (kgpy)	
	NO_x	VOC	NO_x	VOC
Use of Heavy Equipment (on –site construction)	3.011 (2,732)	0.256 (232)	25 (22,680)	25 (22,680)
Construction Crew Workers	0.244 (221)	0.382 (347)		
Painting	NA	1.80 (1,633)		
Total Emissions from Construction	**3.255 (2,953)**	**2.438 (2,212)**		

Table 2-3 shows that the emissions associated with implementing the family housing renovation project, when compared to the *de minimis* values for this ozone non-attainment area of 25 tpy (22,680 kgpy) for both NO_x and VOC, fall below the *de minimis* values for the Proposed Action Alternative. Impacts to air quality under this alternative would be minor and not represent a significant impact.

Air emissions were also evaluated to determine regional significance. The *New York Metropolitan Area State Implementation Plan* sets forth 2005 daily emission targets for non-road construction vehicles of 18.36 tons per day (16,656 kilograms per day) of VOC and 100.26 tons per day (90,954 kilograms per day) of NO_x for the New York Metropolitan ozone non-attainment area where West Point is located (Escarpeta, pers. comm., 20 November 2003). The increase in annual emissions from the construction activities would not make up ten percent or more of the available regional emission target for VOC or NO_x and would not be regionally significant. Air quality impacts are therefore considered minor under the Proposed Action Alternative.

No Action Alternative

Implementation of the No Action Alternative would not change current conditions and is not expected to impact the current air quality conditions in the region.

2.4 Cultural Resources

Section 106 of the National Historic Preservation Act of 1966, as amended, and as implemented in 36 CFR 800, requires federal agencies to: (1) consider the effects of federally funded, regulated, or licensed undertakings on cultural resources listed on or eligible for inclusion in the National Register of Historic Places (NRHP); (2) consult with the SHPO and other interested parties; and (3) afford the Advisory Council on Historic Preservation (ACHP) the opportunity to comment. For the purposes of this EA, cultural resources are defined as either recorded or potential historic archaeological sites, prehistoric sites, and standing architectural structures or historic districts.

2.4.1 Cultural Resources Affected Environment

2.4.1.1 History

West Point's early appearance was a reflection of the Academy's dual mission as teaching facility and military post. In the beginning, the architectural character varied among the early buildings at the Academy. The Academic area, which contains the oldest remaining buildings on the post, includes a mix of early nineteenth-century officers' quarters and mid-nineteenth-century Gothic buildings situated in relationship to the Plain. Professor's Row, which includes three sets of double officers' quarters (Quarters 103, 105, and 107), has traditionally housed the academic department heads. Originally built of stone, these houses have undergone several building campaigns (HABS, 1983).

One of the first major episodes of construction or expansion occurred during the term of Major Richard Delafield, superintendent of the Academy from 1838 to 1845. Delafield is credited with adopting the style of architecture that dominates the Academy today. The Military Gothic style, rooted in English medieval architecture, constitutes a highly suitable aesthetic for military-academic purposes. It incorporates motifs such as castellated towers, battlements, and narrow windows, emphasizing the structure's defensive strength (Greenwood, 1975). Other construction efforts at that time embraced the Gothic Revival cottage aesthetic popularized by A.J. Davis and A.J. Downing, although there are few surviving examples of this at West Point today. Two cottages remain at the northern edge of the academic area (Quarters 102 and 146).

A gradual expansion of the post occurred at the end of nineteenth century with the construction of buildings and residences of diverse style. In 1875 a large brick double set of officers' quarters (Quarters 109) was completed at the western end of Professor's Row. Since divided into four apartments, this house is characteristically Victorian in appearance and detail. A decade later a frame dwelling was constructed near the Observatory (Quarters 61). During the 1890s several brick single-family dwellings were constructed around the post and away from the Academic core, including a row of four houses along Thayer Road (Quarters 28-31) and the former Hospital Steward's quarters (Quarters 374).

The greatest expansion and construction program ever undertaken at West Point began at the turn of the twentieth century. West Point and its graduates had successfully proven themselves on several battlefronts, and the U.S. Government sought to strengthen its appearance, acknowledging that reports stated that the facilities at West Point were not sufficient. Also, 1902 marked the Centennial of USMA, and in that year Congress, as perhaps a nod to West Point's role in American military history, appropriated a large sum for the enlargement of USMA's facilities (HABS, 1983). That same year invitations to bid on the project were sent to 10 architectural firms by Superintendent Albert L. Mills with several stipulations about the expectations of the winning design, among them the ability to create a sense of harmony with the present buildings, which included Neo-Classical and Military Gothic structures. Ultimately, the Gothic-style plan of Cram, Goodhue and Ferguson was chosen. This firm set the architectural tone for West Point in the twentieth century. With their first commission of several buildings in the Academic area, the firm's Military Gothic designs created the architectural cohesiveness West Point was looking for, which led to other commissions to build officers' quarters in the first decade of the twentieth century. Old English North and South, as they are known (Quarters 21, 25, 32, 34, 42, 45, 48, 116, 118, 120, and 122), are multi-family units with brick exteriors executed in the Gothic and Tudor styles that the firm favored and used throughout their West Point designs. These quarters all have Craftsman-style interiors. In keeping with the Academy's mission of teaching and providing support for its faculty on post, these quarters are located outside the Academic core.

Throughout the twentieth century, building campaigns have increased the facilities of USMA. The newest set of quarters evaluated for this study are three frame duplexes located on Bartlett Loop, constructed in 1948. As the number of cadets attending the Academy increased throughout the twentieth century, the faculty and their housing needs grew proportionally. A community of early to mid-twentieth-century houses with a suburban layout of cul-de-sacs and loops developed southwest of the Early Enlisted Men's area just north of the Academic area.

2.4.1.2 Known and Potential Cultural Resources

USMA is also located within the Hudson Highlands Multiple Resource area, a National Register designation intended to recognize the overall historical significance of the region and the numerous individual properties and districts it encompasses. Nearby National Register sites include 12

properties in the village of Highland Falls, the Garrison Landing Historic District, the Cold Spring Historic District, the West Point Foundry in Cold Spring, the West Point Silver Depository, the Queensboro Ironworks, and others (Barry 1982; Daddio 1987; Levine et al. 1995; Porter and Hartwick 1994; Weaver 1972). None of these properties are located in the proposed project area.

The 50 units to be renovated are located within the Main Post and have been identified as contributing resources to the NHLD, with 44 of the buildings designated as historic. The buildings are a mix of single- and multi-family units, dating to the early nineteenth to the mid-twentieth centuries. Eleven buildings were designed by the architectural firm of Cram, Goodhue and Ferguson. Of the 48 units included in this study, 17 have been inventoried as part of the HABS/HAER survey.

Three buildings currently considered contributing elements (Quarters 128, 130, and 132) in the NHLD appear to have lost integrity since the District was established. Quarters 128, 130, and 132, all on Bartlett Loop, are frame buildings constructed in 1948. Originally each building contained four apartments, two on each floor. Each two-bedroom apartment had the same basic layout. Since construction, these units were converted into two side-by-side units and have undergone renovation and remodeling. As a result of the renovations, the partition wall between the living and dining rooms were removed on the first floor and the wall between the back two rooms on the second floor, formerly the kitchen and dining room, were removed and closets were installed. One room on the second floor of each unit current has linoleum flooring, as these rooms were the kitchen before the buildings were renovated. Extensive interior remodeling in 1997 removed much of the original fabric in the kitchens and bathrooms, and exterior renovations included the addition of aluminum siding. These three sets of quarters are not illustrative of the prevailing mid-twentieth century domestic architecture at West Point. These modest frame units are unlike the general housing stock, which is characterized more by classical brick and masonry buildings, such as the surrounding housing units in the area that are primarily two-story brick Colonial Revival style quarters.

In the Bartlett Loop Quarters, extensive interior remodeling in 1997 removed much of the original fabric in the kitchens and bathrooms, and exterior renovations included in the addition of aluminum siding. These three quarters are not illustrative of the prevailing mid-twentieth century domestic architecture at West Point. Furthermore, these modest frame units are unlike the general housing stock, which is characterized more by classical brick and masonry buildings, and lack the architectural character and detail that other domestic buildings at West Point Convey.

For the reasons stated above, the Bartlett Loop Quarters (Quarters 128, 130, and 132), displayed in Figure 2-5, do not appear to retain sufficient degrees of historic fabric or architectural character, nor do they possess a demonstrable architectural significance requisite for National Register eligibility or contributing status to the NHLD. As a result, the Bartlett Loop Quarters 128, 130, and 132 are not be considered individually eligible for the National Register and are no longer be considered contributing elements of the NHLD. Proposed work in these buildings would not alter any of the characteristics that qualify USMA as a NHLD and therefore would have no adverse effect on the NHLD Figure 2-6, Figure 2-7, Figure 2-8, and Figure 2-9 show and example of the historic family housing units to be renovated under the Proposed Action.

FIGURE 2-5: BARTLETT LOOP HOUSING - NON-HISTORIC QUARTERS

FIGURE 2-6: QUARTERS 374, SIDE VIEW

FIGURE 2-7: EXAMPLE OF OLD ENGLISH NORTH HOUSING UNITS

FIGURE 2-8: QUARTERS 61

FIGURE 2-9: EXAMPLE OF OLD ENGLISH SOUTH HOUSING UNITS

FIGURE 2-10: EXAMPLE OF PROFESSOR'S ROW HOUSING

2.4.2 Cultural Resources Environmental Consequences

Potential impacts to cultural resources have been evaluated based on the extent of known cultural resources in the area. The evaluation of impacts to cultural resources began with a determination of the Area of Potential Effect (APE), or the geographic area where an undertaking may directly or indirectly cause alterations in the character or use of historic properties. For this project, it was determined that, since limited exterior work would be performed and that most of the work would be interior, the APE for determining impacts to historic structures is limited to the individual housing units being renovated. Per section 106 of the National Historic Preservation Act, only those cultural resources that are eligible or are listed on the NRHP are considered federally protected resources and are the subject of this impact analysis. An impact, or effect, to a cultural property occurs if an action would alter in any way the characteristics that qualify the property for inclusion or potential listing on the national register. If the action would diminish the integrity of any of these characteristics, it is considered to be an adverse effect.

The methodology for the analysis of potential effects to historic properties listed on the National Register within West Point encompasses the identification of the potential effects and the application of the Criteria of Adverse Effect to the identified effects. The Criteria of Adverse Effect states,

> An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

Examples of adverse effects include: the physical destruction of all or part of the historic property; an alteration of the property that is not consistent with the Secretary of Interior's standards for the treatment of historic properties (36 CFR 68); the removal of the property from its historic location; changing the character of the property's use or of physical features of its setting that contribute to its significance; and the introduction of visual, aural, and atmospheric elements that diminish the integrity of the property's significant historic features (36 CFR 800.5).

In order to evaluate the alternatives, the following criteria have been established based on the Criteria of Adverse Effect to define the level of impact to cultural resources:

Negligible — The impact would be at the lowest level of detection or barely perceptible and not measurable. For purposes of Section 106, the determination of effect would be *no adverse effect*.

Minor — The impact would not affect the character defining features of an historic resource(s) listed on or eligible for the National Register of Historic Places. For purposes of Section 106, the determination of effect would be *no adverse effect*.

Moderate — The impact would alter a character defining feature(s) of an historic resource(s) but would not diminish the integrity of the resource to the extent that its National Register eligibility would be jeopardized. For the purposes of Section 106, the determination of effect would be *no adverse effect*.

Major — The impact would alter a character defining feature(s) of an historic resource(s), diminishing the integrity of the resource to the extent that it is no longer eligible for listing on the National Register. For the purposes of Section 106, the determination of effect would be an *adverse effect*.

If it is determined there is potential for impacts to cultural resources listed on or eligible for listing on the NRHP, West Point would determine the level of effect to the property and any appropriate

mitigation measures that need to be taken. The SHPO would then review and comment on this determination. An official determination of effect would be issued by West Point that documents the level of impact to the resource, including any potential for impairment to cultural resources, and the course of action that West Point would be required to perform to mitigate these effects.

Proposed Action Alternative

The 50 units to be renovated are located within the Main Post and have been identified as contributing resources to the NHLD, with 44 of the buildings designated as historic. The buildings are a mix of single- and multi-family units, dating to the early nineteenth to the mid-twentieth centuries. Eleven buildings were designed by the architectural firm of Cram, Goodhue and Ferguson. Of the 48 units included in this study, 17 have been inventoried as part of the HABS/HAER survey. Three buildings currently considered contributing elements (Quarters 128, 130, and 132) in the NHLD appear to have lost integrity since the District was established. Quarters 128, 130, and 132, all on Bartlett Loop, are frame buildings constructed in 1948. The Bartlett Loop Quarters 128, 130, and 132 are not be considered individually eligible for the National Register and are no longer be considered contributing elements of the NHLD. Proposed work in these buildings would not alter any of the characteristics that qualify USMA as a NHL and therefore would have no adverse effect on the NHLD.

Rehabilitation of a historic building presumes that some repair or alteration of the building would take place in order to provide an efficient and contemporary use; however, these repairs and alterations should not damage or destroy the materials and features that are important in defining the building's historic character. The proposed work could have an adverse effect based on the historical value and level of integrity that these historic quarters possess. An example of an adverse effect, pursuant to Section 800.5(a)(2), is the alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (36CFR68) and applicable guidelines (Weeks and Grimmer, 1995). These standards and guidelines should therefore be consulted in the execution of the work plan for these quarters.

Exterior repairs for West Point family housing quarters would include limited masonry repair and repointing as necessary. Minor roof repairs and patches would be undertaken, particularly where some porch roofs and chimney flashings are causing interior water damage. Roof repairs would be undertaken through other work orders. Additional porch repairs could include reconstruction of some steps and installation of railings. In the course of routine maintenance and repair throughout the years a certain amount of masonry repointing and stone repair has taken place in the family housing quarters. The Directorate of Housing and Public Works at West Point has specific guidelines about masonry repair and repointing that would be consulted, but practicable treatment of these architectural elements would include careful cleaning of the joints to avoid damaging the masonry, and duplication of the old mortar in strength, composition, and texture to avoid changing the appearance of the masonry.

Additional exterior work at some quarters would include the installation of trash enclosures and potential site work related to the installation of air conditioning condensers. These new units would be located outside the building in a location that is not visible from the façade or primary elevations. Vegetative screening would lessen the visual effect of the installation of condensers. Because some areas around the family housing quarters, particularly Professor's Row, are known to contain prehistoric and historic archaeological sites, any ground disturbance required for the installation of these exterior units would take archaeological sensitivity into consideration. This could necessitate subsurface archaeological investigation prior to any installation activities. Archaeological monitoring

would occur in those areas that cannot be investigated in advance, such as those presently covered by asphalt or concrete. Given the archaeological sensitivity, consultation with the New York State Office of Parks, Recreation, & Historic Preservation on the appropriateness of the strategy employed would occur prior to undertaking any investigations.

Proposed interior renovation would potentially affect primary and secondary spaces in the family housing quarters. Primary spaces include entrance halls, parlors/living rooms, and dining rooms. These rooms are not only defined by their function, but also by their features, finishes, size, and proportions. Secondary spaces are generally more functional than decorative and include kitchens/pantries, baths, utility spaces, and secondary hallways. Together, primary and secondary spaces create the larger architectural character, plan, and layout of the building, which is itself a character-defining feature in the building's significance. Interior repairs in the West Point family housing quarters would involve the upgrading of plumbing, fire protection, and electrical systems; installation of central air conditioning units; complete renovation of kitchens and bathrooms; lead paint and asbestos abatement; passive and active radon system piping where necessary; removal of loose, cracked and/or detached plaster and replacement by gypsum board; the replacement or installation of telephone and cable television outlets in habitable rooms; and painting and insulation of the interiors.

Upgrades to the mechanical systems of the housing quarters could affect certain aspects of the building's design and material that are significant to the architectural character. Electrical upgrades within the quarters could affect some of the historic light fixtures that remain in many of the buildings. Many of the family housing quarters, particularly those designed by Cram, Goodhue and Ferguson, retain original radiator covers and decorative iron radiators. Visible decorative features such as these contribute to the overall historical character of the building and would remain in place where practicable.

The installation of air conditioning units could affect character-defining spaces, materials, features, and finishes, depending on where they are located. As proposed by the USACE, the central AC units would be high velocity duct systems with split zones. A unit would be mounted in the attic space above the third floor to serve the second and third floors. Another unit would be installed in the basement to serve selected areas on that floor and the first floor. Air distribution would be concealed within boxed-out walls or plaster/dry wall soffits. This work would be undertaken without removal of or detriment to historic fabric to avoid an adverse effect. The installation of air conditioning units would also involve exterior modifications to the quarters. Each housing unit would receive condensing units outside the building, and plans indicate that these condensers would be screened by vegetation. Care would be taken to place these units at the rear of the property whenever possible and to make sure that any penetration of exterior walls does not adversely affect historic fabric. The installation of condensers at the front of the property or other highly visible area, or in a manner that damages historic fabric, would be considered an adverse effect, but this is not expected to occur.

The basements of some quarters are finished, livable rooms with wood floors, plaster walls, and wainscoting. Bathrooms are located in some basements with historic period toilets, sinks, and claw foot tubs and many units retain porcelain laundry washtubs. These finishes and fixtures add to the historical character of the buildings, and alteration of the plan arrangement or loss of distinctive elements by installing these mechanical systems could adversely affect the interior of these buildings. Understanding that mechanical systems need to work efficiently and are necessary in meeting contemporary needs, their installation would not radically change, obscure, or destroy character-defining spaces, materials, features, or finishes. Any new mechanical equipment would be located in existing mechanical spaces or at least in secondary spaces with care not to harm historic fabric, when possible. The vertical runs of ducts, pipes, and cables as a result of upgraded mechanical systems

would be located in closets, service rooms, and wall cavities wherever possible. A consideration in the installation of air conditioning in historic buildings would be to monitor the units so that excessive moisture is not generated that will accelerate the deterioration of historic materials. All mechanical systems would be designed with sensitivity in order to retain historic features and finishes.

Most of the kitchens and bathrooms in the housing units have been subject to updates and remodeling. While most of the kitchens do not retain any historic fabric, some of the pantries retain original glazed cupboard doors and hardware. Some quarters also retain another architecturally significant feature, which is the butler pantry door between the pantry and dining room. These doors would remain intact wherever present within the housing quarters, where feasible. In the bathrooms throughout the quarters a variety of historic period fixtures remain, but rarely do all historic period fixtures survive in a single bathroom. Many bathrooms have original built-in medicine cabinets, historic period toilets, and claw foot tubs, some of which have been retrofitted with shower attachments. The retention of these fixtures is important in defining the overall architectural character of the building. The fixtures would be preserved provided they can be maintained in an operable and sanitary condition. Every attempt would be made to repair the original fixture when problems occur rather than replace it with a modern fixture. According to the proposed scope-of-work, some basement bathrooms would be abandoned (USACE, 2004). Although located in a secondary space, the loss of historic fabric and alteration to what was likely part of servants' quarters could be considered an adverse effect. The reuse of the historic fixtures in another location in the house would minimize the potential adverse effect.

Additional bathroom work would involve providing a new exhaust fan ducted outside because many bathrooms in the quarters lack sufficient ventilation. Penetrations of exterior walls would be necessary for this work and may pose an adverse effect to historic fabric. Installation of exterior vents would be in locations and executed in a way that is least visible and least harmful to historic materials in order to avoid an adverse effect. All quarters would have first floor bathrooms installed wherever not currently present. In most cases these new installations would be located under the front stairs in what is presently a closet or in the kitchen/pantry. Some housing units were designed with bathrooms in these areas or were retrofitted with these accommodations. The proposed location of the new bathrooms would not disrupt the primary spaces or flow of rooms and therefore would not be considered an adverse effect.

Lead paint and asbestos abatement planned would require particular care when dealing with historic finishes. Various levels of abatement include paint removal, selective substrate removal, and surface enclosure/encapsulation. Painting of the quarters' interiors is proposed and would only occur in locations that currently have painted surfaces. Plaster walls and ceilings are original finishes in these quarters. Wear and water damage over the years has caused portions of the interior plaster to fail. In keeping with *The Secretary of the Interior's Standards for the Treatment of Historic Properties*, deteriorated architectural features would be repaired rather than replaced, and in the event that replacement is necessary, the new material would match the material being replaced in composition, design, color, texture, and other visual qualities. The removal of plaster walls would be avoided during the installation of thermal insulation in the majority of quarters by injecting foam insulation behind the plaster walls, which would avoid the removal of significant architectural features.

Additional interior work would include the installation of flue linings in chimneys throughout the quarters. In most cases a flue would be left operational for boiler use and another for stacked fireplaces used by the occupants. Any remaining chimneys and fireplaces not connected to the operational flues and chimneys would be blocked. Although many fireplaces are not functional, blocking them permanently could be considered an adverse effect. Rather than bricking or permanently blocking the fireplaces, the proposed method of screening the openings through the

installation of locking bifold glass doors would minimize the effect and provide the ability to restore these fireplaces in the future if desired.

Radon mitigation is necessary in some family quarters. Two methods are proposed: a passive system, which vents gas from the basement through the installation of PVC pipe vented vertically to the exterior, and an active system, which is similar to the passive system with the addition of an in-line fan and the necessary wiring to run it. The installation of these systems would not pose an adverse effect if the pipes are concealed in the walls of the building or in another appropriate manner. Should the pipes be visible or destroy historic fabric, then mitigative measures, such as boxing in the pipes or an alternative installation method, would be explored.

In September 2004, West Point submitted the final Effects Determination to the New York State Office of Parks, Recreation, and Historic Preservation (see Appendix C). In this correspondence, West Point staff noted that implementation of the project, which would include the recommendations in the Effects Determination, would result in no adverse effects to the historic fabric and characteristic features of these historic properties. Because no adverse effect would occur, impacts to cultural resources would be minor. The resources affected for each historic housing unit are detailed in Appendix D.

No Action Alternative

Under the No Action Alternative, renovation to the 50 units at West Point, including 44 historic homes, would not occur. These quarters would continue to deteriorate, leading to increased maintenance and energy costs. These conditions would have an adverse effect on the historic fabric of the structures, resulting in moderate impacts to cultural resources under the no action alternative.

2.5 Human Health and Safety

This section describes the human health and safety issues within the affected environment associated with workers as well as the general public. Possible human health and safety concerns at West Point include LBP and ACM, radon, materials used and disposed of, and anti-terrorism/force protection (AT/FP) issues.

2.5.1 Asbestos and Lead Paint

The housing proposed for renovation was built between 1824 and 1948. Due to the age of the housing, it is accepted that the units contain LBP and ACM. As part of the housing rehabilitation effort, the units were evaluated by identifying previously known or previously assumed ACM and LBP and identifying and sampling any newly identified suspect ACM and LBP.

Bulk samples for suspect asbestos were taken and analyzed by contracted laboratories using polarized light microscopy. ACM samples were taken on thermal insulation, wallboard plaster, sprayed on materials, floor tiles, floor tile adhesives, roofing felt, boiler exhaust flange materials, and window glazings. As a result of this survey it was determined that eight of the 31 units tested positive for ACM. The results of the ACM survey are show in Table 2-4.

LBP samples were taken on wall paint, doors, door jambs, door casings, ceiling paint, window casings, window trims, window wells, and baseboard trim. The majority of units tested were positive for LBP. Table 2-5 shows the results of the LBP survey.

TABLE 2-4: ASBESTOS CONTAINING MATERIAL SAMPLING RESULTS

Quarters Number	Neighborhood	Areas Sampled	Sampling Result
48C	Old English South	Grey plaster	None detected
45B	Old English South	Grey plaster	None detected
42A	Old English South	Grey plaster bottom of stairs, plaster work out room	None detected
34A	Old English South	Grey plaster laundry room	None detected
32B	Old English South	Vinyl closet, vinyl floor tile (VFT), mastic	VFT positive, closet and mastic not detected
32A	Old English South	Grey plaster, glazing	None detected
30A	Old English South	Grey plaster	None detected
25B	Old English South	Grey plaster, insulation on fitting	None detected
25A	Old English South	Grey plaster, insulation on fitting	None detected
21A	Old English South	Lagging white, brown plaster	Brown plaster positive, Lagging white none detected
21C	Old English South	Insulation on fitting basement, ceiling plaster basement, insulation patch on flue	Insulation patch positive, basement none detected
21B	Old English South	Grey plaster and white insulation, boiler room	Grey plaster positive
132B	Bartlett Loop	Caulking, glazing	None detected
130B	Bartlett Loop	Caulking, glazing	None detected
122A	Old English North	Transite grey, white insulation, grey plaster, VFT	Transite and VFT positive, insulation and plaster none detected
118B	Old English North	Lagging white basement	None detected
118A	Old English North	Insulation basement, insulation patch on flue	Positive
116A	Old English North	Flue lagging, drywall, glazing	Glazing positive, flue lagging and drywall none detected
109B	Special Category	Brown plaster	None detected
107B	Professor’s Row	Grey plaster	None detected
107A	Professor’s Row	N/A	Assume all TSI in basement, VFT and mastic positive
103B	Professor’s Row	Felt black in attic, white plaster, glazing	None detected
103A	Professor’s Row	Grey plaster, chimney lagging	None detected
29A	Old English South	Flue lagging, basement plaster	None detected

TABLE 2-5: LEAD-BASED PAINT SURVEY RESULTS

Quarters Number	Neighborhood	Results
21	Old English South	Positive – Exterior window well and frame
25B	Old English South	Positive – 1st floor ceiling, 2nd floor ceiling, 3rd floor close to walls and hallway walls
25A	Old English South	Positive – 3rd floor bath window sash, sill and frame; 3rd floor exterior window sash, cashing, stops, and well; 2nd floor window sash, casing, well, and sill; 2nd floor window stop
25C	Old English South	Positive – Back porch column, baluster, and trim
28	Old English South	No information available
29	Old English South	Positive – 1st floor hallway ceiling, 2nd floor ceiling, 3rd floor walls
30	Old English South	Positive – 3rd floor bedroom wall, window well, ceiling; 2nd floor window well and frame
31	Old English South	No information available
32A	Old English South	Negative
34A	Old English South	Positive – Kitchen cabinet and 2nd floor ceiling hallway
42B	Old English South	Positive – Ceiling in laundry
42C	Old English South	Positive – Dining room walls
45A	Old English South	Positive – Ceiling in bedroom
45B	Old English South	Positive – Kitchen window well, 2nd floor window well, bathroom wall, entry hallway wall
48A	Old English South	Negative
48B	Old English South	Negative
48C	Old English South	Positive – Ceiling in laundry room, 2nd floor closet ceiling, 2nd floor bathroom ceiling, and door, front bedroom ceiling, and 3rd floor closet ceiling
61	Special Category	No information available
103A	Professor's Row	Positive – Porch floor, window, door, and wall
105B	Professor's Row	Positive – 3rd floor bedroom ceiling and floor
107A	Professor's Row	Positive – Porch hand rail, spindle, column, and beam
109A	Special Category	Positive – Basement ceiling and post
109B	Special Category	Positive – Front door and basement door
116A	Old English North	Positive – 3rd floor room ceiling, wall, trim, bathroom ceiling, wall, and trim
116B	Old English North	Positive – Ceiling on 3rd floor bedroom and kitchen
118A	Old English North	Negative
120A	Old English North	Positive – Bedroom wall, ceiling, 2nd floor closet wall, hallway wall, storage room wall, and ceiling
120B	Old English North	Positive – Ceiling and wall

Quarters Number	Neighborhood	Results
122A	Old English North	Positive – Basement ceiling
122B	Old English North	Positive – 3rd floor bedroom and bathroom wall and ceiling
128A	Bartlett Loop	Positive – Door frame in living room
128B	Bartlett Loop	Positive – Stairway wall, baby's room window sill, kitchen window sash, well, and door
130A	Bartlett Loop	Positive – 1st floor bedroom door, living room window well, and 2nd floor door
130B	Bartlett Loop	Negative
146	Special Category	Positive – Front door, door jamb, wall, porch post, door, back entry rail, baluster, and deck
374	Special Category	Positive – Laundry room wall, hallway trim, window sill, living room wall, window sill, and hallway wall

Because of occupant unavailability , the following homes were not surveyed for ACM and LBP: Units 28, 42B, 42C, 45C, and 48A in Old English South; Unit 120A in Old English North; Unit 105A in Professor's Row; Unit 132A in Bartlett Loop; and Units 61, 109A, 109C, and 146 in the Special Category units. Although these units have not been sampled, it is expected that they contain similar levels of ACM and LBP as other units in the same neighborhood built around the same time.

2.5.2 Radon

Radon is a gaseous radioactive element that is derived from the radioactive decay of radium. Sources of radon include earth and rock beneath homes, well water, and building material. Radon levels are measured in picoCuries per liter (pCi/l), with an average indoor radon level being 1.3 pCi/l and the overall outdoor level being 0.4 pCi/l. (USEPA, 2005). The USEPA recommends taking action, such as installing a venting system, if homes have a radon level of 4 pCi/l or higher (USEPA, 2004). As seen in Table 2-6, the following homes proposed for renovation have radon levels at or above 4pCi/l: 103A, 107B, 21B, 42C, 42B, 45C, 45A, 48A, 48B, 48C, and 120A.

2.5.3 Disposal and Materials

Any construction project occurring at West Point must account for the disposal of municipal solid waste and construction and demolition wastes that occur from the project. Prior to project initiation, the contractor for each project must develop a plan for disposal of municipal solid wastes generated by the construction crew. In addition, a Construction and Demolition Waste Management Plan must also be prepared that includes the actions to be taken to reduce solid waste generation and describes the specific approaches to be used in the recycling/reuse of the various materials generated during the project. This plan must also characterize the types and quantities of waste generated. In disposing of wastes, first consideration would be given to reuse opportunities, followed by recycling, and then disposal of wastes with no practical use or economic benefit. It is West Point's policy that the contractor shall practice efficient waste management when sizing, cutting, and installing products and materials, and use all reasonable means to divert construction and demolition waste from landfills and incinerators and to facilitate their recycling or reuse. The Construction and Demolition Waste Management Plan would be prepared following the guidance and requirements set forth by the West Point Environmental Management Branch.

TABLE 2-6: RECORDED RADON LEVELS IN HOUSING UNITS

Unit	pCi/l	Unit	PCi/l
103	0.2	45C	191.2
103B	1.2	45B	2.8
103A	11.2	45A	5.9
105B	6	45C	11.6
105A	0.8	48A	5.6
107A	3.2	48B	4.8
107B	5.6	48C	4.5
21C	1.4	118A	3.6
21A	0.2	118B	2.5
21B	7.2	120A	8.1
29	2.0	120B	2.6
29	0.7	120A	6.9
30	2	128A	1.0
32B	2.1	128B	0.4
32A	2.8	128	0.1
34B	2.6	130A	0.3
34A	0.5	130	0.6
42C	5.7	132A	0.3
42A	3.8	132B	0.5
42A	0.0	61	1.2
42B	4.1		

In addition to disposal, the contractor must also consider the materials used and follow the Affirmative Procurement policy, or Green Procurement, at West Point. These policies include many programs aimed at protecting the environment and reducing energy consumption, but mainly focus on the use of products containing recovered materials as defined by the USEPA and use of bio-based items as defined by the U.S. Department of Agriculture. Affirmative Procurement applies to all government acquisitions.

2.5.4 Force Protection

According to the October 2003 United Facilities Criteria (UFC) Department of Defense (DoD) Minimum Antiterrorism Standards for Buildings, family housing with 12 units or fewer per building are exempt from these requirements. All housing units being rehabilitated in this action are under 12 units and would be exempt from these requirements.

2.5.5 Human Health and Safety Environmental Consequences

The following criteria were used to evaluate impacts to human health and safety:

Negligible — The impact to West Point personnel and home occupant safety would not be measurable or perceptible.

Minor — The impact to West Point personnel or home occupant safety would be measurable or perceptible, but it would be limited to a relatively small number of people at localized areas. Impacts to human health and safety might be realized through a minor increase in the potential for exposure to hazardous materials or force protection issues where these issues already exist.

Moderate — The impact to West Point personnel or home occupant safety would be sufficient to cause a change in exposure to hazardous materials, unexploded ordnance, or force protection issues or to create the potential for exposure to hazardous materials or force protection issues in areas that currently do not exhibit these issues.

Major — The impact to West Point personnel or home occupant safety would be substantial. Exposure to hazardous materials or force protection issues in areas with existing exposure to these issues are expected to substantially increase in the short- and long-term.

Proposed Action Alternative

Due to the age of the housing at West Point, and the evidence of LBP and ACM found in surveys of the housing units, impacts from LBP and ACM could occur, but would be addressed and minimized through proper preparation of the affected areas prior to renovation activities. Prior to renovation activities, suspected surfaces would be evaluated for LBP and ACM in accordance with Occupational Health and Safety (29CFR1926.1101 and 29CFR.1926.62) and National Emissions Standards for Hazardous Air Pollutants (40CFR, Part 61). Workers would be required to follow lead-safe work practices as described in the U.S. Environmental Protection Agency/Department of Housing and Urban Development Guidelines for the Evaluation and Control of LBP Hazards in Housing. Clearance sampling would be conducted once work is complete. All materials to be disposed of that contain LBP or ACM would be taken off-post by a qualified contractor.

Surveys also found the presence of radon in 11 of the homes to be renovated. Renovation plans include radon mitigation where necessary in the form of either passive mitigation, which consists of installation of 4-inch (10 cm) PVC pipe from below the basement slab vertically to the exterior of the home, or active mitigation, which is similar to passive mitigation, but also includes an in-line fan and associated dedicated circuit wiring.

Once the contract for housing renovation is awarded and prior to any site preparation work, the selected contractor would prepare a plan for the disposal of municipal solid waste and construction and demolition waste, in accordance with West Point policies. Additionally, the contractor would also be required to follow Affirmative Procurement policies at West Point for the use of recovered materials and bio-based items.

The Proposed Action Alternative would result in beneficial impacts to human health and safety as current hazardous materials (ACM, LBP, and radon) are mitigated and/or removed from the family housing units. There would be no impacts to material use and disposal or AT/FP under this alternative.

No Action Alternative

Under the No Action Alternative, known ACM and LBP would remain in the homes and radon levels would remain the same. These conditions would create the potential for exposure to hazardous

materials to the housing residents and would result in moderate adverse impacts to human health and safety.

2.6 Noise

Noise is any unwanted sound that can interfere with hearing, concentration, or sleep. The major sources of noise include transportation vehicles, heavy equipment, machinery, and appliances. The Noise Control Act of 1972, 42 USC 4901 et seq. was enacted to establish noise control standards and to regulate noise emissions from commercial products such as transportation and construction equipment. The Noise Control Act exempts noise from military weapons or equipment designated for combat use.

The standard measurement unit of noise is the decibel (dB), which represents the acoustical energy present and is an indication of the loudness or intensity of the noise. Noise levels are measured in A-weighted decibels (dBA), a logarithmic scale which approaches the sensitivity of the human ear across the frequency spectrum. Therefore, the dBA accounts for the varying sensitivity of the human ear by measuring sounds the way a human ear would perceive it. The dBA measurement is used to indicate damage to hearing based on noise levels, and is the basis for federal noise standards. A 3-dB increase is equivalent to doubling the sound pressure level, but is barely perceptible to the human ear. A 5-dB change in sound is very noticeable and a 10-dB change in sound almost doubles the loudness. Without any barriers, a doubling in distance from the source results in a 6-dB decrease in the noise level. Table 2-7 illustrates common noise levels. A significant impact is considered to occur if noise levels exceed applicable noise standards.

TABLE 2-7: COMMON NOISE LEVELS

Source	Decibel Level	Exposure Concern
Soft Whisper	30	Normal safe levels
Quiet Office	40	Normal safe levels
Average Home	50	Normal safe levels
Conversational Speech	65	Normal safe levels
Highway Traffic	75	May affect hearing in some individuals depending. on sensitivity, exposure length, etc.
Noisy Restaurant	80	May affect hearing in some individuals depending. on sensitivity, exposure length, etc.
Average Factory	80-90	May affect hearing in some individuals depending. on sensitivity, exposure length, etc.
Pneumatic Drill	100	May affect hearing in some individuals depending. on sensitivity, exposure length, etc.
Automobile Horn	120	May affect hearing in some individuals depending. on sensitivity, exposure length, etc.
Jet Plane	140	Noises at or over 140 dB may cause pain
Gunshot Blast	140	Noises at or over 140 dB may cause pain

Source: USEPA Pamphlet, “Noise and Your Hearing,” 1986.

2.6.1 Noise Affected Environment

Two major sources of loud noise at West Point are helicopter missions and firing exercises, both of which are not located in the vicinity of the homes proposed for renovation. While there are no aviation facilities at West Point, helicopters land on the property to transport military personnel. At the Lake Frederick Drop Zone, located in an area remote from the Main Post, helicopter noise levels of 67.7 dB have been recorded. Sound exposure contours developed for artillery training have shown that sound exposure contours from training lie almost entirely within the boundaries of West Point (USMA, 1998). Aviation and training related noises do not occur in the vicinity of the homes proposed for renovation. In the area of the proposed renovations, the primary source of noise is traffic driving around the installation and background noise from residential activities. The homes to be renovated, and those homes also in the immediate vicinity, are considered sensitive noise receptors.

2.6.2 Noise Environmental Consequences

The following criteria have been developed to assess the noise impacts for each of the alternatives:

Negligible — Natural sounds would prevail; noise generated by the renovation of the family housing unit would be infrequent or absent, mostly immeasurable.

Minor — Noise levels would exceed natural sounds, as described under negligible impacts, but would not exceed applicable noise standards.

Moderate — Noise levels would exceed applicable noise standards on a short-term and temporary basis, and these exceedances would not occur on a permanent basis or for prolonged periods of time.

Major — Noise levels would exceed applicable noise standards on a permanent basis or for a prolonged period of time.

Proposed Action Alternative

Under this alternative, for the duration of construction for the housing renovation, short-term minor noise impacts associated with normal construction activities would be expected to occur. The housing is near sensitive noise receptors, which would include other housing units in the same development not undergoing renovation at that time. All applicable regulations would be followed and construction activities would be scheduled to create the least noise disturbance. For sensitive noise receptors other than adjacent housing, since a doubling in distance from the source results in a 6-dB decrease free-field attenuation in the noise level, it is assumed that noise levels at the nearest sensitive receptor would be below DoD, USEPA, and OSHA noise standards. Under this alternative, no new employment or uses would be created from the proposed housing renovations and, thus, there would be no increase in the intensity of vehicular traffic or land uses. Therefore, there would be negligible impacts due to noise from daily operations of the families living the housing units under the Proposed Action Alternative.

No Action Alternative

The No Action Alternative would not create additional impacts to current noise levels at West Point or the surrounding area.

2.7 Transportation Network

2.7.1 Transportation Network Affected Environment

Six major highways serve the West Point area. Direct access to the Main Post is by US Route 9W and NY Route 218. Interstate 87 is 9 miles west of the Main Post, while the Palisades Interstate Parkway is 5 miles south of the Main Post. The Parkway leads to the George Washington Bridge, which provides access to New York City, and connects with US Route 9W south of West Point.

US Route 9W is the major divided state highway, which runs for 3.5 miles through the West Point Military reservation. There are approximately 16 miles of paved secondary roads that provide access within the reservation, including NY Route 293, which is the major east-west road traversing the reservation. In addition, there are approximately 60 miles of unimproved roads that provide access to all of the training areas and ranges.

The roads on the Main Post were developed in response to the topography of the land as well as the historic and scenic nature of the area. All roads on West Point are hard-surfaced with designed drainage. Traffic circulates throughout the Academy by means of a curving, continuous roadway consisting of Mills Road and Washington Road. This roadway runs from Thayer Gate on the Southeast of the installation to Washington Gate. The more heavily used spines include Thayer Road as well as Washington Road.

Residential parking within the housing areas is sufficient for the current needs. There is on-street parking and off-street parking behind the residents, which is accessed through alleyways behind the houses.

Family housing units proposed for renovation are located throughout the interior roadway network of West Point's Main Post. The roadway network around each of the housing units is as follows:

- Old English North: Old English North is located on Washington Road, between Stony Lonesome and Ruger Roads. Access to these units is from Washington Road.

- Old English South: The Old English South housing area is located on Thayer and Wilson Roads, between Mills Road and Kinsley Hill Road.

- Professor's Row: Professor's Row is located on Washington Road, between Parke and Stony Lonesome Roads.

- Bartlett Loop: Bartlett Loop is located on Bartlett Loop in the residential area known as "Old Brick". The closest primary installation road that connects to the Bartlett Loop neighborhood is Washington Road.

- Special Category Quarters: Quarters 374 is located at the intersection of Lee Road and Washington Road, Quarters 146 is located at the intersection of Ruger and Howard Roads, Quarters 109 is located in the vicinity of Professor's Row along Washington Road, and Quarters 61 is located in Lusk Housing area on Schofield Place, east of Lusk Reservoir.

2.7.2 Transportation Network Environmental Consequences

The traffic and parking conditions projected in and around the proposed housing renovation areas was qualitatively compared with the traffic and parking for the existing condition. The following criteria have been developed to assess the transportation impacts for each of the alternatives:

Negligible — Current traffic patterns, trends, and parking situation prevail. There is no change to the traffic operations as a result of the action.

Minor — Short-term alteration of traffic patterns, trends, and parking would result from the action. The impact would have an adverse or beneficial change to travel times or transportation system utility. The impact would be noticeable, but would result in little inconvenience or benefit to transportation system users.

Moderate — Short or long-term changes to the traffic patterns, trends, and parking would result from the action. The impact would impact the travel time or system utility of a large number of transportation system users and would result in a noticeable change in travel time, convenience, or benefit.

Major — Traffic patterns and parking would be permanently altered from the action. There would be a substantial impact on the travel time or system utility of a large number of transportation system users and would result in a highly noticeable change in travel times, convenience, or benefit.

Proposed Action Alternative

The proposed renovation of 50 housing units could temporarily affect local traffic. Site work would generate greater volumes of localized traffic due to workers arriving and departing the site, movement of materials and equipment, and removal of construction waste. Interruptions in local traffic patterns could be expected during the construction periods and, at some locations, worker and delivery trips for this project could exacerbate congested conditions. These adverse impacts to local traffic would be minor and only last as long as the renovation took place, approximately six months at each location. The impacts would be noticeable, but would result in little inconvenience to local commuters. In addition, because only one housing area would be renovated at a time, impacts to traffic and transportation would be localized, and not felt greatly in other areas of the base.

While the local need for parking would increase with the increase of workers' personal vehicles, trucks, and other construction equipment during the proposed renovation, there would be negligible adverse impacts on residential parking since no residents would be in the homes during the renovation and these vacant spots would be expected to be used for parking and other staging area needs. Impacts to transportation as a result of the proposed family housing renovation would be short-term and minor. There would be no long-term impacts to transportation.

No Action Alternative

The No Action Alternative would not create new traffic or change existing traffic or parking patterns. There would be no impacts to transportation under the No Action Alternative.

2.8 Environmental Justice and Protection of Children

This section describes issues related to environmental justice and protection of children as related to Executive Order (EO) 12898 and EO 13045.

2.8.1 Environmental Justice and Protection of Children Affected Environment

2.8.1.1 Environmental Justice

On 11 February 1994, President Clinton issued EO 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. EO 12898 directs agencies to address

environmental and human health conditions in minority and low-income communities so as to avoid the disproportionate placement of any adverse effects from federal policies and actions on these populations. The general purposes of this EO are as follows:

To focus the attention of federal agencies on human health and environmental conditions in minority communities and low-income communities with the goal of achieving environmental justice.

To foster nondiscrimination in federal programs that substantially affect human health or the environment.

To give minority communities and low-income communities greater opportunities for public participation in, and access to, public information on matters relating to human health and the environment.

As defined by the "Environmental Justice Guidance Under NEPA" (CEQ, 1997), "minority populations" includes persons who identify themselves as Asian or Pacific Islander, Native American or Alaskan Native, black (not of Hispanic origin), or Hispanic. Race refers to Census respondents' self-identification of racial background. Hispanic origin refers to ethnicity and language, not race, and may include persons whose heritage is Puerto Rican, Cuban, Mexican, and Central or South American.

A minority population exists where the percentage of minorities in an affected area either exceed 50 percent or is meaningfully greater than in the general population. Low-income populations are identified using the Census Bureau's statistical poverty threshold, which is based on income and family size. The Census Bureau defines a "poverty area" as a census tract with 20 percent or more of its residents below the poverty threshold and an "extreme poverty area" as one with 40 percent or more below the poverty level.

Census Tract 136 is the location of the UMSA, West Point. Bordering Census Tracts include: 131, 138, and 139. Approximately 18 percent of the residents in Census Tract 136, the location of West Point, are classified as minorities according the CEQ's Environmental Justice guidance. Tracts 131, 138, and 139 are comprised of 6 percent, 7 percent, and 6 percent minority residents, respectively. When considering income levels with respect to Environmental Justice, two percent of the residents in Tract 136 are below the poverty level. Tracts 131, 138, and 139 are comprised of 5 percent, 3 percent, and 4 percent of the population living below the poverty level, respectively (U.S. Census, 2000).

2.8.1.2 Protection of Children

EO 13045, Protection of Children from Environmental Health and Safety Risk, requires federal agencies, to the extent permitted by law and mission, to identify and assess environmental health and safety risks that might disproportionately affect children. This EO, dated 21 April 1997, further requires federal agencies to ensure that their policies, programs, activities, and standards address these disproportionate risks. EO 13045 defines environmental health and safety risks as "risks to health or to safety that are attributable to products or substances that the child is likely to come in contact with or ingest (such as the air we breathe, the food we eat, the water we drink and use for recreation, the soil we live on and the products we use or are exposed to)." There are 2,533 family members of West Point personnel living on-post, which include children under the age of 18 (USMA, 2003b). According to the 2000 U.S. Census, there are 1,562 people living in Tract 136, the location of West Point, that are under the age of 18, comprising approximately 22 percent of the tract's population (U.S. Census, 2000).

2.8.2 Environmental Justice and Protection of Children Environmental Consequences

Impacts to environmental justice and the projection of children were determined using the following criteria:

Negligible — Impacts related to environmental justice and the protection of children would not be measurable or perceptible.

Minor — Standards set forth by the CEQ Environmental Justice Guidance would not be exceeded and the Protection of Children EO would not be violated.

Moderate — The action would occur in an area that exceeds the standards set forth by the CEQ Environmental Justice Guidance or would impact the protection of children, but the impacts would be short-term in nature.

Major — The action would occur in an area that exceeds the standards set forth by the CEQ Environmental Justice Guidance or would impact the protection of children, and the action would occur on a permanent or otherwise long-term basis.

Proposed Action Alternative

The implementation of the Proposed Action Alternative would not create disproportionately high and adverse human health or environmental effects to minority or low-income populations at West Point or in the surrounding area. Both the percent of minority population and population below the poverty level are below the standards set forth in the CEQ Environmental Justice Guidance. Furthermore, the action alternatives would not be expected to significantly impact environmental health and safety in a way that might disproportionately affect children at West Point or in the surrounding area. The restricted access at West Point would ensure that children living off-post would not be able to access construction areas or any other activities that might pose a heath and safety risk. Although there are residents under the age of 18 living on-post at West Point, all applicable local jurisdictional safety requirements during construction would be implemented to ensure the protection of the public, including children. Beneficial impacts to populations on-post would occur as ACM and LBP are removed from the housing units and radon mitigation is added, improving the safety of the housing units. Impacts related to environmental justice and the protection of children under the Proposed Action Alternative would be beneficial.

No Action Alternative

The No Action Alternative would not be expected to create significant impacts or changes to the socioeconomic characteristics, including environmental justice and the protection of children, at or surrounding West Point.

2.9 Cumulative Impacts

A cumulative impact is defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future action regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 CFR 1508.7). This section goes on to note “such impacts can result from individually minor but collectively significant actions taking place over a period of time.” Cumulative impacts associated with implementation of renovation of historic and non-historic family housing units would include any impacts from other “actions” that would be incremental to the impacts implementing the security

upgrades. Such impacts would include additional traffic, air emissions, noise, vegetation removal, and soil disturbance for construction and operation of the proposed project.

The following projects are Reasonably Foreseeable Future Activities (RFFAs) expected to occur in the area of the housing rehabilitation:

- **New Library and Learning Center (Thomas Jefferson Hall at Jefferson Place and Cullum Road)** – Modernization activities at West Point include construction of a new Cadet Library/Learning Center, potential demolition of structures that no longer contribute to the West Point mission, and construction of new facilities to support the West Point mission and modernize the Cadet Zone. These actions are needed to fulfill current and future needs for library and learning space to maintain university accreditation and academic excellence, and to update existing cadet facilities that are over thirty years old. West Point is proposing to construct a new library on the Plain, and modify Bartlett (Science) Hall and the existing library. As part of a general improvement of the Cadet Zone area, West Point is also considering renovation or demolition of obsolete structures within the Cadet Zone, including barracks renovations, upgrades, and the continuation of on-going maintenance projects.

- **Office of the Director of Intercollegiate Athletics Worth Housing** – This project is currently underway. To date, approximately 656 feet (200 meters) east of Washington Gate, an old incinerator and a Non-Commissioned Officer Club were demolished. Currently, this land is cleared and homes for the Office of the Director of Intercollegiate Athletics are being built. Two of these houses have been completed, with three under construction, and one in the planning stage.

- **West Point School Classroom Additions** – This proposed project would include the implementation of the West Point School Complex (WPSC) Upgrade, which includes six separate elements. These elements include construction of a 7,500 square-foot classroom addition to the West Point Elementary School (Building 705A), construction of a 152-space parking lot, construction of a new bus drive/staging area, construction of two sidewalk cuts and improvement of one sidewalk cut on the east side of Barry Road, and removal of two temporary modular classrooms once the classroom addition is constructed and operational.

- **Perimeter Security Fence** – West Point proposes to install security upgrades consisting of additional perimeter security fencing at West Point, which will connect directly into the access gates. As a result of enhanced security requirements at West Point, a range of temporary security measures have been implemented at West Point. These enhanced security measures are forecast to continue at West Point for the foreseeable future. As a component of enhanced security measures, West Point proposes to install additional perimeter security fencing at selected locations around the main cantonment area of the installation. This perimeter security fence is proposed for selected portions of the West Point boundary, essentially running from Thayer Gate along the boundary between West Point and the Town of Highland Falls, along Highway 218 to Stony Lonesome Gate, then through West Point to the vicinity of Washington Gate, and then proceeding generally along Highway 218 to terminate at Lee Gate. The fence will be green-coated vinyl to reduce visual impacts. At locations immediately adjacent to historic gates (e.g. Washington Gate, Thayer Gate and Lee Gate) the fence will consist of granite pedestals and decorative wrought iron fencing similar to that recently installed at the West Point South Post (Pershing Center) under a previous project. Some vegetation clearing would occur in conjunction with this fence installation, but precise widths and locations for this vegetation clearance remain to be defined. Specific details such as stream crossings also remain to be defined. No fencing is currently proposed along the Hudson River shoreline, or

for Constitution Island. No lighting or mechanical equipment (such as cameras or barricades) are proposed for this perimeter security fence.

- **Fiber Optics Upgrade** – West Point is planning to implement the Installation Information Infrastructure Modernization Program (I3MP) Fiber Optics Upgrade Program, and to install telecommunications closets at Building 600 (Taylor Hall). This project has two components:

    - Install telecommunications closets in Taylor Hall (Building 600). Taylor Hall is one of the most historically significant and prominent buildings at West Point. The building is individually eligible for the National Register of Historic Places, and is a contributing element to the West Point NHL. This project entails the installation of new telecommunications closets at numerous locations throughout the building; to include the installation of necessary cabling.

    - Install I3MP Fiber Optics Upgrade. This project involves the installation of an upgraded fiber optics upgrade throughout the main cantonment area, and running to Camp Buckner. The majority of this project occurs within the West Point NHL boundaries. This project involves the following components: installation of fiber optics upgrades into 40 buildings (nearly all historic properties within the West Point NHL), 43,000 lineal feet of new ground disturbance (trenching), 65,000 square feet of cut and resurface of existing asphalt, 700 square feet of cut and resurface of existing concrete, 1,600 square feet of cut and resurface of existing cobblestone, 121 total road cuts, and construction of 31 new manholes.

In addition to the RFFAs mentioned above, the proposed renovation of historic and non-historic housing would be adding to impacts from recent development. Projects which have been implemented in the past 10 years include the Thayer Hotel renovation (2001), Gray Ghost Housing and installation of a gas transmission line (1998), West Point Elementary School parking lot (2004) and gymnasium (2002), construction/renovation at Round Pond (2003), gas line at Lusk Reservoir (2002), women's softball field at North Athletic Field (2003), North Athletic Field lights (1999), Malek Tennis Center (2002), Lichtenberg Tennis Center (2001), Gross Olympic Center (2002), and the Kimsey Center construction (2004). On-going projects at West Point with the potential for cumulative impacts include instillation of lighting at various locations, installation of sprinklers in family housing, replacement of interior lighting post-wide.

Proposed Action Alternative

Should implementation of the family housing renovation under this alternative occur simultaneously with other RFFAs, cumulative impacts from air quality, noise, water resources, soils, and traffic are possible. Specific projects that have the potential to add cumulative effects to this alternative are stated above. Construction vehicles to implement these projects would occur in the same area, potential with overlapping timeframes, as the housing renovation. These vehicles would not only have cumulative impacts to air emissions, but would also impact traffic and transportation at West Point as staff and visitor vehicle circulation would be impeded to some extent by the presence of the construction vehicles. With numerous large construction projects occurring simultaneously, in areas where traffic is already constrained, such as the intersection of Mills Road and Washington Road by the Catholic Chapel (Building 669) and the intersection of five roads in the old PX/Cemetery/Washington Road vicinity, these potential impacts would be of even greater concern. West Point would minimize these potential impacts by coordinating construction activities with the Directorate of Housing and Public Works (DHPW) to minimize traffic congestion, ensuring that community members are kept appraised of any potential traffic issues and construction projects by

DHPW, and continuously maintaining traffic at all West Point roads and gates during all construction projects. Additional cumulative impacts to water quality, soils, noise, and air quality would be expected to occur if these projects occur in the same area at the same time. Coordination should occur and Best Management Practices (BMPs) during construction would be implemented to ensure that cumulative impacts from other construction projects occurring in the same area during the same time period are managed, if required. Due to the minimal amount of exterior work being completed for the housing renovation, it is not expected that cumulative impacts would require implementation of BMPs.

There are many on-going and post projects occurring in the area of the proposed housing renovation. Although cumulative impacts are possible, the small scale of the proposed housing renovation and incorporation of BMPs would be expected to limit the overall cumulative effects of the proposed action to the surrounding environment. This is especially true of the effect to surrounding vegetation, soils, and watercourses. The work under the Proposed Action Alternative would be unlikely to add adverse effect to those of other construction projects because exterior work is minimal.

No Action Alternative

Implementation of the No Action Alternative would avoid new impacts that could interact with the impacts of other past, present, or reasonably foreseeable future actions. Therefore, there would be no cumulative impacts associated with the No Action Alternative.

2.10 Unavoidable Adverse Impacts

Unavoidable impacts are those impacts that West Point would experience if the renovation of historic and non-historic housing units were implemented. These impacts would include minor impacts to soils, water quality, and cultural resources. The mitigation measures discussed below would be employed to minimize these and other potential adverse impacts.

Activities undertaken by West Point to implement the family housing renovation project would include appropriate mitigation measures prescribed in applicable regulations, where applicable. These would include:

- Consolation and application of the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (36CFR68) and applicable guidelines during renovation activities at historic housing units.
- Adherence to the recommendations made in the Final Determination of Effect, submitted to the New York State office of Parks, Recreation, & Historic Preservation on September 7, 2004.
- Construction operations utilization of Erosion and Sediment Control Law BMPs, as described in the EA, to prevent erosion and sedimentation from harming nearby water bodies, if action thresholds are reached, which would not be expected.
- Continual coordination with the New York SHPO throughout the renovation process.

3.0 SUMMARY OF CONCLUSIONS

This section provides an overview of the environmental consequences of the proposed action and their significance. The primary issue related to the implementation of the renovation of 50 housing units at West Point, 44 of which are historic structures, would be the potential adverse impacts to the historic fabric of the 44 historic homes.

Rehabilitation of a historic building presumes that some repair or alteration of the building would take place in order to provide an efficient and contemporary use; however, these repairs and alterations should not damage or destroy the materials and features that are important in defining the building's historic character. The proposed work could have an adverse effect based on the historical value and level of integrity that these historic quarters possess. An example of an adverse effect, pursuant to Section 800.5(a)(2), is the alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (36CFR68) and applicable guidelines (Weeks and Grimmer, 1995). These standards and guidelines should therefore be considered, and consultation with the SHPO be initiated prior to the execution of the work plan for these quarters.

Potential impacts could occur from limited masonry repair and repointing,; minor roof and porch repairs; installation of trash enclosures and air conditioning condensers; upgrading of plumbing, fire protection, and electrical systems; installation of central AC units; complete renovation of kitchens and bathrooms; lead paint and asbestos abatement; passive and active radon system piping where necessary; removal of loose, cracked and/or detached plaster and replacement by gypsum board; the replacement or installation of telephone and cable television outlets in habitable rooms; and painting and insulation of the interiors.

In September 2004, West Point submitted the final Effects Determination to the New York State Office of parks, Recreation, and Historic Preservation (see Appendix C). In this correspondence, West Point noted that implementation of the project, which would include the recommendations in the Effects Determination, would result in no adverse effects to the historic fabric and characteristic features of these historic properties.

It was also determined that the majority of the homes have ACM and LBP, and some homes have radon levels above USESP recommended levels. The mitigation measures listed below would be implemented to remove and monitor these materials, and would result in beneficial health and safety impacts to the families living in these homes.

Potential impacts range from negligible to moderate for the Proposed Action Alternative, and would be addressed either through avoidance, minimization, or best management practices.

Mitigation measures that would be employed to address impacts from implementation of the Proposed Action alternative include:

(1) Erosion and sedimentation controls would be used in accordance with West Point and NYSDEC standards and specifications, where required. It is not expected that disturbance under the Proposed Action Alternative would be over one-acre and these controls would most likely not be required.

(2) Where the project area includes over one acre of disturbance, West Point would obtain a NYDEC Construction Activity State Pollution Discharge Elimination System permit; however, it is not expected that there would be over one acre of disturbance.

(3) In order to avoid any adverse impacts to the historic fabric of the housing, the following measures would be taken:

(a) The installation of exterior trash enclosures and air conditioning condensing units could involve excavation and site work in archaeologically sensitive areas that would be tested or monitored during construction, as required. These units would be located in well-concealed areas that are not visible from the façade or primary elevations. Vegetative screening of the air conditioning condensing units would minimize the visual effect of the installation. Trash enclosures, if attached to the buildings, would be done in a manner that does not harm historic fabric and is preferably reversible.
(b) The installation of exterior condensers and bathroom and laundry vents would require masonry penetrations. These vents would be located in a discreet area with the least possible amount of loss of historic fabric.
(c) Original kitchen/pantry fabric would remain intact. No butler pantry doors or glazed cabinets would be removed.
(d) The removal of historic, or period, fixtures in the bathrooms would be considered an adverse effect. Features such as pedestal sinks and claw foot tubs are significant character-defining features to the buildings and the retention of these fixtures is important in maintaining the overall architectural character of the building. The fixtures would be retained provided they can be maintained in an operable and sanitary condition. Every attempt would be made to repair the original fixture when problems occur rather than replace it with a modern fixture.
(e) To avoid the adverse effect of the abandonment of basement bathrooms with historic fixtures and finishes, these fixtures would be kept in situ or re-used in other locations in the building.
(f) Bringing one historic home into ADA compliance could adversely affect these historic buildings by changing the layout of the primary spaces by including a full bathroom and converting a room to a bedroom on the first floor. These alterations would be carried out with the least amount of removal or covering of historic fabric and executed in a way that does not drastically disrupt the flow and spatial relationship of the primary spaces.
(g) To avoid an adverse effect in Quarters 48B, where it is proposed to make changes to the entry vestibule to accommodate a first floor bathroom, the flow and spatial relationship of the primary spaces would not be disrupted. The elaborate finishes in the vestibule would not be altered or removed.
(h) The removal of historic period lighting at Quarters 116 would not occur. These fixtures contribute to the architectural character of the building and would be rewired and kept in place if they are not beyond repair. In additional, all historic fixtures should be retained.
(i) The DHPW at West Point has specific guidelines, based on the Secretary of Interior's Standards for Rehabilitation, about masonry repair and repointing that would be consulted, but practicable treatment of these architectural elements would include careful cleaning of the joints to avoid damaging the masonry, and duplication of the old mortar in strength, composition, and texture to avoid changing the appearance of the masonry.

(j) Consultation with the West Point Cultural Resource Manager would be preformed throughout the project and consultation between the State Historic Preservation Officer and West Point would be preformed as necessary during renovation activities.

(k) Temporary lane and road closers would take place to accommodate material deliveries and exterior renovations. Signs and barriers would be placed, accordingly.

(4) Areas suspected of containing lead-based paint or asbestos containing materials would be evaluated and abated in accordance with OHSA, U.S. Environmental Protection Agency, and Army regulations. Any hazardous materials identified would be taken off-post and disposed of by a qualified contractor.

(5) Both active and passive radon mitigation systems would be installed in renovated quarters, where radon exceeds USEPA recommended levels.

The implementation of the renovation of historic family housing, as proposed, is not expected to result in significant adverse impacts on the environment; therefore, an environmental impact statement is not required. Table 3-1 provides a brief comparison of the environmental consequences (*i.e.*, impacts) associated with the Proposed Action Alternative and No Action Alternative.

TABLE 3-1: SUMMARY OF IMPACTS

Resource Areas	Proposed Action Alternative	No Action Alternative
Water Resources	Short-term negligible impacts from ground disturbing activities. Since the majority of renovations would be interior, long-term impacts would be negligible.	No impacts.
Geology, Topography, Soils	No impacts to geology or topography are expected. Replacement of sanitary sewer lines and staging areas would have negligible short-term impacts.	No impacts.
Air Quality	Project emissions would be below the *de minimus* level. Impacts would be short-term and minor during construction. No operational emissions would occur.	No impacts.
Cultural Resources	Implementation of the project, which would include the recommendations in the Effects Determination, would result in no adverse effects to the historic fabric and characteristic features of these historic properties. Because no adverse effect would occur, impacts to cultural resources would be minor.	The historic quarters would continue to deteriorate, leading to increased maintenance and energy costs. Morale, health, and safety would be adversely impacted and there would be an adverse impact on the fabric of the historic structures, resulting in moderate impacts to cultural resources.
Health and Human Safety	There would be beneficial impacts as lead-based paint and asbestos containing materials would be removed from the housing units. Material use and disposal would follow the policies and procedures of the West Point Environmental Management Branch. Anti-terrorism/force protection requirements do not apply to this action.	Lead-based paint and asbestos containing materials would remain in the units. This would require care and will eventually require remediation.
Noise	Short-term minor noise impacts from construction activities would occur. All applicable regulations would be followed and construction activities scheduled to create the least noise disturbance.	No impacts.
Transportation	Impacts to transportation as a result of the proposed family housing renovation would be short-term and minor. There would be no long-term impacts to transportation	No impacts.
Environmental Justice and the Protection of Children	There would not be disproportionately high and adverse human health or environmental effects to minority or low-income populations. Beneficial impacts to the population living in the housing would occur from the removal of LBP and ACM and radon mitigation.	No impacts.

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8.0 ACRONYMS

ACHP	Advisory Council on Historic Preservation
ACM	Asbestos Containing Materials
ADA	Americans with Disabilities Act
amsl	Above Mean Sea Level
APE	Area of Potential Effect
AT/FP	Anti-terrorism/Force Protection
BMP	Best Management Practice
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon Monoxide
dB	Decibel
dBA	A-weighted decibel
DHPW	Department of Housing and Public Works
DoD	Department of Defense
EA	Environmental Assessment
EO	Executive Order
FEMA	Federal Energy Management Agency
FNSI	Finding of No Significant Impact
HABS	Historic American Building Survey

HAER	Historic American Engineering Record
I3MP	Installation Information Infrastructure Modernization Program
kgpy	kilograms per year
LBP	Lead Based Paint
NAAQS	National Ambient Air Quality Standards
NAMS	National Air Monitoring Stations
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NHLD	National Historic Landmark District
NPDES	National Pollution Discharge Elimination System
NOx	Nitrogen Oxides
NRHP	National Register of Historic Places
NYS DEC	New York State Department of Environmental Conservation
03	Ozone
Pb	Lead
PM10	Particulate Matter <10 microns
ppt	Parts per Thousand
PUSMAs	Professors USMA
RFFAs	Reasonably Foreseeable Future Actions
SHPO	State Historic Preservation Officer
SLAMS	State and Local Air Monitoring Stations
SO_2	Sulfur Dioxide
SPDES	State Pollution Discharge Elimination System
SWPPP	Stormwater Pollution Prevention Plan Program

TMDL	Total Maximum Daily Load
TPY	tons per year
WPSC	West Point School Complex
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
UFC	United Facilities Criteria
USMA	United States Military Academy
VOC	Volatile Organic Compounds

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APPENDIX A: HOUSING RENOVATION SCOPE OF WORK

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US Army Corps
of Engineers ®
Norfolk District

U.S. Military Academy – West Point, NY

Revitalize 48 Historic Quarters

Work Scopes

S:\West Point Professor's Row Family Housing\budget,schedule scope\WorkScopes.doc
4/8/2004

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General Notes:

1. Although it was not possible within the available time frame to assess each building with any high degree of detail, the following summary reflects the scope of work proposed. Items of work which were known to be under recent or present contracts have not been included. Additional field investigations and survey work is anticipated based upon the improvements outlined in the unit by unit listings that follow.
2. **Basement water/moisture issues** - problems plague several units and are generally identified in this document. The predominant occurrence is at basement window wells, and the severity varies from unit to unit- From recent construction drawings and SOW's furnished by the Post from ongoing A/E contracts, this particular trouble spot appears to have been identified and they have proposed remedial work - (i.e., from the drawings some units appear to be getting new areawell drains, others are scheduled for cleaning of the areawells, etc..). It is likely that this alleviate the problem. Therefore, at this time no additional remedial work is proposed by USACE. Although the limited field investigation time did not allow for a detailed assessment of the causes, suspect problem areas are indicated in this work scope. No additional work has been proposed pending guidance from the Post.
3. **Lead based paint abatement** is required in this work scope, and from partial surveys furnished by DHPW, is believed to be in all the units to varying degrees. This work scope therefore includes interior lead based paint abatement for all units employing predominantly the "encapsulation" method.
4. **Main roof work** - generally speaking, the roof work for the subject units, with the exception of the Bartlett Loop units (which have fairly new shingle roofs) and Prof Row units 105 and 107 (105B, 107A suffers roof leaks at the back of the unit), has recently or is presently being executed under another contract. From our field investigation, it appears that for several of the Old English units, some of the pre-repair roof leaks may still persist, both at the front porch roof (a few cases) but more often the main roof. – we have identified these trouble areas under the unit listings. I propose that remedial work be undertaken by the responsible roofing contractor of the previous/ongoing contract under applicable warranty terms. We have not included remedial work of this nature for the Old English units at this time. What I have included is the resulting interior non-structural patch and/or repair (ie, wall and ceiling damage).
5. **Asbestos abatement** – At this time an asbestos survey has not been furnished for the subject units. This survey should be furnished by the Post before design work begins. Although Asbestos abatement work has been done in these units to some degree (insulated piping for example) no confirmation has been given that the units are completely asbestos free. Pending guidance from the Post a limited amount of abatement is anticipated (ie, suspect flooring mastic) at this time.
6. **Thermal insulation** - An injected foam type insulation is under consideration here for injection into the plaster furred space (ie between the masonry wall and interior plaster) for the Old English, Prof Row, and special category units as well as within the wood stud walls of the Bartlett Loop units. Additionally, crawlspace insulation for the Professor Row units. This method could make unnecessary the removal of the plaster walls, unless it is the desire of the Post.

7. **Central A/C -** A split zone system is proposed here employing a high velocity duct system (unit mounted in the attic space above the 3rd floor) to serve the 2nd and 3rd floors, and a conventional system serving the 1st floor and selected basement areas (mounted in basement). Two above grade condensing units for each housing unit will be required, and visually screened. This strategy will result in minimal intrusion of 3rd floor living spaces.
8. **Condensing unit Screening -** I have included on grade condensing unit installation with soft screening (vegetation) as the strategy for minimalizing visual presence of this mechanical equipment. The other IDG recommendations include "in-well" condensing unit locations (less obtrusive), whereby the unit is set below grade similar to a basement window well (more costly) -Please advise if that method is preferred over the on-grade
9. **Site Work -** The 1391 document indicates necessary site work upgrades under this project, and they are limited to replacement of sewer laterals and sidewalks. Most of the street sidewalks in the various unit locations appear to have been replaced within the last 5 years, and are approximately 7 ft. wide and equipped with handicapped access points. There is no need to replace these sidewalks. Individual sidewalks from the main walk to the units vary in condition, and some are in need of replacement. By direction at the 4 March design meeting, sidewalks constructed of slate sections will not be replaced, but will be repaired by re-setting the slate sections to a level condition. Locating sewer lateral for replacement was not possible at this time without more detailed site plans of existing locations. See the unit listings for additional detail.

Scope of Work items:

These apply to all units as modified in the listing unless otherwise noted

Architectural:

Complete Kitchen Upgrade - consists of comprehensive renovation including new modular prefinished base and wall cabinets, solid surface countertops, ceramic tile floors, finishes and trim. Configuration to generally remain as-is. New appliances include dishwasher, garbage disposal, double bowl sink (gas stove and refrigerator by USMA).

Installation of first floor half bath - consists of (in most cases) replacing under stair cloak closet or underutilized kitchen space with small half-bath containing water closet and sink, accessories, etc. - wood flooring to remain if in closet installation.

Bathroom upgrades - generally consists of replacement of all modular tub/shower units with new units, replacement of sinks and vanities with new cultured marble sinks and wood vanities, semi-recessed medicine cabinets, faucets, and accessories, replacement of sink and tub fixtures, replacement of existing vinyl flooring with new quarry tile flooring and base. Replace wall tile with new. See mechanical listings for other work.

Insulation – consists of approved blow-in (injected foam type) insulation installation for all furred out exterior walls, all floors, and vapor retardant paint.

Interior Painting and lead based paint abatement – consists of lead based paint abatement, followed by preparation and painting of all interior finished, previously painted surfaces (floors, walls, ceilings), and all previously painted woodwork and trim, including doors, mechanical appurtenances such as radiators, but exluding finished oak wood trim – see above for special paint on exterior walls.

Asbestos abatement – selective asbestos abatement is anticipated for all units.

Plaster repair – Consists of removal and patching of damaged plaster surfaces with like materials. Includes repair of wood lath if required. Prime and paint.

Masonry pointing – Consists of repointing damaged and deteriorated mortar joints- new mortar joints to be matched in texture and gradation to existing by performing necessary acid bath tests of existing samples.

Plaster repair – Consists of removal and patching of damaged plaster surfaces with like materials. Includes repair of wood lath if required. Prime and paint.

Flue lining installation – Provide new stainless steel chimney flue lining for 2 chimney each unit to become 'operational', one for the boiler flue and another for stacked fireplaces for occupant use. Block up the other (in most cases 2) chimneys. For all flues, operational or not, provide rain cap for weather protection -. Possible solutions for "blocking" other fireplaces- provide new or modify existing glass bifold fronts for locking by DHPW to prevent use. Recommend all chimneys inspected by certified chimney sweep.

ADA modifications – For selected units, consists of providing ADA compliance, limited to first floor access from exterior and throughout first floor; Within the unit, selective reconfiguration will provide for all significant functional spaces to be located on the main floor, and provision for one accessible route to these spaces will be provided, (incorporating modifications to; existing interior wood thresholds for compliance, retrofit ball bearing offset hinges for compliance to door opening clear width, retrofit door handles, etc.) Kitchen and bath upgrade for these units will incorporate ADA compliant features such as space requirements, wheelchair compliant counter/cabinet configurations, in addition to the other upgrade features described. Other specific related work items include:

a. conversion of one ground floor living space into criteria compliant bedroom.
b. Provide fully ADA compliant bathroom first floor bathroom.

Window restoration – Consists of complete lead-based paint abatement and refinishing of existing sashes, reglazing if required, restoration of existing hardware or replacement if necessary to match original, replace sash cords ,installation of storm windows, complete weatherstripping.. Prime and Paint. All windows unless noted otherwise

Roof rafter underlayment (Req'd for duplex and triplex units per UFC) – Provide fire resistance rated drywall selected areas (approximately 80 to 160 square feet) –applied directly to underside of rafters.

Rated dwelling unit separation (Req'd for Bartlett Loop duplexes per UFC) – Provide fire resistance rated drywall selected areas (approximately 80 to 160 square feet) –applied directly to separation walls, full height, continuous- all trim reinstalled-prime/paint

Electrical:

Electrical Upgrade - New 200 amp service replaces the existing service and includes all new wiring, devices, fixtures, re-wiring of "authentic" fixtures if applicable. All work, lighting, etc. per latest edition NEC. Work shall be most minimal intrusive possible- i.e. cabling will run concealed within plaster walls- tear out to be kept at. Abandon existing concealed cabling in place. New loads include typical domestic, heavy loads include washer/dryer, frig, central A/C. Electrical work also includes:

a. Hard-wired interconnected smoke and carbon monoxide alarms throughout per UFC criteria. Typical locations include hallways between bedrooms, within bedrooms, and each story including basement.
b. Removal of all exterior wires and cabling on façade of units.

Mechanical:

New central A/C - New central air-conditioning- all living floors except basement. Dual zone includes 2 air-handling units- 1 in attic and 1 in basement. Air distribution concealed within "box-out" of wall, plaster/drywall soffits, etc.

Radon mitigation –

a. passive – consists of installation of 4" PVC pipe from below basement slab vertically to exterior.
b. Active - similar to above-add in-line fan and associated dedicated circuit wiring.

Old English South

General notes, Old English South Units:

1. These units are approximately 5,000 square feet in area, solid masonry construction with furred out plaster finish, wood framed floors and slate roof, built between 1906 to 1908.
2. These units have ongoing work associated with exterior window restoration, lead based paint abatement, brick pointing, roof and gutter repairs that are under another contract and not part of this work scope.

General site work for this area:

1. The Old English buildings mostly have steps associated with the walkways, which are enclosed in massive stone retaining wall configurations. The predominance of these walks and landings are in good condition and very old. Some of the concrete slab landings and walks have been affected by frost heave, and have settled in relation to the existing steps, creating a safety trip hazard at the interface of the step and walk. In these cases, the walks are be removed and replaced to properly match the steps. Sewer laterals typically exit through the front of buildings to a mainline manhole. Remove and replace damaged and settled walkways for these units.
2. Replace existing 4" cast iron laterals using pipe bursting technique followed by trenchless technology pipe replacement with new 6 inch pipe due to heavy retaining wall configurations
3. Building 21, quarters A and B- correct alignment problem of asphalt paving to porch step at units' rear entry
4. Condensing unit screening

Unit 21A

Architectural

1. Installation of first floor bathroom in rear closet. Abandon basement bathroom.
2. Plaster repair in basement laundry room, basement stairs
3. Interior painting
4. Kitchen upgrade – retain in place existing glass-fronted wall cabinets-new cabinets to match.
5. Bathroom upgrades (3 bathrooms)
6. Insulation
7. Flue lining
8. Roof rafter underlayment
9. Rebuild exterior bottom wood porch steps- provide non-skid surfacing for steps.

10. Repair dining room pocket door assembly

Electrical

1. Electrical Upgrade

Mechanical

1. New central A/CT.
2. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
3. Provide new exhaust fan ducted outside for each bathroom
4. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
5. All plumbing fixtures in the kitchen will be replaced.
6. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
7. Install water meter and gas meter connections
8. Replace all shutoff valves at the radiators
9. Install individual thermostatically controlled valve located at each radiator.
10. Replace make-up water valve train, including backflow preventer, automatic fill valve, and by-pass to the hydronic heating water system.
11. Insulate all hydronic heating water piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
12. Refurbish laundry sinks in the basement.
13. Install clothes washer connection box.

Unit 21B

Architectural

1. Installation of first floor bathroom Abandon basement bathroom.
2. Plaster repair for 2nd to 3rd floor main stair hall
3. Interior painting
4. Kitchen upgrade
5. Bathroom upgrades (3 bathrooms)
6. Insulation
7. Flue lining
8. Roof rafter underlayment

Electrical

1. Electrical Upgrade

Mechanical

1. New central A/C
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter and gas meter connections.
7. Replace all shutoff valves at the radiators
8. Install individual thermostatically controlled valve located at each radiator.
9. Insulate all hydronic heating water piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
10. Refurbish laundry sinks in the basement
11. Install clothes washer connection box.

Unit 21C

Architectural

1. Plaster repair in basement laundry room (random plaster cracks in ceiling)
2. Interior painting
3. Kitchen upgrade
4. Bathroom upgrades (3 bathrooms)
5. Insulation
6. Flue lining
7. Roof rafter underlayment
8. repair roof leak of front porch (recently renovated)
9. remove living room electric baseboard unit-see elctrical

Electrical

1. Electrical Upgrade

Mechanical (water boiler)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced

4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter and gas meter connections.
7. Replace all shutoff valves at the radiators
8. Install individual thermostatically controlled valve located at each radiator.
9. Insulate all hydronic heating water piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
10. Refurbish laundry sinks in the basement.
11. Install clothes washer connection box.

Unit 25A

Architectural

1. Installation of first floor bathroom Abandon basement bathroom. Reuse original basement water closet if in good condition.
2. Plaster repair in basement "tool" room ceiling-prime and paint entire ceiling
3. Interior painting
4. Kitchen upgrade
5. Bathroom upgrades (3 bathrooms)
6. Insulation
7. Flue lining
8. Roof rafter underlayment

Electrical

1. Electrical Upgrade

Mechanical

Mechanical (2-pipe steam system from central steam plant)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Replace gas meter
8. Install a standby pressure reducing valve in series with the current pressure reducing valve for high pressure steam system.

9. Install a manual bypass line (with valve) at the main steam pressure reducing valves.
10. Install a duplex condensate pump and condensate receiver for steam condensate.
11. Replace all shutoff valves at the steam radiators
12. Install individual (self contained) thermostatically controlled valve located at each radiator.
13. Install steam trap on the return pipe after each steam radiator.
14. Insulate all steam heating piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
15. Refurbish laundry sinks in the basement.
16. Relocate dry vent through the wall instead of through the window.
17. Install clothes washer connection box.
18. Install Radon system in the basement and vent to the outside.

Unit 25B

Architectural

1. Installation of first floor bathroom Abandon basement bathroom.
2. Interior painting
3. Kitchen upgrade
4. Bathroom upgrades (3 bathrooms)
5. Insulation
6. Flue lining
7. Roof rafter underlayment

Electrical

1. Electrical Upgrade

Mechanical

Mechanical (2-pipe steam system from central steam plant)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Provide gas meter
8. Install a standby pressure reducing valve in series with the current pressure reducing valve for high pressure steam system.

9. Install a manual bypass line (with valve) at the main steam pressure reducing valves.
10. Install a duplex condensate pump and condensate receiver for steam condensate.
11. Replace all shutoff valves at the steam radiators
12. Install individual (self contained) thermostatically controlled valve located at each radiator.
13. Install steam trap on the return pipe after each steam radiator.
14. Insulate all steam heating piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
15. Refurbish laundry sinks in the basement.
16. Relocate dry vent through the wall instead of through the window.
17. Install clothes washer connection box.
18. Install active radon system in the basement and vent to the outside.

Unit 25C

Architectural

1. Plaster repair in basement stair hall, basement laundry room ceiling, storage room ceilings and bathroom walls. Repair previously water damaged plaster in sitting room wall fronting porch.
2. Interior painting
3. Kitchen upgrade
4. Bathroom upgrades (3 full bathrooms and first floor half-bath).
5. Insulation
6. Flue lining
7. Roof rafter underlayment
8. the basement walls suffer from moisture migration-symptoms are peeling paint, water stains, etc.
9. Investigate cause of water damage sitting room wall near porch roof to wall junction. – repair flashing as required.
10. Further investigation of this unit is required to determine cause and remedy of substantial occurances of water damage evidenced by staining in the 2nd and 3rd floor ceilings in various places. The main slate roof has had recent repairs made, and it is not known at this time if the present water damage is old. Suspect are the chimney to roof flashings.

Electrical

1. Electrical Upgrade

Mechanical

Mechanical (2-pipe steam system from central steam plant)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Replace gas meter
8. Install a standby pressure reducing valve in series with the current pressure reducing valve for high pressure steam system.
9. Install a manual bypass line (with valve) at the main steam pressure reducing valves.
10. Replace all shutoff valves at the steam radiators
11. Install individual (self contained) thermostatically controlled valve located at each radiator.
12. Install steam trap on the return pipe after each steam radiator.
13. Insulate all steam heating piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
14. Refurbish laundry sinks in the basement.
15. Relocate dry vent through the wall instead of through the window.
16. Install clothes washer connection box.
17. Install Radon system in the basement and vent to the outside.

Unit 28

Architectural

1. Provide fully ADA compliant bathroom with accessible tub, fixtures, accessories, etc. (Abandon basement bathroom?-currently serves a basement bedroom) .
2. Plaster repair in first floor living room.
3. Interior painting
4. Kitchen upgrade – provide fully ADA compliant kitchen upgrade –ie, raised toe kick for base cabinets, accesible sinks, fixtures, appliances, etc.-(existing base and wall cabinets are new-salvage for another unit?)
5. Bathroom upgrades (3 bathrooms)-reroute piping within wall in 3rd floor bathroom
6. Insulation
7. Flue lining
8. ADA modifications – note that this unit already has exterior ramping provided. This ramp will be slightly modified so that it is compliant with Code-this primarily includes rail modifications. Interior however, the

existing chair lifts restrict the code required egress capacity of the stairs, rendering the stairs non-compliant with NFPA-for these reasons this assembly cannot be included in ADA compliant modification work.

9. Investigate cause/remedy of porch roof leak.

Electrical

1. Electrical Upgrade

Mechanical (1-pipe steam system from central steam plant)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom: faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Replace gas meter
8. Install a standby pressure reducing valve in series with the current pressure reducing valve for high pressure steam system.
9. Install a manual bypass line (with valve) at the main steam pressure reducing valves.
10. Replace the existing duplex condensate pump and condensate receiver for steam condensate.
11. Replace all shutoff valves at the steam radiators
12. Install individual (self contained) thermostatically controlled valve located in series with the thermostatic air vent at each radiator.
13. Install thermostatic air vent on each steam radiator.
14. Insulate all steam heating piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
15. Replace laundry sinks in the basement.
16. Relocate dry vent through the wall instead of through the window.
17. Install clothes washer connection box.
18. Install radon system (passive) in the basement and vent to the outside.

Unit 29

Architectural

1. Installation of first floor bathroom retain basement bathroom as it contains original fixtures (claw foot tub) per SHPO?.
2. Plaster repair – repair cracks in living room walls.

3. Interior painting – (This unit has wallpaper throughout 1st through 3rd floors requiring special prep for painting).
4. Kitchen upgrade– provide fully ADA compliant kitchen upgrade. Correct marked deficiency of kitchen storage.
5. Bathroom upgrades (3 bathrooms)
6. Insulation
7. Flue lining
8. ADA modifications.
9. Box out pipe (in first floor dining room, 2nd,3rd floor bedrooms) with wood studs and drywall. Provide matching trim.
10. Further investigation of this unit may be required to determine cause and remedy of water damage evidenced by staining in the 3rd floor corner bedroom. Though the main slate roof as well as the porch and its roof are scheduled for repairs as part of another contract, it is not known at this time if the present water damage is caused by roof leaks or by another source.
11. Investigate whether remedial measures are required for noticeable floor sag (1 inch) at dining room/living room opening.

Electrical

1. Electrical Upgrade

Mechanical (1-pipe steam system from central steam plant)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Replace gas meter
8. Install a standby pressure reducing valve in series with the current pressure reducing valve for high pressure steam system.
9. Install a manual bypass line (with valve) at the main steam pressure reducing valves.
10. Replace all shutoff valves at the steam radiators
11. Install individual (self contained) thermostatically controlled valve located in series with the thermostatic air vent at each radiator.
12. Install thermostatic air vent on each steam radiator.
13. Insulate all steam heating piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.

14. Replace laundry sinks in the basement.
15. Install clothes washer connection box.
16. Install Radon system (active) in the basement and vent to the outside.
17. Repair steam/condensate leak in Study Room on the First Floor.
18. Replace PVC pipe with ductwork for existing exhaust fan in Basement.

Unit 30

Architectural

1. Installation of first floor bathroom retain basement bathroom as it contains original fixtures (claw foot tub) per SHPO?
2. Plaster repair in basement laundry room at window opening
3. Interior painting
4. Kitchen upgrade - cabinets dated from the 40's/50's
5. Bathroom upgrades (3 bathrooms)
6. Insulation
7. Flue lining
8. Box out pipe (in first floor dining room, 2nd,3rd floor bedrooms) with wood studs and drywall. Provide matching trim.
9. Determine cause of water infiltration at basement bathroom- mortar joints washed out. Correct if required.
10. Rebuild rear entry wood steps to incorporate code required landing. Provide handrail.
11. reroute exposed plumbing lines within partitions.

Electrical

1. Electrical Upgrade

Mechanical (1-pipe steam system from the central steam plant)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets...etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Replace gas meter
8. Install a standby pressure reducing valve in series with the current pressure reducing valve for high pressure steam system.

9. Install a manual bypass line (with valve) at the main steam pressure reducing valves.
10.
11. Replace all shutoff valves at the steam radiators
12. Install individual (self contained) thermostatically controlled valve located in series with the thermostatic air vent at each radiator.
13. Install thermostatic air vent on each steam radiator.
14. Insulate all steam heating piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
15. Replace laundry sinks in the basement.
16. Relocate dry vent through the wall instead of through the window.
17. Install clothes washer connection box.
18. Install radon system (active) in the basement and vent to the outside.

Unit 31

Architectural

1. Abandon basement bathroom.
2. Interior painting
3. Kitchen upgrade
4. Bathroom upgrades (3 bathrooms and first floor half bath)
5. Insulation
6. Flue lining
7. Rebuild rear entry wood steps to incorporate code required landing. Provide handrail.

Electrical

1. Electrical Upgrade

Mechanical (1-pipe steam system)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Replace gas meter
8. Install a standby pressure reducing valve in series with the current pressure reducing valve for high pressure steam system.

9. Install a manual bypass line (with valve) at the main steam pressure reducing valves.
10. Replace all shutoff valves at the steam radiators
11. Install individual (self contained) thermostatically controlled valve located in series with the thermostatic air vent at each radiator.
12. Install thermostatic air vent on each steam radiator.
13. Insulate all steam heating piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
14. Replace laundry sinks in the basement.
15. Relocate dry vent through the wall instead of through the window.
16. Install clothes washer connection box.
17. Install radon system (active) in the basement and vent to the outside.
18. Replace some steam radiators on second and third floors.

Unit 32A

Architectural

1. Interior painting
2. Kitchen upgrade
3. Bathroom upgrades (3 bathrooms and first floor half bath)
4. Insulation
5. Flue lining
6. Roof rafter underlayment

Electrical

1. Electrical Upgrade

Mechanical

Mechanical (2-pipe steam system)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Replace gas meter
8. Install a standby pressure reducing valve in series with the current pressure reducing valve for high pressure steam system.

9. Install a manual bypass line (with valve) at the main steam pressure reducing valves.
10. Replace the main steam control valve in the basement
11. Replace all shutoff valves at the steam radiators
12. Install individual (self contained) thermostatically controlled valve located at each radiator.
13. Install steam trap on the return pipe after each steam radiator.
14. Insulate all steam heating piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
15. Refurbish laundry sinks in the basement.
16. Relocate dry vent through the wall instead of through the window.
17. Install clothes washer connection box.
18. Install Radon system (passive) in the basement and vent to the outside.
19. Replace (Old Style) radiator on 1st floor with steam radiator or steam fin tube radiator.

***Unit 32B**

Architectural

1. Abandon basement bathroom.
2. Plaster repair in kitchen walls, butler's pantry, and 3rd floor bathrooms, 3rd floor laundry room, and other selected areas throughout house. Minor flaking in veranda ceiling.
3. Interior painting – Remove "PUSMA" wallpaper? Reinstallation of new? Occupant wants paint taken off to expose original finish;2nd,3rd floor trim.
4. Kitchen upgrade – retain original double bowl porcelain sink. Note this PUSMA occupant has particular kitchen design requests; larger pantry sink, flat panel cabinet doors, etc.
5. Bathroom upgrades (3 bathrooms and 1st floor half bath)-provide tub/shower units for 2nd floor hall bathroom. Occupant requests stall shower in basement and 3rd floor bathroom. Provide storage space for master bath. Note, occupant uses 3rd floor bathroom as laundry room and requests it's dedication to that use (ie, required mechanical, electrical systems, etc).
6. Insulation
7. Flue lining – block 1 fireplace
8. Roof rafter underlayment
9. Significant brick efflorescence, spalling, flaking of brick piers into the enclosed veranda- suspect water infiltration. Recommend inspecting mortar caps, flashings, brick joints, roof-correct problem and clean brick.
10. Misc;
    a. install non-skid surface treatment on back stair leading to basement
    b. Provide missing wood banister for basement stair

c. Remove built-in shelving in 2nd floor back bedroom and 3rd floor room to restore to original and unblock radiator.
d. New vinyl flooring for veranda-replace linoleum.
e. Repair fireplace damper in 2nd floor bedroom
f. Replace radiator covers in dining, living, and library rooms

Note: Occupant owned items include electrical fixtures, radiator covers, and misceillaneous items attached in some way to the unit –guidance from USMA is that these items be removed by the occupant.

Electrical

1. Electrical Upgrade
2. retain original light fixture in vestibule-re-wire
3. Light over kitchen eating area

Mechanical (2-pipe steam system)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Replace gas meter
8. Install a standby pressure reducing valve in series with the current pressure reducing valve for high pressure steam system.
9. Install a manual bypass line (with valve) at the main steam pressure reducing valves.
10. Replace the existing 50 gal water heater with a new 75 gal water heater.
11. Replace all shutoff valves at the steam radiators
12. Install individual (self contained) thermostatically controlled valve located at each radiator.
13. Install steam trap on the return pipe after each steam radiator.
14. Insulate all steam heating piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.

Unit 34A

Architectural

1. Installation of first floor bathroom Abandon basement bathroom-remove w.c. and accessories.
2. Plaster repair in basement storage room ceiling where temporary jacks support deteriorated joist ends- (it is assumed at this time that structural modifications will be completed by USMA.). Ceiling and wall cracks in 2nd floor bath.
3. Interior painting - Note that two areas in basement suffer water migration evidenced by paint flaking, etc.- recommend further investigation to determine cause. In one area, work under another contract is to install areaway drains- since little time has elapsed since the drain installation, it is not known at this time if the problem has been resolved.
4. Kitchen upgrade
5. Bathroom upgrades (3 bathrooms)
6. Insulation
7. Flue lining
8. Roof rafter underlayment

Electrical

1. Electrical Upgrade

Mechanical (2-pipe steam system)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets...etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Replace gas meter
8. Install a standby pressure reducing valve in series with the current pressure reducing valve for high pressure steam system.
9. Install a manual bypass line (with valve) at the main steam pressure reducing valves.
10. Install steam duplex condensate pump and condensate receiver in the basement.
11. Replace all shutoff valves at the steam radiators
12. Install individual (self contained) thermostatically controlled valve located at each radiator.
13. Install steam trap on the return pipe after each steam radiator.

14. Insulate all steam heating piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
15. Refurbish laundry sinks in the basement.
16. Replace dry vent duct and relocate it through the wall instead of through the window.
17. Install clothes washer connection box.
18. Install Radon system (passive) in the basement and vent to the outside.
19. Replace the existing main steam control valve in the basement.

Unit 34B

Architectural

1. Abandon basement bathroom (w.c. only).
2. Plaster repair in 3rd floor 'trunk' room – wall and ceiling missing sections of plaster – further investigation required to assess extent of concealed damage from past water infiltration possibly pre-dating recent roof repairs. Repair any rotted wood if required.
3. Interior painting – include 3rd floor 'trunk' room. Some 2nd floor bedrooms have wallpaper, requiring special prep.
4. Kitchen upgrade
5. Bathroom upgrades (3 bathrooms)
6. Insulation
7. Flue lining – (all fireplaces fully functional- Provide stainless steel liner for one and block the others)
8. Roof rafter underlayment

Electrical

1. Electrical Upgrade

Mechanical (2-pipe steam system)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Replace gas meter
8. Install a standby pressure reducing valve in series with the current pressure reducing valve for high pressure steam system.

9. Install a manual bypass line (with valve) at the main steam pressure reducing valves.
10. Replace all shutoff valves for all the steam radiators
11. Install individual (self contained) thermostatically controlled valve located at each radiator.
12. Install steam trap on the return pipe after each steam radiator.
13. Insulate all steam heating piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
14. Refurbish laundry sinks in the basement.
15. Replace dry vent duct and relocate it through the wall instead of through the window.
16. Install clothes washer connection box.
17. Install Radon system (passive) in the basement and vent to the outside.
18. Replace the existing main steam control valve in the basement.

Unit 42A

Architectural

1. Installation of first floor bathroom Abandon basement bathroom. Note that providing a 1st floor half bath in this unit may be difficult-recommend leaving basement bath and not provide 1st floor half-bath.
2. Plaster repair – recommend investigate source of water damage 2nd and 3rd floor ceilings-appears to be roof (roof repairs recently done) and could be old damage-also patch the following
   a. basement stair walls
   b. 1st floor hall, entry hall
   c. 2nd floor ceiling selected rooms
   d. 3rd floor cracking over door frame
3. Interior painting – Also clean 1st floor hall woodwork (from numerous paint splatters)
4. Kitchen upgrade – retain in place base and glass fronted wall cabinets and handle trim (new) of butler's pantry portion of kitchen- new upgrade in kitchen to match.
5. Bathroom upgrades (3 bathrooms)
6. Insulation
7. Flue lining
8. Roof rafter underlayment

Electrical

1. Electrical Upgrade

Mechanical

Mechanical (2-pipe steam system, one pressure reducing valve at 42C)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets...etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Install a steam pressure reducing valve and a standby pressure reducing valve at the main branch into the house.
9. Install a manual bypass line (with valve) at the main steam pressure reducing valves.
10. Install steam duplex condensate pump and condensate receiver in the basement.
11. Replace all shutoff valves at the steam radiators
12. Install individual (self contained) thermostatically controlled valve located at each radiator.
13. Install steam trap on the return pipe after each steam radiator.
14. Insulate all steam heating piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
15. Refurbish laundry sinks in the basement.
16. Relocate it through the wall instead of through the window.
17. Install clothes washer connection box.
18. Replace the existing main steam control valve in the basement.
19. Replace some deteriorated steam radiators

Unit 42B

Architectural

1. Installation of first floor bathroom Abandon basement bathroom.
2. Interior painting
3. Kitchen upgrade
4. Bathroom upgrades (3 bathrooms)
5. Insulation
6. Flue lining
7. Roof rafter underlayment

Electrical

1. Electrical Upgrade

Mechanical (2-pipe steam system, one pressure reducing valve at 42C)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets...etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Install a steam pressure reducing valve and a standby pressure reducing valve at the main branch into the house.
9. Install a manual bypass line (with valve) at the main steam pressure reducing valves.
10. Install steam duplex condensate pump and condensate receiver in the basement.
11. Replace all shutoff valves at the steam radiators
12. Install individual (self contained) thermostatically controlled valve located at each radiator.
13. Install steam trap on the return pipe after each steam radiator.
14. Insulate all steam heating piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
15. Refurbish laundry sinks in the basement.
16. Relocate it through the wall instead of through the window.
17. Install clothes washer connection box.
18. Replace the existing main steam control valve in the basement.
19. Replace some deteriorated steam radiators.

Unit 42C

Architectural

1. Installation of first floor bathroom Abandon basement bathroom. Reuse original basement water closet if in good condition.
2. Plaster repair
   a. back stair from 2nd to 3rd –repair water damaged plaster wall surface(has wall-paper covering). Plaster appears to be delaminating-see similar below for repair.
   b. main stair walls from 1st to 2nd - large section of plaster wall delaminating from wood lath-recommend remove and replaster entire area (100 sf +/-)-possible relath.

c. On other side of stair, 2nd floor bedroom adjacent to stair- water damage to same wall, baseboard moldings, etc.-investigate and repair. Damage most likely from roof eave at re-entrant corner. Repair floor at corner where water damaged.

3. Interior painting
4. Kitchen upgrade
5. Bathroom upgrades (3 bathrooms)
6. Insulation
7. Flue lining – for 1 chimney
8. Roof rafter underlayment
9. Roof repair/investigation – This roof has had recent repairs, however, evidence of continuing leaks after roof work (See plaster repair above). Recommend investigation to confirm damage is old.
10. Woodwork repair- restore wood paneling above fireplace mantle in 'parlor'. Repair window trim 2nd floor bedroom

Electrical

1. Electrical Upgrade

Mechanical

Mechanical (2-pipe steam system, one pressure reducing valve for 3 qrts)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Install a standby pressure reducing valve at the main branch into the house.
9. Install a manual bypass line (with valve) at the main steam pressure reducing valves.
10. Replace all shutoff valves at the steam radiators
11. Install individual (self contained) thermostatically controlled valve located at each radiator.
12. Install steam trap on the return pipe after each steam radiator.
13. Insulate all steam heating piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
14. Refurbish laundry sinks in the basement.

15. Replace dry vent duct and relocate it through the wall instead of through the window.
16. Install clothes washer connection box.
17. Replace the existing main steam control valve in the basement.
18. Replace some deteriorated steam radiators.

Garage 42A,B,C

Architectural

1. Replace missing slate (10 sf +/-)
2. Paint eave boards
3. Repair gutter and anchorage

Electrical

1. This 3 bay garage is indicated to get power to all bays- work involves pulling power underground from a nearby transformer to a central disconnect, and running branch circuits to each bay.

Unit 45A

Architectural

1. Installation of first floor bathroom Abandon basement bathroom.
2. Plaster repair – This unit has several roof leak damages to plaster finishes- however these repairs are scheduled to be done by DHPW, including:
   a. repair of roof leak damage at 2nd floor bedroom by front window and chimney
   b. water stain and damaged plaster selected 3rd floor areas
   c. Repair of plaster finishes due to pipe leak in master bedroom.
3. Interior painting
4. Kitchen upgrade
5. Bathroom upgrades (3 bathrooms)
6. Insulation
7. Flue lining
8. Roof rafter underlayment
9. Box out pipes with studs and drywall, trim etc.

Electrical

1. Electrical Upgrade

Mechanical (2-pipe steam system)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant

comfort. One or more high velocity units may be provided with condensing units located outside.

2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Install a standby pressure reducing valve at the main branch into the house.
9. Install a manual bypass line (with valve) at the main steam pressure reducing valves.
10. Remove the abandoned steam condensate pump, condensate receiver and associated piping.
11. Replace all shutoff valves at the steam radiators
12. Install individual (self contained) thermostatically controlled valve located at each radiator.
13. Install steam trap on the return pipe after each steam radiator.
14. Insulate all steam heating piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
15. Refurbish laundry sinks in the basement.
16. Install clothes washer connection box.
17. Replace some (old style) steam radiators on 1st floor
18. Replace the existing main steam control valve in the basement.

Unit 45B

Architectural

1. Installation of first floor bathroom Abandon basement bathroom water closet.
2. Plaster repair – cracked plaster at 2nd floor bath at window and door. Repair water damaged plaster 3rd floor bedroom corner. 3rd floor hall patch.
3. Interior painting -remove peeling wall covering at 3rd floor stair
4. Kitchen upgrade – retain original base cabinets and glass fronted wall cabinets along north wall
5. Bathroom upgrades (3 bathrooms)
6. Insulation
7. Flue lining – cap and block all others – provide rain caps for 4 of the 6 that still leak water.
8. Roof rafter underlayment

9. Investigate possible water infiltration behind wood wainscot paneling in dining room-repair plaster and paneling. Note that this may be vestigial damage predating the adjacent roof of the exterior porch, However the front porch ceiling still leaks water. Investigate cause of water infiltration of porch roof- repair porch wood ceiling.
10. Repair several loose wood floorboards on 1st floor.
11. Clean and repair ceiling air vent in master bedroom.
12. Investigate cause of leak in SW room of basement
13. Clean brick fireplaces
14. Repair wood paneling of fireplace mantle
15. Replace basement areaway screen door.
16. reconfigure door openings to pantry from kitchen
17. Repair water damaged plaster in vestibule where pipe leaked – box out pipes in wood studs and drywall

Electrical

1. Electrical Upgrade

Mechanical (2-pipe steam system)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Replace gas meter with shut off valves
8. Install a standby pressure reducing valve at the main branch into the house.
9. Install a manual bypass line (with valve) at the main steam pressure reducing valves.
10. Install new steam condensate pump and condensate receiver for steam heating system.
11. Replace all shutoff valves at the steam radiators
12. Install individual (self contained) thermostatically controlled valve located at each radiator.
13. Install steam trap on the return pipe after each steam radiator.
14. Insulate all steam heating piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
15. Refurbish laundry sinks in the basement.

16. Install clothes washer water/drainage connections.
17. Replace the existing main steam control valve in the basement.

Unit 45C

Architectural

1. Installation of first floor bathroom Abandon basement bathroom. Reuse original basement water closet if in good condition.
2. Interior painting
3. Kitchen upgrade – retain north wall original base cabinets and glass-fronted wall cabinets in butler's pantry
4. Bathroom upgrades (3 bathrooms)
5. Insulation
6. Flue lining
7. Roof rafter underlayment
8. Chimney (rear) efflorescence (clean ?)

Electrical

1. Electrical Upgrade

Mechanical (2-pipe steam system)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Install a standby pressure reducing valve at the main branch into the house.
9. Install a manual bypass line (with valve) at the main steam pressure reducing valves.
10. Replace all shutoff valves at the steam radiators
11. Install individual (self contained) thermostatically controlled valve located at each radiator.
12. Install steam trap on the return pipe after each steam radiator.

13. Insulate all steam heating piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
14. Refurbish laundry sinks in the basement.
15. Install clothes washer water/drainage connections.
16. Replace some (old style) steam radiators on 1st floor
17. Replace the existing main steam control valve in the basement.

Unit 48A

Architectural

1. Installation of first floor bathroom Abandon basement bathroom.
2. Interior painting
3. Kitchen upgrade retain original base and glass fronted wall cabinets in pantry, west wall
4. Bathroom upgrades (3 bathrooms)
5. Insulation
6. Flue lining
7. Roof rafter underlayment
8. refinish wood surround for all north (rear) windows

Electrical

1. Electrical Upgrade

Mechanical (2-pipe steam system, one steam PRV for 3 Qrts)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Install a standby pressure reducing valve at the main branch into the house.
9. Install a manual bypass line (with valve) at the main steam pressure reducing valves.
10. Replace the existing deteriorated steam condensate pump and condensate receiver in the basement.
11. Replace all shutoff valves at the steam radiators

12. Install individual (self contained) thermostatically controlled valve located at each radiator.
13. Install steam trap on the return pipe after each steam radiator.
14. Insulate all steam heating piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
15. Refurbish/replace laundry sinks in the basement.
16. Replace the dryer vent in the laundry room
17. Install clothes washer connection box.
18. Replace the existing main steam control valve in the basement.

Unit 48B

Architectural

1. Installation of first floor bathroom Abandon basement bathroom. Enclose portion of front entry-reconfigure small closet to be more useful.
2. Plaster repair in basement storage are. Patch previously water damaged ceiling in kitchen (leaks no longer ongoing per occupant)
3. Interior painting
4. Kitchen upgrade – retain east wall original pantry base and glass fronted wall cabinets and trim.
5. Bathroom upgrades (3 bathrooms)
6. Insulation
7. Flue lining
8. Roof rafter underlayment
9. Provide pneumatic hinge for built in seat bench
10. This unit floor framing has sagged noticeably at dining room window wall-recommned further investigation to determine if corrective structural measures are required. Suspect deterioration of floor framing joist bearing ends.

Electrical

1. Electrical Upgrade -

Mechanical (2-pipe steam system, steam PRV is in Qrt 48A.)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.

5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Install a pressure reducing valve and a standby pressure reducing valve at the main branch into the house.
9. Install a manual bypass line (with valve) at the main steam pressure reducing valves.
10. Install steam condensate pump and condensate receiver in the basement.
11. Replace all shutoff valves at the steam radiators
12. Install individual (self contained) thermostatically controlled valve located at each radiator.
13. Install steam trap on the return pipe after each steam radiator.
14. Insulate all steam heating piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in. Replace damage pipe insulation in the basement
15. Refurbish/replace laundry sinks in the basement.
16. Replace the dryer vent in the laundry room with exterior wall cap and backdraft damper.
17. Install clothes washer connection box.

Unit 48C

Architectural

1. Installation of first floor bathroom Abandon basement bathroom.
2. Interior painting
3. Kitchen upgrade – retain original pantry base and glass fronted wall cabinets
4. Bathroom upgrades – Note this unit has had recent bathroom upgrades (2nd, 3rd floors-3rd floor has original claw foot tub) including new fixtures, ceramic tile floors etc.-recommend minor improvements only
5. Insulation
6. Flue lining
7. Roof rafter underlayment
8. Box out steam pipes in dining room and 2nd floor bedroom with studs and drywall
9. Note this unit occupant claims roof leaks ongoing, into 3rd floor ceiling. After cursory investigation in attic suspect plywood roof hatch.

Electrical

1. Electrical Upgrade

Mechanical

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Install a standby pressure reducing valve at the main branch into the house.
9. Install a manual bypass line (with valve) at the main steam pressure reducing valves.
10. Replace the existing deteriorated steam condensate pump and condensate receiver in the basement.
11. Replace all shutoff valves at the steam radiators
12. Install individual (self contained) thermostatically controlled valve located at each radiator.
13. Install steam trap on the return pipe after each steam radiator.
14. Insulate all steam heating piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
15. Refurbish/replace laundry sinks in the basement.
16. Replace the dryer vent in the laundry room
17. Install clothes washer connection box.
18. Replace the existing main steam control valve in the basement.

Old English North

General notes, Old English North Units:

1. These units are approximately 6,800 square feet in area, solid masonry construction with furred out plaster finish, wood framed floors and slate roof, built between 1906 to 1908.
2. These units have ongoing work associated with exterior window restoration, lead based paint abatement, brick pointing, roof and gutter repairs that are under another contract and not part of this work scope.

General site work for this area:

1. Exterior sidewalks and access walks and steps are framed with massive stone walls. Condition of the existing walkways and steps is considered good, and replacement is not recommended, except for the southern most walkway to building 116.
2. Replace existing 4" cast iron laterals with new 6 inch pipe. Sewer laterals exit the units from the front, but there is no sewer lateral information indicated on the topo for buildings 120 and 122. Additional topography may be required to complete design work for these buildings.
2. Condensing unit screening.

Garage

Electrical

1. This 16 bay garage is indicated to get power to all bays - work involves pulling power underground from a nearby transformer to a central disconnect, and running branch circuits to each bay.

Unit 116A

Architectural

1. Installation of first floor bathroom in rear foyer.
2. Plaster repair in selected areas in basement ceiling, 3rd floor storeroom
3. Interior painting
4. Kitchen upgrade
5. Bathroom upgrades (3 bathrooms)
6. Insulation
7. Flue lining
8. Roof rafter underlayment
9. Repair basement door-provide weatherproofing.
10. Water migration in basement. Note this may be due primarily to clogged drain-recommend clean –out.

Electrical

1. Electrical Upgrade
2. Provide exterior light fixtures in back of unit to match quarters 118.

Mechanical

Mechanical (Water Boil)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Replace gas meter
8. Replace Water Boiler for heating system
9. Replace deteriorated heating water piping
10. Replace all shutoff valves at the radiators
11. Install individual thermostatically controlled valve located at each radiator.
12. Replace make-up water valve train, including backflow preventer, automatic fill valve, and by-pass to the hydronic heating water system.
13. Insulate all hydronic heating water piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
14. Refurbish laundry sinks in the basement.
15. Install clothes washer connection box.
16. Install radon system (passive) in the basement and vent to the outside
17. Drainage system is bad, replace drainage system
18. Replace "old" style radiator in the basement.

Unit 116B

Architectural

1. Installation of first floor bathroom Abandon basement bathroom.
2. Interior painting
3. Kitchen upgrade – This kitchen has been recently upgraded- retain all cabinetry, ceramic tile floor finishes.
4. Bathroom upgrades –Note these bathrooms have been recently upgraded- existing ceramic tile floors and wall wainscoting to remain- see mechanical for work.
5. Insulation
6. Flue lining
7. Roof rafter underlayment
8. Remove interior window at 2nd floor hallway at stair (by code)-infill with wood studs and plaster.

9. Note this unit has minor water infiltration in basement (rear of unit at demising wall) due to clogged window well drains-this has been identified in housing work orders-remedial measures are not included in this scope of work.
10. Also, slate roof tile has reportedly slid off the roof- these quarters are scheduled for roof repair under another ongoing contract for comprehensive exterior repairs- this work is not included in this scope of work.

Electrical

1. Electrical Upgrade

Mechanical (Water boiler)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets...etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Replace gas meter
8. Replace Water Boiler for heating system
9. Replace heating water pump
10. Replace deteriorated heating water piping
11. Replace all shutoff valves at the radiators
12. Install individual thermostatically controlled valve located at each radiator.
13. Replace make-up water valve train, including backflow preventer, automatic fill valve, and by-pass to the hydronic heating water system.
14. Insulate all hydronic heating water piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
15. Refurbish laundry sinks in the basement.
16. Install clothes washer connection box.
17. Install radon system (active) in the basement and vent to the outside
18. Replace "old" style radiator in the basement
19. Replace drainage system inside the house

Unit 118A

Architectural

1. Installation of first floor bathroom Abandon basement bathroom.
2. Plaster repair in basement stairwell, kitchen ceiling, sitting room at ceiling/wall junction and above fireplace. Also recommend replace plaster wall portion 3rd floor from bedroom door to end of hall (10 feet +/-)- plaster delaminating.
3. Interior painting
4. Kitchen upgrade
5. Bathroom upgrades (3 bathrooms) Note 2nd floor bathroom has new tub surround. Note also that 3rd floor bath may have original lav and claw foot tub.
6. Insulation
7. Flue lining
8. Roof rafter underlayment
9. Although downspouts have been tied into the underground storm sewer, problems with water in the basement is still ongoing at the back of the unit.
10. Although the porch roofs have been recently repaired, leaks are evident through the wood ceiling. Repair/Replace water damaged portions of ceiling. Recommend investigate if roof still leaking.

Electrical

1. Electrical Upgrade

Mechanical (Water Boiler)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Replace deteriorated heating water piping and insulation in the basement
9. Replace all shutoff valves at the radiators
10. Install individual thermostatically controlled valve located at each radiator.
11. Replace make-up water valve train, including backflow preventer, automatic fill valve, and by-pass to the hydronic heating water system.
12. Insulate all hydronic heating water piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in or box pipes in.

13. Refurbish laundry sinks in the basement.
14. Install clothes washer connection box.
15. Install radon system (active) in the basement and vent to the outside

Unit 118B

Architectural

1. Installation of first floor bathroom Abandon basement bathroom.
2. Plaster repair in 1st floor sitting room ceiling at porch, other areas 1st floor, cracks near stair window
3. Interior painting
4. Kitchen upgrade
5. Bathroom upgrades (3 bathrooms) Note 3rd floor bathroom has new pedestal lav-retain.
6. Insulation
7. Flue lining
8. Roof rafter underlayment
9. Dining room sliding door requires maintenance-door binds. Sitting room slider needs track mechanism repaired
10. Back porch still experiences water infiltration –suspect flashings at wall- this work not included in this scope of work. Porch roof not sloped right.
11. Note – front porch masonry piers evidence serious deterioration of mortar joints- however it is assumed this work is under the other ongoing contract.

Electrical

1. Electrical Upgrade

Mechanical

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Replace deteriorated heating water piping and insulation in the basement
9. Replace all shutoff valves at the radiators

10. Install individual thermostatically controlled valve located at each radiator.
11. Replace make-up water valve train, including backflow preventer, automatic fill valve, and by-pass to the hydronic heating water system.
12. Insulate all hydronic heating water piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in or box pipes in.
13. Refurbish laundry sinks in the basement.
14. Install clothes washer connection box.
15. Install radon system (passive) in the basement and vent to the outside

Unit 120A

Architectural

1. Installation of first floor bathroom_ Abandon basement bathroom.
2. Plaster repair in 2nd floor main stair wall ceiling.
3. Interior painting
4. Kitchen upgrade
5. Bathroom upgrades (3 bathrooms)
6. Insulation
7. Flue lining
8. Roof rafter underlayment
9. This unit has minor water damage in basement front room. No work in this scope.

Electrical

1. Electrical Upgrade

Mechanical (Water boiler)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Replace deteriorated heating water piping and insulation in the basement
9. Replace heating water boiler and pump
10. Replace all shutoff valves at the radiators
11. Install individual thermostatically controlled valve located at each radiator.

12. Replace make-up water valve train, including backflow preventer, automatic fill valve, and by-pass to the hydronic heating water system.
13. Insulate all hydronic heating water piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in or box pipes in (except in the basement).
14. Refurbish laundry sinks in the basement.
15. Install clothes washer connection box.

Unit 120B

Architectural

1. Installation of first floor bathroom Abandon basement bathroom.
2. Plaster repair
3. Interior painting
4. Kitchen upgrade
5. Bathroom upgrades (3 bathrooms)
6. Insulation
7. Flue lining - dining room fireplace currently functional, parlor room non-functional
8. Roof rafter underlayment
9. Note this unit back porch still suffers water leak at roof wall junction-suspect water entering wall as well., even though porch roof repairs recently done. This unit 3rd floor also leaks near chimney-suspect chimney flashing problem.

Electrical

1. Electrical Upgrade

Mechanical (water boiler)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets...etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Replace gas meter
8. Replace deteriorated heating water piping and valves and insulation in the basement

7. Install gas meter
8. Replace deteriorated heating water piping, valves, and insulation in the basement
9. Replace all shutoff valves at the radiators
10. Install individual thermostatically controlled valve located at each radiator.
11. Replace make-up water valve train, including backflow preventer, automatic fill valve, and by-pass to the hydronic heating water system.
12. Insulate all hydronic heating water piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in (except in the basement).
13. Refurbish laundry sinks in the basement.
14. Install clothes washer connection box.
15. Install radon system (passive) in the basement and vent to the outside

Unit 122B

Architectural

1. Installation of first floor bathroom Abandon basement bathroom.
2. Interior painting
3. Kitchen upgrade
4. Bathroom upgrades (3 bathrooms)
5. Insulation
6. Flue lining
7. Roof rafter underlayment

Electrical

1. Electrical Upgrade

Mechanical (water boiler)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Replace deteriorated heating water piping, valves, and insulation in the basement

9. Replace all shutoff valves at the radiators
10. Install individual thermostatically controlled valve located at each radiator.
11. Replace make-up water valve train, including backflow preventer, automatic fill valve, and by-pass to the hydronic heating water system.
12. Insulate all hydronic heating water piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in (except in the basement).
13. Refurbish laundry sinks in the basement.
14. Install clothes washer connection box.
15. Install radon system (passive) in the basement and vent to the outside

Professor's Row

General notes, Professor Row Units:

3. These units are approximately 9,600 square feet in area, solid masonry construction with a mix of cut stone and brick masonry, both with furred out plaster finishes, wood framed floors and slate roof, built around 1819-1820. They are believed to be the oldest housing units on campus.
4. These units have ongoing work associated with comprehensive exterior porch repair, exterior lead based paint abatement and repainting of all exterior window and door trim, eave fascia and portions of wood siding, connecting all downspouts to underground system, window restoration. The last phase of the work is scheduled to commence in summer 04 and will be complete before commencement of this work. Additionally, roof and gutter repairs have been made recently to unit 103. The condition of the roofs of units 105 and 107 could not be generally assessed, except for evident gutter damage in selected areas of unit B, and water infiltration in several areas. Also, it appears that brick pointing has also already been done recently for all of these units.

General site work for this area:

1. Install IDG compliant trash enclosures for these quarters
2. Condensing unit screening-each unit
3. A new sidewalk serves along Washington Rd. and was recently replaced. To each unit there is a separate slate walkway. These will be reset where unlevel conditions are present. Slate will be reset as required to maintain historic character. The rear of these units is mostly paved with irregular asphalt areas, with no real concrete sidewalks to be replaced. It is difficult to determine the sewer lateral requirements for these buildings, since a 12" sewer line runs along the back of the units shown within the footprint of the buildings. It is assumed that each unit is tapped into this cast iron, gravity main. Video inspection of this main is recommended if problems with sewer flow exist in any of these units.

Unit 103A

Architectural

1. Plaster repair – several moisture damaged ceiling areas 2nd and 3rd floor. Suspect vestigial damage pre-dating recent roof repairs. This work includes plaster repair only.
2. Interior painting – Pusma wallpaper here-requires special prep.
3. Kitchen upgrade – retain in place existing base cabinets and glass front wall cabinets (either authentic restored or very new)-complete upgrade otherwise.

4. Bathroom upgrades (5 bathrooms)
5. Insulation – it is not known at this time exactly how much wall cavity space is available for insulating-thus net benefit is unknown, however suspect an inch at least available and could provide injected foam. In addition;. Also, provide basement crawl space insulation and vapor barrier.
   a. basement - provide crawlspace insulation with vapor barrier between joists spaces (approximately 1/3 total footprint is crawlspace.)
   b. attic-Provide insulation in floor framing- recommend blow-in or injected since floor is planked.
6. Flue lining
7. Roof rafter underlayment
8. patch basement ceiling where stair was removed

Electrical

1. Electrical Upgrade

Mechanical (Use team and converted to heating water by HX)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Install a standby pressure reducing valve at the main branch into the house.
9. Replace/relocate exhaust duct from the exhaust fan through the wall instead of the window in the mechanical room
10. Replace any damage insulation of heating water/steam piping in the basement
11. Insulate all steam heating piping in the basement
12. Refurbish/replace laundry sinks in the basement.
13. Replace the dryer vent in the laundry room
14. Install clothes washer connection box.
15. Install floor drain in the basement
16. Install radon system (passive) and vent it to the outside.

Unit 103B

Architectural

1. Installation of first floor bathroom
2. Plaster repair in basement laundry room, basement stairs
3. Interior painting
4. Kitchen upgrade
5. Bathroom upgrades (4 bathrooms)
6. Insulation
7. Flue lining
8. Roof rafter underlayment

Electrical

1. Electrical Upgrade

Mechanical (Use steam and HX to convert to heating water, air compressor for pneumatic control valves is sharing with 103A)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Install a standby pressure reducing valve at the main branch into the house.
9. Replace any damage insulation of heating water/steam piping in the basement
10. Replace any disintegrated heating water piping in the basement
11. Replace steam condensate pump and condensate receiver in the basement
12. Insulate all steam heating piping in the basement
13. Refurbish/replace laundry sinks in the basement.
14. Install clothes washer connection box.
15. Install floor drains in the basement
16. Install radon system (passive) and vent it to the outside.

Unit 105A

Architectural

1. Installation of first floor bathroom Abandon basement bathroom.
2. Plaster repair in various locations in basment
3. Interior painting
4. Kitchen upgrade
5. Bathroom upgrades (4 bathrooms)
6. Insulation
7. Flue lining
8. Roof rafter underlayment

Electrical

1. Electrical Upgrade

Mechanical (Did not survey...)

1. New central A/C

Unit 105B

Architectural

1. Installation of first floor bathroom in rear foyer. Abandon basement bathroom. Reuse original basement water closet.
2. Plaster repair various locations in basement-note that work orders covered by housing indicate patch repair
3. Interior painting
4. Kitchen upgrade
5. Bathroom upgrades (4 bathrooms)
6. Insulation
7. Flue lining – All fireplaces are currently condemned- a gas unit has recently been installed in living room- all fireplace flues are missing dampers, resulting in accumulation of debris at hearth. Recommend install dampers on all units, and block all but one.
8. Roof rafter underlayment
9. Investigate cause of roof leak at rear portion of house.
10. Repair copper downspout – reconnect to underground system. Investigate other possible causes of flooding in area-well in rear (note not sure how much of this work covered by ongoing contract) Currently occupant uses sump pump. This is noted in work order listing.
11. Basement has no drain-this is not included in this scope of work
12. Repair copper gutter in rear of house feeding areaway
13. Though not in the scope of work, this occupant noted substantial decay of the detached garage-this has not been included in the scope of work.

Electrical

1. Electrical Upgrade

Mechanical (Use steam to convert to heating water by HX)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Install a new pressure reducing valve and a standby pressure reducing valve at the main branch into the house.
9. Replace/relocate exhaust duct from the exhaust fan through the wall instead of the window in the mechanical room
10. Replace any damage insulation of heating water/steam piping in the basement
11. Replace any disintegrated heating water piping in the basement (around the HX)
12. Replace steam condensate pumps and condensate receiver.
13. Replace/install radiator control valves in bathrooms, basement, and various locations where control valves are disintegrated.
14. Insulate all steam heating piping.
15. Refurbish/replace laundry sinks in the basement.
16. Replace the dryer vent in the laundry room
17. Install clothes washer connection box.
18. Flush/clean drainage system inside the house (all bathrooms)
19. Install radon system (active) and vent it to the outside.

Unit 107A

Architectural

1. Installation of first floor bathroom_ in front foyer ?. Abandon basement bathroom.
2. Plaster repair in basement – several areas
3. Interior painting
4. Kitchen upgrade

5. Bathroom upgrades (3 bathrooms)
6. Insulation
7. Flue lining
8. Roof rafter underlayment
9. Note this unit has water infiltration in basement near the bathroom/laundry room and possible roof leak in the back at the re-entrant corner of the unit causing water damage to ceiling finishes. Recommend investigation to determine cause- no remedial work is included in this scope at this time.

Electrical

1. Electrical Upgrade

Mechanical (Use steam to convert to heating water by HX)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Install a new pressure reducing valve and a standby pressure reducing valve at the main branch into the house.
9. Replace/relocate exhaust duct from the exhaust fan through the wall instead of the window in the mechanical room
10. Replace any damage insulation of heating water/steam piping in the basement
11. Replace any disintegrated heating water piping in the basement (around the HX)
12. Replace steam condensate pumps and condensate receiver.
13. Replace some deteriorated radiators in the basement.
14. Replace/install radiator control valves in bathrooms, basement, and various locations where control valves are disintegrated.
15. Insulate all steam heating piping.
16. Refurbish/replace laundry sinks in the basement.
17. Replace the dryer vent in the laundry room
18. Install clothes washer connection box.
19. Flush/clean drainage system inside the house (all bathrooms)
20. Install radon system (active) and vent it to the outside.

Unit 107B

Architectural

1. Installation of first floor bathroom Abandon basement bathroom. Note this basement has old marble shower stall.
2. Plaster repair in basement laundry room, ceiling delaminating significantly. Repair crack in dining room ceiling.
3. Interior painting
4. Kitchen upgrade
5. Bathroom upgrades (4 bathrooms)
6. Insulation
7. Flue lining – Note some chimneys have rain caps installed already
8. Roof rafter underlayment
9. Note work order indicates missing shingles to be replaced-this work is not included in this scope of work
10. Note this unit has wall-to-wall carpeting throughout- guidance per the Post is that Owner will remove carpeting prior to commencement of the work-this is not included in this scope of work.

Electrical

1. Electrical Upgrade

Mechanical (Use team to convert to heating water by HX. Air compressor for neumatic control valves is sharing with 107A)

1. New central A/C Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Install a new pressure reducing valve and a standby pressure reducing valve at the main branch into the house.
9. Install a manual bypass line (with valve) at the main steam pressure reducing valves.
10. Replace/relocate exhaust duct from the exhaust fan through the wall instead of the window in the mechanical room
11. Replace pipe insulation of heating water/steam piping in the basement

12. Replace any disintegrated heating water piping in the basement (around the HX)
13. Replace steam condensate pumps and condensate receiver.
14. Replace some deteriorated radiators in the basement.
15. Replace/install radiator control valves in bathrooms, basement, and various locations where control valves are disintegrated.
16. Insulate all steam heating piping.
17. Refurbish/replace laundry sinks in the basement.
18. Replace the dryer vent in the laundry room
19. Install clothes washer connection box.
20. Install radon system (active) and vent it to the outside.

Bartlett Loop

General notes, Bartlett Loop Units:

1. These units are 2,800 square feet in area, and are arranged in duplexes. Construction is wood frame with aluminum siding, built in the 1940's.

General site work for this area:

1. Bartlett Loop (Bldgs. 132, 130, and 128) These three buildings are elevated about 6 ft. above the street level. The concrete steps are in fair to good condition and vary from 6 to 10 risers at six sets of steps. The sidewalk along Bartlett Loop is damaged along with the adjacent curb and gutter. The walkway and curb and gutter will be replaced, and provided with handicapped curb cuts. (Street pavement is in very poor condition, but is not in the project 1391). Modification to one of these units for handicapped accessibility will require access upgrades on the rear of the building to create a handicapped entrance. Units will be provided with new trash enclosures to replace existing.
2. Condensing unit screening

Unit 128A

Architectural

1. Interior painting
2. Window Restoration
3. Kitchen upgrade – retain existing base and wall cabinets but provide new pulls (very new cabinetry)
4. Bathroom upgrades (2 bathrooms)
5. Insulation – cellulose fiber
6. Roof rafter underlayment
7. Rated dwelling unit separation
8. Replace steel handrail at exterior concrete steps

Electrical

1. Electrical Upgrade

Mechanical

Mechanical (water boiler – one boiler located in 128B serves both units with 2 separate pumps, water heater is also located in the 128B)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant

comfort. One or more high velocity units may be provided with condensing units located outside.

2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets...etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Replace all shutoff valves at the radiators
9. Install individual thermostatically controlled valve located at each radiator.
10. Insulate all hydronic heating water piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in (except in the basement)
11. Install radon system (passive) in the basement and vent to the outside

Unit 128B

Architectural

1. Interior painting
2. Window Restoration
3. Kitchen upgrade – retain existing base and wall cabinets but provide new pulls (very new cabinetry)
4. Bathroom upgrades (2 bathrooms)
5. Insulation – cellulose fiber blow-in, include dwelling separation wall for required STC
6. Roof rafter underlayment
7. Rated dwelling unit separation
8. Replace steel handrail at exterior concrete steps
9. Repair areaway door and reinstall
10. Repair/Replace acoustical suspended ceiling in "excersise" room

Electrical

1. Electrical Upgrade

Mechanical

Mechanical (water boiler – one boiler located in 128B serves both units with 2 separate pumps, water heater is also located in the 128B)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.

2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Replace all shutoff valves at the radiators
9. Install individual thermostatically controlled valve located at each radiator.
10. Replace make-up water valve train, including backflow preventer, automatic fill valve, and by-pass to the hydronic heating water system.
11. Insulate all hydronic heating water piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in (except in the basement).
12. Refurbish laundry sinks in the basement.
13. Install clothes washer connection box.
14. Re-route dryer vent through the wall instead of through the window.
15. Install radon system (passive) in the basement and vent to the outside

Unit 130A

Architectural

1. Plaster repair in dining room above corner window, 2nd floor bathroom walls-investigate source of water infiltration.
2. Interior painting
3. Window Restoration
4. Kitchen upgrade – retain existing base and wall cabinets (very new cabinetry).
5. Bathroom upgrades (2 bathrooms)
6. Insulation – cellulose fiber
7. Roof rafter underlayment
8. Rated dwelling unit separation
9. Replace deteriorated wood threshold- kitchen exterior door
10. Investigate cause of water infiltration in dining room (exterior wall) and in 2nd floor bedroom (suspect roof leak here, though roof looks new)

Electrical

1. Electrical Upgrade

Mechanical (water boiler – one boiler located in 130B serves both units with 2 separate pumps, water heaters are also located in the 130B)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Replace all shutoff valves at the radiators
9. Install individual thermostatically controlled valve located at each radiator.
10. Insulate all hydronic heating water piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in (except in the basement).
11. Install radon

Unit 130B

Architectural

1. Plaster repair at basement stair wall
2. Interior painting
3. Window Restoration
4. Kitchen upgrade – retain existing base and wall cabinets (very new cabinetry).
5. Bathroom upgrades (2 bathrooms) – water closets/tub modules look new (?)
6. Insulation – cellulose fiber, include dwelling separation wall for required STC
7. Roof rafter underlayment
8. Rated dwelling unit separation

Electrical

1. Electrical Upgrade

Mechanical (water boiler – one boiler located in 130B serves both units with 2 separate pumps, water heaters are also located in the 130B)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced

4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Replace heating water boiler that serves both Qrts 130A and 130B.
9. Replace all shutoff valves at the radiators
10. Install individual thermostatically controlled valve located at each radiator.
11. Replace make-up water valve train, including backflow preventer, automatic fill valve, and by-pass to the hydronic heating water system.
12. Insulate all hydronic heating water piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in (except in the basement).
13. Refurbish laundry sinks in the basement.
14. Install clothes washer connection box.
15. Re-route dryer vent through the wall instead of through the window.
16. Install radon system (passive) in the basement and vent to the outside

Unit 132A

Architectural

1. Interior painting
2. Kitchen upgrade
3. Bathroom upgrades (2 bathrooms-see ADA for 1st floor bath modifications)
4. Insulation
5. Window Restoration
6. Roof rafter underlayment
7. Rated dwelling unit separation
8. ADA Modifications – Wood ramp to kitchen door-back of unit. Replace kitchen door with new 3' door. Reconfigure 1st floor study room into compliant bedroom, enlarge existing 1st floor bathroom for compliant bath, etc..
9. Repair front wood porch and steps to match units 128A,B and 130A, B.

Electrical

1. Electrical Upgrade

Mechanical (Did not survey)

Unit 132B

Architectural

1. Interior painting
2. Kitchen upgrade
3. Bathroom upgrades (2 bathrooms)

4. Insulation
5. Roof rafter underlayment
6. Rated dwelling unit separation
7. Replace basement hatch with new Bilco hatch unit
8. Rebuild front concrete steps (steps are spalling)
9. Repair front wood porch and steps to match units 128A,B and 130A, B.

Electrical

1. Electrical Upgrade

Mechanical (water boiler – one boiler located in 132B serves both units with 2 separate pumps, water heater is also located in the 132B)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Replace water boiler that serves both Qrts 132A and 132B
9. Replace all shutoff valves at the radiators
10. Install individual thermostatically controlled valve located at each radiator.
11. Replace make-up water valve train, including backflow preventer, automatic fill valve, and by-pass to the hydronic heating water system.
12. Insulate all hydronic heating water piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in (except in the basement).
13. Refurbish laundry sinks in the basement.
14. Install clothes washer connection box.
15. Re-route dryer vent through the wall instead of through the window.
16. Install radon system (passive)

Special Category

See specific unit listings for site work

General notes, Special Category:

3. These units are different and range in square footage from 1,900 square feet (374) to approximately 7,400 square feet (109 duplex) in area, solid masonry construction with furred out plaster finish, wood framed floors and slate roof, built between 1906 to 1908.
4. These units have ongoing work associated with exterior window restoration, lead based paint abatement, brick pointing, roof and gutter repairs that are under another contract and not part of this work scope.

Unit 61

Site work

1. Building 61 (Schofield Place) A single unit structure, the sidewalks and drives appear to be newly replaced. A short 4-inch sanitary lateral exists the rear of the building to a nearby manhole. Replace existing 4" cast iron laterals with new 6 inch pipe.
2. Condensing unit screening

Architectural

1. Installation of first floor bathroom in kitchen pantry
2. Interior painting
3. Kitchen upgrade
4. Bathroom upgrades (2 bathrooms)
5. Insulation
6. Flue lining – block one chimney
7. Remove linoleum flooring in 1st floor hall-replace with like wood flooring
8. Per USMA guidance, this unit will have ongoing contract for roof work, and all exterior repair (ie, LBP abatement, painting, trim, fascia, brick, window restoration, etc.) and is not included in this scope of work. USACE noted serious deterioration of the roof and fascia and all exterior woodwork, porches, etc..

Electrical

1. Electrical Upgrade

Mechanical (Water boiler-Gas)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Replace all shutoff valves at the radiators
9. Install individual (self contained) thermostatically controlled valve located at each radiator.
10. Insulate all heating water piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
11. Replace the dryer vent in the laundry room
12. Install clothes washer drainage/water connections.

Unit 109

Site work

1. Replace existing 4" cast iron laterals with new 6 inch pipe.
2. Condensing unit screening
3. See Professor's Row for other sitework

Architectural

1. This unit work primarily consists of conversion of the existing 4 unit configuration (2 over 2) to its original 2 unit duplex configuration- generally this involves the following:
    i. Open the stairwell from 1st to 2nd floor each side (2 stairwells) by removing the plaster wall and framing- provide new banister rail to match the existing.
    ii. Recapture bedroom space 1st floor unit A for kitchen. Recapture 1s floor bedroom space unit B for living space (it's former use) by removing demising wall (1st floor kitchen unit B already exiting
    iii. Recapture 2nd floor kitchens both units for new bathrooms, with closet space fronting adjacent bedrooms.
    iv. Recapture 2nd floor living/dining spaces both units for bedrooms (its former use-closets already existing).
    v. Remove back stair and enclosure unit A
    vi. Other miscellaneous work not known at this time.
2. Kitchen upgrade - both units
3. Plaster repair – throughout unit A, and unit B 2nd floor

4. Interior painting
5. Bathroom upgrades (2 bathrooms each unit)
6. Exterior trim- No work included-Trim has widespread rot/mildew- work involves repair and/or replacement-fascia, eaves, porch trim, etc.. Also suspect gutters clogged-recommend further investigation.
7. Insulation – Its is not known at this time how much cavity space available for injecting insulation-this unit circa 1870's
8. Flue lining – (We recommend certified chimney sweep investigate draft problem causing requirement of 109 B operating in order for 109D to be operating. It's possible that they share same flue) Presently only one fireplace is operational, unit B, all others have already been block off-recommend work for the one operational fireplace unit B and opening up, repairing, one for unit A as well.
9. Remove acoustical ceiling 2nd floor unit A for former living, dining, and kitchen.-restore ceiling finish to pre-exsiting condition.
10. Note- this occupant has voiced safety issues related to egree/ingress from the back of the unit from parking areas – this entry accesses the 2nd floor levels of both units and consists of a series of open metal stairs, non-functional gates, concrete walkways, more stairs, to a wood deck, to the door of the unit – various deficiencies include riser dimensional noncomformity, non-functional gates, uneven walks, etc..Work was not indicated in the 1391 – more investigation is required to assess the complete scope if it is to be included. The other option is to remove this access route completely.
11. Per USMA guidance, this unit will have ongoing contract for roof work, and all exterior repair (ie, LBP abatement, painting, trim, fascia, brick, window restoration, etc.) and is not included in this scope of work. USACE noted serious deterioration of the roof and fascia and all exterior woodwork, porches, etc..

Electrical

1. Electrical Upgrade

Mechanical (1-pipe steam system)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.

6. Install water meter
7. Replace gas meter
8. Install a standby pressure reducing valve at the main branch into the house.
9. Install a manual bypass line (with valve) at the main steam pressure reducing valves.
10. Replace hot water heaters (may be 1 for each quarter).
11. Replace all shutoff valves at the steam radiators
12. Install individual (self contained) thermostatically controlled valve in series with thermostatic vent at each radiator.
13. Insulate all steam heating piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in.
14. Refurbish/replace laundry sinks in the basement.
15. Replace the dryer vent in the laundry room with exterior cap and backdraft damper
16. Install clothes washer drainage/water connections.
17. Flush/clean the drainage system inside the house.
18. Install radon system (active) and vent it to the outside.

Unit 146

Site work

1. Walks are newly replaced. A rear walk is constructed of slate sections, and will remain- Replace existing 4" cast iron laterals with new 6 inch pipe.
2. Condensing unit screening

Architectural

1. Installation of first floor bathroom near kitchen/stair hall
2. Plaster repair in living room and dining room ceiling
3. Interior painting
4. Kitchen upgrade
5. Bathroom upgrades (1 bathroom)
6. Insulation – note it is not clear at this time what the wall assembly is and if insulating the walls is feasible
7. Flue lining – for 1 chimney
8. Per USMA guidance, this unit will have ongoing contract for roof work, and all exterior repair (ie, LBP abatement, painting, trim, fascia, brick, window restoration, etc.) and is not included in this scope of work. USACE noted serious deterioration of the roof and fascia and all exterior woodwork, porches, etc..

Electrical

1. Electrical Upgrade

Mechanical (2-pipe steam system)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets...etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Install a standby pressure reducing valve at the main branch into the house.
9. Install a manual bypass line (with valve) at the main steam pressure reducing valves.
10. Replace all shutoff valves at the steam radiators
11. Install individual (self contained) thermostatically controlled valve located at each radiator.
12. Install steam trap on the return pipe after each steam radiator.
13. Replace the existing thermostat that controls the main steam valve
14. Insulate all steam heating piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in. Replace damage pipe insulation in the basement
15. Refurbish/replace laundry sinks in the basement.
16. Replace the dryer vent in the laundry room with exterior wall cap and backdraft damper.
17. Install clothes washer connection box.
18. Install radon system (passive) and vent to the outside.

Unit 374

Site work

1. Condensing unit screening
2. Replace existing 4" cast iron laterals with new 6 inch pipe.
3. Bldg 374 (near Washington Rd.) This single unit structure has a set of wooden steps to the edge of pavement that will need to be replaced and upgraded to concrete. A new handrail will be provided. The sidewalk to the unit is cracked in one spot, which will require removal and replacement of approximately 6 sq. yds. of sidewalk.

Architectural

1. Plaster repair in basement laundry room, basement stairs
2. Interior painting
3. Kitchen upgrade
4. Bathroom upgrades – one downstairs bathroom
5. Insulation - ?
6. Flue lining – for 1 living room chimney (no others exist)
7. Repair awkward closet condition master bedroom.
3. Per USMA guidance, this unit will have ongoing contract for roof work, and all exterior repair (ie, LBP abatement, painting, trim, fascia, brick, window restoration, etc.) and is not included in this scope of work. USACE noted serious deterioration of the roof and fascia and all exterior woodwork, porches, etc..

Electrical

1. Electrical Upgrade

Mechanical (water heater)

1. New central A/C. Install central air conditioning units (cooling only). This house shall have multiple units to provide proper zoning for occupant comfort. One or more high velocity units may be provided with condensing units located outside.
2. Provide new exhaust fan ducted outside for each bathroom
3. All plumbing fixtures in each bathroom, faucets, bathtubs, lavatory, water closets…etc, will be replaced
4. All plumbing fixtures in the kitchen will be replaced.
5. Replace all domestic water steel pipes (hot and cold) with copper pipes and insulation.
6. Install water meter
7. Install gas meter
8. Replace thermostat that controls the boiler (heating system)
9. Replace all shutoff valves at the radiators
10. Install individual (self contained) thermostatically controlled valve located at each radiator.
11. Insulate all heating water piping. If the pipes are exposed, provide PVC insulation jacket or box pipes in (except for in the basement).
12. Install clothes washer drainage/water connections.

Preliminary Cost Estimate

APPENDIX B: AIR APPLICABILITY ANALYSIS

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AIR QUALITY APPLICABILITY ANALYSIS

This air quality applicability analysis was conducted to identify potential increases or decreases in criteria air pollutant emissions associated with the proposed renovation of 50 family housing units at the U.S. Army Garrison West Point, New York. Since the project will occur within a U.S. EPA designated ozone non-attainment area, it is subject to the federal conformity requirements. The purpose of the analysis is to further determine the applicability of the Federal General Conformity Rule established in 40 CFR, Part 93 entitled: *Determining Conformity of Federal Actions to State or Federal Implementation Plans* to the action.

The federal conformity rules were established to ensure that federal activities do not hamper local efforts to control air pollution. In particular, Section 176(c) of the Clean Air Act (CAA) prohibits federal agencies, departments or instrumentalities from engaging in, supporting, licensing, or approving any action, in an area that is in non-attainment of the National Ambient Air Quality Standards (NAAQS), which does not conform to an approved state or federal implementation plan. Therefore, the agency must determine whether or not the project would interfere with the clean air goals in the State Implementation Plan (SIP).

1.0 Project Description

West Point proposes to revitalize 44 senior officer, field grade, company grade, and noncommissioned officer historic family quarters, as well as 6 non-historic quarters at Bartlett Loop, to current standards. This would include the whole neighborhood revitalization for six units in Professors Row, 31 units in the Old English neighborhood (23 in Old English South and 8 in Old English North), and seven special category quarters (Quarters 61, 109 [comprised of four units], 146, and 374), all of which are historic quarters. Additionally, six units in Bartlett Loop (Quarters 128A, 128B, 130A, 130B, 132A, and 132B) would be renovated, none of which are considered historic.

2.0 Metrology/Climate

Temperature is a parameter used in calculations of emissions for air quality applicability. Climate at West Point can be characterized as a humid, continental climate with an mean high temperature of 86°F (30°C) in July and a mean low temperature of 27°F (-2.7°C) in January. Summers are warm with periods of high humidity and winters are cold, with extended periods of snow cover and are influenced by the cold Hudson Bay air masses that are brought into the area. The climate at West Point is also influenced by an air mass that flows from the North Atlantic Ocean bringing cool, cloudy, and damp weather to the region (USMA, 1998).

3.0 Current Ambient Air Quality Conditions

The EPA has classified the New York – North New Jersey – Long Island area, including the area of the proposed project (Orange County, New York), as in severe non-attainment for the criteria pollutant ozone.

4.0 Air Quality Regulatory Requirements

The EPA defines ambient air in 40 CFR Part 50 as "that portion of the atmosphere, external to buildings, to which the general public has access." In compliance with the 1970 Clean Air Act (CAA) and the 1977 and 1990 Clean Air Act Amendments (CAAA), the EPA has promulgated NAAQS. The NAAQS were enacted for the protection of the public health and welfare, allowing for an adequate margin of safety. To date, the EPA has issued NAAQS for six criteria pollutants: carbon monoxide (CO), sulfur dioxide (SO_2),

particles with a diameter less than or equal to a nominal 10 micrometers (PM_{10}), ozone (O_3), nitrogen dioxide (NO_2), and lead (Pb). Areas that do not meet NAAQS are called non-attainment areas. The EPA classified the New York – North New Jersey – Long Island area, including the project area, as in severe non-attainment for ozone. The NAAQS for ozone is presented in Table 1.

Table 1. Ambient Air Quality Standards For Ozone

Pollutant	Federal Standard	New York Standard
Ozone (O_3)[1]		
1-Hour Average	0.12 ppm	0.12 ppm
8-Hour Average	0.08 ppm	0.08 ppm

[1] Federal primary and secondary standards for this pollutant are identical.
Source: EPA 2003, NYS DEC, nd.

To regulate the emission levels resulting from a project, federal actions located in non-attainment areas are required to demonstrate compliance with the general conformity guidelines established in 40 CFR Part 93 *Determining Conformity of Federal Actions to State or Federal Implementation Plans* (the Rule). The project area is located within a severe ozone non-attainment area; therefore, a General Conformity Rule applicability analysis is warranted.

Section 93.153 of the Rule sets applicability requirements for projects subject to the Rule through establishment of *de minimis* levels for annual criteria pollutant emissions. These *de minimis* levels are set according to criteria pollutant non-attainment area designations. Projects below the *de minimis* levels are not subject to the Rule. Those at or above the levels are required to perform a conformity analysis as established in the Rule. The *de minimis* levels apply to direct and indirect sources of emissions that can occur during the construction and operational phases of the action.

Direct emissions are those caused by, or initiated by, the federal action that occur at the same time and place as the action. Indirect emissions are those caused by the action, but which occur later in time and/or at a distance removed from the action itself, yet are reasonably foreseeable and the federal agency responsible for the action can maintain control as part of the actions program responsibility. To determine the applicability of the Rule to this action, emissions must be estimated for the ozone precursor pollutants nitrogen oxides (NOx) and volatile organic compounds (VOC). Annual emissions for these compounds were estimated for the project to determine if it would be below or above the *de minimis* levels established in the Rule. The *de minimis* for severe ozone areas is 25 tons per year (tpy) (22,680 kilograms per year (kgpy)) for both NOx and VOC.

In addition to evaluation of air emissions against *de minimis* levels, emissions are also evaluated for regional significance. A federal action that does not exceed the threshold emission rates of criteria pollutants may still be subject to a general conformity determination if the direct and indirect emissions from the action exceed ten percent of the total emissions inventory for a particular criteria pollutant in a non-attainment or maintenance area. If the emissions exceed this ten percent threshold, the federal action is considered to be a “regionally significant” activity, and thus, the general conformity rules apply.

5.0 Conformity Applicability Analysis

This project construction- and operations-related General Conformity analysis needs to be performed for the proposed renovation of 50 family housing units at West Point. This conformity analysis and air emissions evaluation will follow the criteria regulated in *40 CFR Parts 6, 51, and 93, Determining Conformity of General Federal Actions to State or Federal Implementation Plans; Final Rule* (November 30, 1993).

5.1 Construction Phase Emissions

Construction emissions would result from the operation of heavy equipment, the commuter vehicle traffic from the construction crew, and the painting of building surfaces. The project would utilize a mix of heavy equipment for rehabilitation activities which would include pick-up trucks, backhoe, front end loader, and a delivery truck (flat-bed) for site work and pick-up trucks and delivery trucks for the interior work. It was assumed that site preparation would comprise 1/3 of the total renovation time per phase or approximately 90 days.

5.1.1 Emissions from Heavy Equipment

Annual emissions were calculated for various types of diesel construction vehicles using EPA's document *Exhaust Emission Factors for Nonroad Engine Modeling—Compression-Ignition* (Report No. NR-009A, 1998). Truck emission levels were calculated using EPA's *MOBILE6* model for an average temperature of 56° F (13.3° C). The total annual emissions, in tons per year, were determined for each vehicle based on the number of vehicles used and the number of operating hours per year. It was assumed that six units would take six months for renovation, for a total construction time of approximately 2 ½ to 3 years. The housing renovation project is expected to commence in Fall 2005. Construction personnel were assumed to commute an average of 60 miles (97 km) per day during the construction period, with approximately 15 people per crew that each drive alone to the site. Emissions factors used for construction vehicles, under all alternatives, are shown in Table 2.

Table 2. Emissions Factors for Construction Vehicles

Construction Vehicle Type	Emissions Factors lbs/hr-vehicle (kg/hr-vehicle)	
	NO_x	VOC
Construction		
Backhoe	1.52 (0.69)	0.093 (0.04)
Front End Loader	4.183 (1.90)	0.255 (0.12)
Concrete Cutting Saw and Masonry Saw	0.76 (0.34)	0.081 (0.04)
Pick-up Truck	1.30 (0.002)*	1.78 (0.002)*
Dump Truck	11.94 (0.016)*	0.56 (0.001)*
Delivery Truck (heavy duty)	11.94 (0.016)*	0.56 (0.001)*

*units are in grams/mile/vehicle (lb/km/vehicle)

For this project, it was assumed that pick-up trucks, delivery trucks, and dump trucks would be utilized. It was assumed that pick-up trucks would travel 20 miles (32 km) per trip, making three trips a day, for a total of 60 miles (97 km) a day traveled by pick-up truck. Delivery trucks and dump trucks would both travel 30 miles (48 km) per trip, with delivery trucks making two trips a day and dump trucks making four trips a day for a total of 60 miles (97 km) and 120 miles (193 km) traveled, respectively. These vehicles would be used each day of the project.

5.1.1.1 Calculations for Construction Emissions

Using the emissions factors in Table 2, annual construction emissions were calculated for housing renovation project. Using the assumptions described above, the annual emissions in tons per year of NO_x and VOC for construction emissions were calculated for each vehicle type using the appropriate equations displayed in Table 3.

Table 4 summaries total annual emissions for the heavy equipment used during a typical year of the housing renovation project, based upon hours of usage, for the Preferred Action Alternative.

Table 3: Equations for Construction Emissions Calculations

Emission Source	Equation	Sample Calculation
Heavy Equipment Emissions, On-Site Activities	(# of vehicle type) (Emission factor) (Total # of days in operation) (percent usage) (hours/day) (1 ton/2000 lbs) = TPY of air emissions	(1 backhore) (1.521 lbs/hr/vehicle) (90 days in operation) (100% usage) (8 hours/day) (1 ton/2000 lbs) = **0.548 TPY of NO_x emissions (497 kgpy)**
Construction Crew, Commuting	(# of vehicles) (#miles/day) (#days) (emissions factor grams/mile) (1 lb/453.59 grams) (1ton/2000 lb) = TPY of Vehicle Emissions	(15 vehicles) (60 miles/day) (260 days) (0.946 grams/mile/vehicle) (1 lb/453.59 grams) (1ton/2000 lb) = **0.244 TPY (221 kgpy) NOx of Vehicle Emissions**

Table 4. Total Emissions from On-Site Construction Activity –Proposed Action Alternative

Construction Vehicle Type	Number	Length of Operation (days)	Total Annual Emissions –TPY (kgpy)	
			NO_x	VOC
Backhoe	1	90	0.548 (497)	0.033 (30)
Front End Loader	1	90	1.506 (1,366)	0.092 (84)
Concrete Cutting Saw and Masonry Saw	1	90	0.274 (249)	0.029 (26)
Pick-up Truck	1	260	0.067 (61)	0.092 (84)
Dump Truck	2	260	0.205 (186)	0.010 (9)
Delivery Truck (heavy duty)	1	260	0.411 (373)	0.019 (17)
Total Emissions			**3.011 (2,732)**	**0.256 (232)**

5.1.2 Emissions from Construction Crew Workers

Emissions from construction personnel traffic were calculated using the EPA's *MOBILE6*. It is assumed that the construction crew would consist of approximately 15 workers per housing phase over a 6 month (120 workdays) time period for each renovation phase. Two renovation phases would occur over a typical year consisting of 260 work days. For a conservative analysis, it was assumed each person will drive to the site. It is assumed that the average number of workers (15) will drive approximately 60 miles each day. Based on *MOBILE6*, the emission factor for NO_x is 0.95 grams/mile/vehicle (0.001 pounds/kilometer/vehicle) and VOC is 1.48 grams/mile/vehicle (0.002 pounds/kilometer/vehicle) for the average fleet in Orange County, New York. It was found that the total annual emissions associated with the commuter vehicles from the construction crew are approximately 0.244 tpy (221 kgpy) of NO_x and 0.382 tpy (347 kgpy) of VOC.

5.1.3 Emissions from Painting Activities

To calculate the amount of interior space to be painted, project estimations were used. It is estimated that one phase of six housing units would result in 180,000 square feet (16,723 square meters) of interior space would be painted. Approximately two phases of renovation would be completed each year, resulting in a total annual amount of interior painting of 360,000 square feet (33,445 square meters) to occur. When calculating VOC emissions from painting interior surfaces, it was assumed that water-based latex paint would be used with a VOC content of one pound (0.45 kg) per gallon, and one gallon of paint

covers an average for three coats of approximately 300 square feet (28 square meters). This resulted in total emissions of 1.80 tpy (1,663 kgpy) of VOC from painting activities.

5.1.4 Summary of Construction Emissions

After emissions analysis was performed for all aspects of construction, the totals were added to determine the combined construction emissions. Table 5 displays a summary of the findings compared to the *de minimis* values for the housing renovation project.

Table 5. Total Annual Emissions from Construction Related Activities – Family Housing Renovation

Construction Activity	Total Annual Emissions –TPY (kgpy)		*De minimis* values –TPY (kgpy)	
	NO_x	VOC	NO_x	VOC
Use of Heavy Equipment (on –site construction)	3.011 (2,732)	0.256 (232)	25 (22,680)	25 (22,680)
Construction Crew Workers	0.244 (221)	0.382 (347)		
Painting	NA	1.80 (1,663)		
Total Emissions from Construction	**3.255 (2,953)**	**2.438 (2,212)**		

5.2 Operational Emissions

No air emission producing activities (i.e. the addition of new boilers) would occur during renovations. Furthermore, the renovation would not create new vehicle trips or other source of operational emissions. Therefore, there would be no operational emissions under the Proposed Action Alternative.

5.4 Regional Significance

In addition to *de minimis* values, actions are also evaluated for regional significance. An action is considered to be regionally significant if the annual increase in emissions would make up 10 percent or more of the available regional emission inventory. The *New York Metropolitan Area State Implementation Plan* sets forth 2005 daily emission targets for non-road construction vehicles of 18.36 tons per day (16,656 kilograms per day) of VOC and 100.26 tons per day (90,954 kilograms per day) of NOx for the New York Metropolitan ozone non-attainment area where the USMA is located (Escarpeta, pers. comm., 20 November 2003). The increase in annual emissions from the construction activities would not make up ten percent or more of the available regional emission target for VOC or NOx and would not be regionally significant.

6.0 Overall Results

The table below summarizes the total emissions associated with the construction phase of the family housing rehabilitation project at West Point. Construction related emissions would be temporary and only occur during the development period, 6 months for phase over a total of 2 ½ to 3 years. There would be no operational emissions associated with the renovation of family housing. When compared to the *de minimis* values for this non-attainment area of 25 tpy (22,680 kgpy) each for NO_x and VOC, the emissions associated with the renovation of family housing fall below the *de minimis* values for the Proposed Action Alternative. As a result the family housing renovation project is not subject to the General Conformity Rule requirements.

Table 6. Total Annual Emissions from the Proposed Action Alternative for Family Housing Renovation

Activity	Total Annual Emissions –TPY (kgpy)		*De minimis* values –TPY (kgpy)	
	NO_x	VOC	NO_x	VOC
Use of Heavy Equipment (on –site construction)	3.011 (2,732)	0.256 (232)	25 (22,680)	25 (22,680)
Construction Crew Workers	0.244 (221)	0.382 (347)		
Painting	NA	1.80 (1,633)		
Total Emissions from Construction	**3.255 (2,953)**	**2.438 (2,212)**		

Appendix References

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U.S. Environmental Protection Agency. 1997. *MOBILE5b Emission Factor Model, for Trucks year 2002 Vehicle Emissions.*

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U.S. Environmental Protection Agency. *Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved under Title 23 U.S.C. or the Federal Transit Act.* 40 CFR Part 51, Subpart T.

U.S. Environmental Protection Agency. *Designation of Areas for Air Quality Planning Purposes, Subpart C: Section 107 Attainment Status Designations.* 40 CFR Part 81.

U.S. Military Academy (USMA). 1998. *Integrated Natural Resources Management Plan, United Stated Military Academy, West Point, New York.* Prepared by Tetra Tech, Inc. May.

APPENDIX C: AGENCY CORRESPONDENCE

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DEPARTMENT OF THE ARMY
UNITED STATES MILITARY ACADEMY
West Point, New York 10996

September 7, 2004

REPLY TO ATTENTION OF

Directorate of Housing and Public Works

Subject: Whole Neighborhood Rehabilitation, Selected Historic Family Housing Quarters, Planned for Fiscal Year 2005, U.S. Military Academy, West Point, New York (04P 03882)

Mr. Kenneth Markunas
New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189
Waterford, New York 12188-0189

Dear Mr. Markunas:

The U.S. Military Academy (USMA) proposes to perform whole neighborhood rehabilitation of forty-eight (48) selected family housing quarters, U.S. Military Academy, West Point, New York, as per our previous correspondence (04PR03882). Housing neighborhoods and units to be rehabilitated under this project are as follows:

-Whole neighborhood revitalization for six units Professors Row and 31 units Old English on Washington and Thayer Roads;
-Whole neighborhood revitalization for six units Bartlett Loop (Quarters 128A, 128B, 130A, 130B, 132A, 132B); and
- Whole neighborhood revitalization for eight historic family housing units (Quarters 61, 109, 146, 374, 378, 60, 2020) at various locations.

The USMA's current schedule is to initiate this rehabilitation work in Fiscal Year 2005 (with actual work beginning spring 2005).

The USMA has contracted with the Louis Berger Group to prepare an Effects Determination for this undertaking, and a draft report was previously provided to your office for your review and comment. Enclosed find the Final Effects Determination for this project. Page 86 of this report provides the conclusions, which will be incorporated into the design documents for this project. Implementation of these recommendations would result in no adverse effects to the historic fabric and characteristic features of these historic properties.

At this time, precise locations (and the extent) of excavation and site work in archaeologically sensitive areas remains to be determined, as the project design has not been completed. The USMA will provide your office with design documents as they are developed, to insure that any necessary archaeological support will be identified.

If there is further information required, or any questions, please contact me at (845) 938-3522.

Douglas R. Cubbison
Cultural Resources Manager
United States Military Academy

Enclosures: Final Cultural Resources Effects Determination (as stated)

DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT AGENCY
HEADQUARTERS, UNITED STATES ARMY GARRISON, WEST POINT
681 HARDEE PLACE
WEST POINT, NY 10996-1554

REPLY TO
ATTENTION OF:

July 1, 2005

Directorate of Housing and Public Works

SUBJECT: Negative Determination
Officer's Housing Renovation
U.S. Army Garrison West Point, New York

Marianne Luhrs Pollay, AICP
Coastal Resources Specialist
Consistency Review Unit
Department of State
41 State Street
Albany, NY 12231-0001

Dear Ms Pollay,

This letter provides the New York State Coastal Management Program (NYSCMP) Consistency Review Unit (CRU) with the U.S. Army Garrison West Point's (West Point) negative determination under the Coastal Zone Management Act (CZMA), Section 307 (c) (1) and (2), and 15 CFR 930.35 (d), for the Renovation of 50 Officer's Housing Units.

Direct effects on the coastal uses and resources from this undertaking are anticipated to be insignificant. The majority of the work will be interior. However there will be some exterior work that includes window refurbishing, lead abatement, and sanitary sewer line replacement (Attachment A). Because most of these housing units are located away from the Hudson River (Attachment B), and are shielded by tree canopy, there would be no additional impacts to the visual resources of the Hudson River Valley as a result of this action. In addition, there would be no adverse affect upon historic resources. As a result, West Point finds that the proposed Officer's Housing Renovation will not affect any coastal use or resources, pursuant to 15 CFR 930.35 (b).

Pursuant to 15 CFR 930.41, the NYSDOS CRU has 60 days from receipt of this letter (and its attachments) in which to concur with, or object to, this Negative Determination, or request an extension of 15 days, in accordance with 15 CFR 930.41 (b). The NYSDOS CRU concurrence will be presumed if a response is not received on the 60th day from receipt of this letter (on or about September 2, 2005). The NYSDOS CRU response should be sent to:

Alan B. Bjornsen, CEP
NEPA Coordinator
U.S. Army Garrison
Directorate of Public Works
Building 667B, Ruger Road
West Point, NY 10996
(845) 938 - 4129 Fax - 7046
E-Mail: alan.b.bjornsen@us.army.mil

Thank you for your cooperation.

Respectfully submitted,

Alan B. Bjornsen

Alan B. Bjornsen, CEP
NEPA Coordinator

Printed on Recycled Paper

ATTACHMENT A

SCOPE OF WORK

In the proposed scope of work, West Point would complete whole house revitalization of 44 historic family quarters, including 37 senior office historic quarters in the Old English North and South housing areas and Professor's Row, and seven other company grade and non commissioned officer units. In addition, six non-historic field grade officer units on Bartlett Loop would also be renovated. In total, 50 housing units would be included in the renovation project. As part of this project, two of the housing units (one in Bartlett Loop one in Old English South) would be made handicap accessible and American with Disabilities Act (ADA) compliant.

Renovations would follow the April 2004 U.S. Army Corps of Engineers (USACE) *U.S. Military Academy – West Point, NY Revitalize 48 Historic Quarters Work Scopes* (Appendix A). This document lists a garage in Old English North as an evaluated structure, which is not included in this EA as a separate structure. Furthermore, the work scope considers Quarters 109 as one unit, but it is actually four separate units and will be considered as such in this EA. These discrepancies account for the difference between the 48 quarters evaluated in the work scopes and the 50 quarters evaluated in this EA.

Housing Unit	Year Built
Quarters 103 A & B	1826 – 1828
Quarters 105 A & B	1826 – 1828
Quarters 107 A & B	1824
Quarters 109	1875
Quarters 21 A, B, & C	1910
Quarters 29	1891
Quarters 30	1894
Quarters 32 A & B	1908
Quarters 34 A & B	1908
Quarters 42 A, B, & C	1908
Quarters 45 A, B, & C	1908
Quarters 48 A, B, & C	1908
Quarters 118 A & B	1909
Quarters 120 A & B	1909
Quarters 128 A & B	1948
Quarters 130 A & B	1948
Quarters 132 A & B	1948
Quarters 61	1885
Quarters 146	1858

Generally, for the 50 quarters, interior renovations would include complete renovation of kitchens and baths and installation of air conditioning. Plumbing, heating, fire protection/detection, and electrical systems in all units would be upgraded to meet all current codes and address existing issues such as livability, fire hazards, and safety hazards. Those units with LBP and asbestos containing materials (ACM) would undergo abatement to remove these materials from all affected and/or disturbed areas, including basement areas. Passive radon system piping would be installed in all quarters and active systems would be installed in all quarters exceeding U.S. Environmental Protection Agency (USEPA) and Army level standards. Additionally, select chimneys would be repaired and stainless steel liners installed where needed; loose, cracked, and/or detached plaster would be removed and replaced with gypsum board; telephone and TV outlets would be replaced or installed; and interiors would be painted.

Exterior repairs would occur for a portion of the quarters, including window refurbishing and lead abatement for Professor's Row and Bartlett Loop. The replacement of sanitary sewer lines would occur on an as-needed basis for approximately half of the units being rehabilitated.

Revitalization of the units would be phased according to their geographic areas or neighborhoods. Renovations would require between four to six months of work per unit and approximately six units would be rehabilitated at a time. This may vary for those units that are geographically isolated from others, such as Quarters 21, 61, and 146. As quarters become vacant, scheduling may be adjusted to take advantage of the vacancies.

Construction staging areas for the revitalization project would be located proximate to the units affected, and to the extent practicable, be on paved areas, including existing parking areas. Since residents would not be in the homes during construction, staging would not result in a loss of parking spaces. In the Old English North units, some disturbance to grassed areas may occur for staging in order to maintain access to other units not under renovation.

All homes under this alternative are located within the West Point NHLD; however, the Bartlett Loop homes are not considered historic structures.

ATTACHMENT B

MAPS & PHOTOS

FIGURE 1-2: UNITED STATES ARMY GARRISON AT WEST POINT

FIGURE 2-5: BARTLETT LOOP HOUSING - NON-HISTORIC QUARTERS

FIGURE 2-6: QUARTERS 374, SIDE VIEW

FIGURE 2-7: EXAMPLE OF OLD ENGLISH NORTH HOUSING UNITS

FIGURE 2-8: QUARTERS 61

FIGURE 2-9: EXAMPLE OF OLD ENGLISH SOUTH HOUSING UNITS

FIGURE 2-10: EXAMPLE OF PROFESSOR'S ROW HOUSING

DEPARTMENT OF THE ARMY
UNITED STATES MILITARY ACADEMY
West Point, New York 10996

July 20, 2004

REPLY TO
ATTENTION OF

Directorate of Housing and Public Works

Subject: Whole Neighborhood Rehabilitation, Selected Historic Family Housing Quarters, Planned for Fiscal Year 2005, U.S. Military Academy, West Point, New York

Mr. Kenneth Markunas
New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189
Waterford, New York 12188-0189

Dear Mr. Markunas:

The U.S. Military Academy (USMA) proposes to perform whole neighborhood rehabilitation of forty-eight (48) selected family housing quarters, U.S. Military Academy, West Point, New York. Housing neighborhoods and units to be rehabilitated under this project are as follows:

-Whole neighborhood revitalization for six units Professors Row and 31 units Old English on Washington and Thayer Roads;
-Whole neighborhood revitalization for six units Bartlett Loop (Quarters 128A, 128B, 130A, 130B, 132A, 132B); and
- Whole neighborhood revitalization for eight historic family housing units (Quarters 61, 109, 146, 374, 378, 60, 2020) at various locations.

The USMA's current schedule is to initiate this rehabilitation work in Fiscal Year 2005 (with actual work beginning spring 2005).

The USMA has contracted with the Louis Berger Group to prepare an Effects Determination for this undertaking. Enclosed find a Draft copy of the study document for this project. Page 86 of this report provides conclusions from this study effort, which will be incorporated as changes to the project Scope of Work (SOW); will be designated in our formal effects determination as project stipulations; and will be formally identified in National Environmental Policy Act (NEPA) analysis and documentation as legally binding mitigations.

At this time, the USMA is providing this Draft Effects Determination for this undertaking for your review and comment. Concurrently, this document is being reviewed by environmental, cultural resources, and project staff at the USMA. Following this review all appropriate comments will be incorporated, and this document will be finalized. At that time, the USMA will provide your office with our formal effects determination.

If there is further information required, or any questions, please contact me at (845) 938-3522.

Douglas R. Cubbison
Cultural Resources Manager
United States Military Academy

Enclosures: Draft Cultural Resources Effects Determination (as stated)

STATE OF NEW YORK
DEPARTMENT OF STATE
41 STATE STREET
ALBANY, NY 12231-0001

GEORGE E. PATAKI
GOVERNOR

RANDY A. DANIELS
SECRETARY OF STATE

July 25, 2005

Alan B. Bjornsen, CEP
NEPA Coordinator
U.S. Army Garrison West Point
Directorate of Housing and Public Works
Building 667B, Ruger Road
West Point, NY 10996

Re: F-2005-0561 (DA)
U.S. Army Garrison West Point - Officer's Housing Renovation
Hudson River, Town of Highland, Orange County

Negative Determination

Dear Mr. Bjornsen:

On July 7, 2005, The Department of State has received the U.S. Army's negative determination and supporting information for the above-referenced activity. Based on the information provided, the Department concurs with your determination that the renovation of Officer's Housing will not result in any reasonably foreseeable effects to any land and water use or natural resource of the coastal area. Further review of this activity by the Department of State is not necessary.

Thank you for providing this information to the Department of State.

Sincerely,

Jeff Zappieri
Supervisor of Consistency Review and Analysis
Division of Coastal Resources

SM/jz

cc: DEC Region 3- Margaret E. Duke

OFFICE OF PARKS · RECREATION · HISTORIC PRESERVATION
NEW YORK STATE
Bernadette Castro
Commissioner

New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189, Waterford, New York 12188-0189 518-237-8643

August 9, 2005

Alan B. Bjornsen
NEPA Coordinator
DHPW, EPSD/Installations Branch
Bldg. 667B, 3rd Flr. Ruger Road
West Point, NY 10996-1592

Re: **ARMY/DOD**
Faculty Housing 50 units
(renovations)
Highlands, Orange County
04PR04781

Dear Mr. Bjornsen:

Thank you for continuing consultation with the State Historic Preservation Office (SHPO). We have had an opportunity to review the project in accordance with Section 106 of the National Historic Preservation Act of 1966 and relevant implementing regulations.

We have recently reviewed the Draft Environmental Assessment for these projects and in combination with the formerly submitted Cultural Resource Effects Determination, this material offers us a reasonable idea of the work planned for the historic residences. Our office has no concerns regarding archeology for these projects: survey is not warranted. Work proposed for the non-historic Bartlett Loop (Quarters 128A, 128B, 130A, 130B, 132A & 132B) will have **No Effect** upon properties in or eligible for inclusion in the State or National Registers of Historic Places. Although the descriptions of the project work for the historic structures appears to be complete and comprehensive, there are areas of the projects where we will need additional information before we can offer our formal opinion.

The location and screening utilized for the proposed exterior mounted air conditioning condensers must be reviewed by our office. Additionally, any new pipe or utility chases, exterior vent/fan ducts, abatement removals, entry enclosures or other alteration to original building fabric also must be reviewed. Contract document plans are probably the most efficient method to convey the requested information that will allow us to complete our review.

Please forward the requested information as soon as it becomes available so that we can offer our formal opinion for the remainder of these projects. If you have any questions regarding this letter or any aspect of the project, please contact me at your convenience. Ext. 3273.

Sincerely,

Kenneth Markunas
Historic Sites Restoration Coordinator

An Equal Opportunity/Affirmative Action Agency
printed on recycled paper

New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189, Waterford, New York 12188-0189 518-237-8643

Bernadette Castro
Commissioner

August 12, 2004

D. R. Cubbison
Acting Cultural Resources Manager
United States Military Academy
Bldg. 667 Ruger Road
West Point, NY 10996

Re: **ARMY/DOD**
FY 2005 Whole Neighborhood Revitalization-Housing Quarters
Highlands, Orange County
04PR03882

Dear Mr. Cubbison:

Thank you for requesting the comment of the State Historic Preservation Office (SHPO). We have had an opportunity to review the submitted Cultural Resources Effects Determination in accordance with Section 106 of the National Historic Preservation Act of 1966 and relevant implementing regulations.

Based upon our review of the submitted documentation and the included building scopes-of -work, it is our belief that adverse effects upon historic resources can be completely avoided. A determination of effect will be made after we receive more complete planning documents for the various projects.

Please forward any archeology information and project plans for these properties once they become available for our review. If you have any questions regarding this letter, please feel free to contact me at your convenience. Ext. 3273

Sincerely,

Kenneth Markunas
Historic Sites
Restoration Coordinator

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LEGAL ANNOUNCEMENT
FAMILY HOUSING REHABILITATION
U.S. ARMY GARRISON WEST POINT
ORANGE COUNTY, NEW YORK

A Draft Environmental Assessment (EA) was prepared for the Family Housing Rehabilitation project at the U.S. Army Garrison West Point, New York. The following is the Finding of No Significant Impact (FNSI) resulting from the EA:

1. NAME OF ACTION

Family Housing Rehabilitation by the U.S. Army Garrison West Point (West Point), Town of Highlands, Orange County, New York.

2. DESCRIPTION OF THE ACTION

2.1 PROPOSED ACTION

West Point proposes to revitalize 44 senior officer, field grade, company grade, and nonconmissioned officer historic family quarters, as well as six non-historic quarters, to current standards. This would include the whole neighborhood revitalization for six units in Professor's Row, 31 units in the Old English neighborhoods (23 in Old English South and 8 in Old English North), and seven special category quarters (Quarters 61, 109 (comprised of four units), 146, and 374), all of which are historic quarters. Additionally, six non-historic units in Bartlett Loop (Quarters 128A, 128B, 130A, 130B, 132A, and 132B) would be renovated. Renovations would follow the April 2004 U.S. Army Corps of Engineers (USACE) *U.S. Military Academy – West Point, NY Revitalize 48 Historic Quarters Work Scopes* and would include complete renovation of kitchens and baths, installation of air conditioning, lead-based paint and asbestos abatement, installation of radon mitigation, and exterior repairs such as window refurbishing and replacement of sanitary sewer lines, where needed.

2.2 ALTERNATIVES

In addition to the Proposed Action Alternative, the No Action Alternative was also considered. Under the No Action Alternative, West Point would not renovate and revitalize the 44 historic and six non-historic quarters on the Main Post. These quarters would continue to deteriorate, leading to increased maintenance and energy costs. Poor conditions would continue to adversely affect the morale, health, safety, and quality of life of the occupants. Furthermore, neglect and deterioration of the 44 historic units would lead to an adverse effect on the historic fabric of homes.

3. ANTICIPATED ENVIRONMENTAL EFFECTS

The principal environmental issues related to the implementation of the Proposed Action are:

(1) Potential for a slight increase in stormwater runoff as a result of the increase of impervious surfaces at the housing areas;

(2) potential for a slight increase in sedimentation and as a result of ground disturbing activities associated with utility upgrades;

(3) potential impacts to the historic fabric of the housing units resulting from the upgrades and renovation;

(4) exposure to asbestos and lead-based paint during renovations; and

(5) temporary degradation in traffic flow patterns as a result of construction crews and construction vehicles during renovations.

Several of these potential impacts would be mitigated by careful design of the renovations and the use of good management practices and engineering controls. Mitigation measures must be addressed to diminish any potential significant adverse effects.

4. MITIGATION MEASURES

Mitigation measures would be employed to address impacts from implementation of the Proposed Action, including those listed below:

(1) Erosion and sedimentation controls would be used in accordance with West Point and NYSDEC standards and specifications, where required. It is not expected that disturbance under the Proposed Action Alternative would be over one acre and these controls would most likely not be required.

(2) Where the project area includes over one acre of disturbance, West Point would obtain a NYDEC Construction Activity State Pollution Discharge Elimination System permit; however, it is not expected that there would be over one acre of disturbance.

(3) In order to avoid any adverse impacts to the historic fabric of the housing, the following measures would be taken:

(a) The installation of exterior trash enclosures and air conditioning condensing units could involve excavation and site work in archaeologically sensitive areas that would be tested or monitored during construction, as required. These units would be located in well-concealed areas that are not visible from the façade or primary elevations. Vegetative screening of the air conditioning condensing units would minimize the visual effect of the installation. Trash enclosures, if attached to the buildings, would be done in a manner that does not harm historic fabric and is preferably reversible.

(b) The installation of exterior condensers and bathroom and laundry vents would require masonry penetrations. These vents would be located in a discreet area with the least possible amount of loss of historic fabric.

(c) Original kitchen/pantry fabric would remain intact. No butler pantry doors or glazed cabinets would be removed.

(d) The removal of historic, or period, fixtures in the bathrooms would be considered an adverse effect. Features such as pedestal sinks and claw foot tubs are significant character-defining features to the buildings and the retention of these fixtures is important in maintaining the overall architectural character of the building. The fixtures would be retained provided they can be maintained in an operable and sanitary condition. Every attempt would be made to repair the original fixture when problems occur rather than replace it with a modern fixture.

(e) To avoid the adverse effect of the abandonment of basement bathrooms with historic fixtures and finishes, these fixtures would be kept in situ or re-used in other locations in the building.

(f) Bringing one historic home into ADA compliance could adversely affect these historic buildings by changing the layout of the primary spaces by including a full bathroom and converting a room to a bedroom on the first floor. These alterations would be carried out with the least amount of removal or covering of historic fabric and executed in a way that does not drastically disrupt the flow and spatial relationship of the primary spaces.

(g) To avoid an adverse effect in Quarters 481B, where it is proposed to make changes to the entry vestibule to accommodate a first floor bathroom, the flow and spatial relationship of the primary spaces would not be disrupted. The elaborate finishes in the vestibule would not be altered or removed.

(h) The removal of historic period lighting at Quarters 116 would not occur. These fixtures contribute to the architectural character of the building and would be rewired and kept in place if they are not beyond repair. In additional, all historic fixtures should be retained.

(i) The DHPW at West Point has specific guidelines, based on the Secretary of Interior's Standards for Rehabilitation, about masonry repair and repointing that would be consulted, but practicable treatment of these architectural elements would include careful cleaning of the joints to avoid damaging the masonry, and duplication of the old mortar in strength, composition, and texture to avoid changing the appearance of the masonry.

(j) Consultation with the West Point Cultural Resource Manager would be performed throughout the project and consultation between the State Historic Preservation Officer and West Point would be performed as necessary during renovation activities.

(k) Temporary lane and road closers would take place to accommodate material deliveries and exterior renovations. Signs and barriers would be placed, accordingly.

(4) Areas suspected of containing lead-based paint or asbestos containing materials would be evaluated and abated in accordance with OHSA, U.S. Environmental Protection Agency, and Army regulations. Any hazardous materials identified would be taken off-post and disposed of by a qualified contractor.

(5) Both active and passive radon mitigation systems would be installed in renovated quarters, where radon exceeds USEPA recommended levels.

5. CONCLUSION

Implementation of the mitigation measures identified would reduce the potential impacts of the Project, resulting in no significant adverse impacts to the environment. An Environmental Impact Statement is, therefore, not required.

6. DOCUMENT AVAILABILITY

The Draft EA and FNSI are available for public review at the following locations:

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Building 622
U.S. Military Academy
West Point, New York

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298 Main Street
Highland Falls, New York

Julia L. Butterfield Memorial Library
Routes 301 & 9D
Cold Spring, New York 10516

The Alice Curtis Desmond & Hamilton Fish Library
P.O. Box 265
Routes 403 & 9D
Garrison, New York 10524

The deadline for public comment on this proposed action is close of business, Monday, August 15, 2005. Responses to any comments made during the comment period will be incorporated into the Final EA.

The point-of-contact for further information is:

Mr. Alan B. Bjornsen, CE
NEPA Coordinator
U.S. Army Garrison West Point
DHPW, EFSD/Installations Branch
Bldg 667B, 3rd Floor, Ruger Road
West Point, NY 10996-1592
845-938-4129
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COL, FA
GARRISON COMMANDER

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and Recorder

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BRIAN A. CRAWFORD
COL, FA
GARRISON
COMMANDER

State of New York

County of Putnam

Brian O'Donnell being duly sworn, doth depose and say that he is The Publisher of the Putnam County News & Recorder, a newspaper printed and published weekly at the Village of Cold Spring, County of Putnam, and State of New York, and that the annexed Legal Notice, which is a true and accurate copy, was published in said paper for 1 weeks successively, beginning on the 13th day of July 2005, and ending on the 13th day of July 2005.

Subscribed and sworn before me this 18th day of July, 2005

Mary Margaret O'Sullivan

MARY MARGARET O' SULLIVAN
NOTARY PUBLIC, STATE OF NEW YORK
QUALIFIED IN PUTNAM COUNTY
REG. LIC. #010S5086427
MY COMM. EXPIRES OCT. 14, 2005

The
Putnam County News
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Friday, July 8, 2005 www.pcnr.com

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(g) To avoid an adverse effect in Quarters 48B, where it is proposed to make changes to the entry

APPENDIX D: HISTORIC RESOURCES AFFECTED

Building Number	Work Location	Historic Fabric Present?	Historic Fabric affected?	Historic Fabric Present/Comments
21A	Exterior	Yes	Yes	Masonry penetrations
	Primary spaces	Potentially; not inspected	No	Wood floors, period lighting, wainscoting, millwork/paneling, and plaster walls and ceilings
	Kitchen/Pantry	Potentially; not inspected	No	Wood cupboards, glazed wood doors and period hardware
	Second floor master bath	Potentially; not inspected	Potentially	Medicine cabinet
	Second floor bathroom	No; not inspected	No	Nothing listed in 1988 study
	Third floor bathroom	Potentially; not inspected	Potentially	Claw foot tub and wainscoting [
21B	Exterior	Yes	Yes	See 21A
	Primary spaces	Yes	No	See 21A
	Kitchen/Pantry	No	No	
	Laundry/Bath	Yes	Yes	Period toilet, porcelain laundry sinks; abandon basement bathroom
	Second floor master bath	Yes	Yes	Period toilet, claw foot tub, cabinets and millwork
	Second floor bathroom	Yes	Yes	Period toilet
	Third floor bathroom	Yes	Yes	Period toilet, sink, claw foot tub and millwork
25B	Exterior	Yes	Yes	See 25A
	Primary Spaces	Potentially; not inspected	Potentially	See 25A; also period lighting
	Kitchen/Pantry	Potentially; not inspected	Potentially	Period cabinets, sink
	Second floor master bath	Potentially; not inspected	Potentially	
	Second floor bathroom	Potentially; not inspected	Potentially	
	Third floor bathroom	Potentially; not inspected	Potentially	Period toilet, sink, and claw foot tub
25C	Exterior	Yes	Yes	See 25A
	Primary Spaces	Potentially; not inspected	Potentially	See 25B
	Kitchen/Pantry	Potentially; not	Potentially	Period cupboards and

Building Number	Work Location	Historic Fabric Present?	Historic Fabric affected?	Historic Fabric Present/Comments
		inspected		porcelain sink
	Basement	Potentially; not inspected	Potentially	Period laundry sink
	First floor half bath	Potentially; not inspected	Potentially	Period water closet and lavatory
	Second floor master bath	Potentially; not inspected	Potentially	Period toilet, sink and claw foot tub]
	Second floor bathroom	Potentially; not inspected	Potentially	
	Third floor bathroom	Potentially; not inspected	Potentially	Period toilet, sink and claw foot tub
28	Exterior	Yes	Yes	Masonry penetrations
	Primary Spaces	Yes	Yes	Wood floors, plaster walls and ceilings, period lighting; installation of ADA compliant bathroom and bedroom on first floor
	Kitchen/Pantry	No	No	
	Basement	Yes	No	Wainscoting
	First floor half bath	Yes	Yes	Period sink and lighting
	Second floor master bath	Yes	Yes	Claw foot tub and wainscoting
	Second floor bathroom	No	No	
	Third floor bathroom	Yes	Yes	Period sink, claw foot tub, wainscoting, wood floors
29	Exterior	Yes	Yes	Masonry penetrations, ADA access ramp
	Primary Spaces	Yes	Yes	Wood floors, plaster walls and ceilings, period lighting; box out pipe in first floor dining room and ADA compliant bathroom and bedroom on first floor
	Kitchen/Pantry	No	No	
	Basement bathroom/laundry	Yes	Potentially	Wainscoting in laundry room; period sink and claw foot tub
	Second floor master bath	Yes	Yes	Period medicine cabinet
	Second floor bathroom	Yes	Yes	Period light fixture
	Third floor bathroom	Yes	Yes	Claw foot tub, wainscoting and wood

Building Number	Work Location	Historic Fabric Present?	Historic Fabric affected?	Historic Fabric Present/Comments
				floors
30	Exterior	Yes	Yes	Masonry penetrations
	Primary Spaces	Yes	Yes	Wood floors, plaster walls and ceilings, period lighting; box out pipe in dining room
	Kitchen/Pantry	No	No	
	Basement bathroom	Yes	Yes	Period sink and claw foot tub
	Second floor master bath	No	No	
	Second floor bathroom	Yes	Yes	Period sink, accessories, and medicine cabinet
	Third floor bathroom	Yes	Yes	Period sink, claw foot tub, wainscoting
31	Exterior	Yes	Yes	Masonry penetrations
	Primary Spaces	Yes	No	Wood floors, plaster walls and ceilings, period lighting
	Kitchen/Pantry	No	No	
	First floor half bath	No	No	
	Basement bathroom	No	No	
	Second floor master bath	No	No	
	Second floor bathroom	Yes	No	New fixtures, but retains wainscoting
	Third floor bathroom	Yes	Yes	Claw foot tub, wainscoting, wood floor, medicine cabinet, period lighting
32A	Exterior	Yes	Yes	Masonry penetrations
	Primary Spaces	Yes	No	Wood floors, period lighting, wainscoting, millwork/paneling, and plaster walls and ceilings
	Kitchen/Pantry	Yes	No	Porcelain sink in kitchen (not original)
	Basement/Laundry	Yes	Yes	Period toilet, claw foot tub and porcelain laundry sinks
	Second floor master bath	No	No	
	Second floor bathroom	Yes	Yes	Period sink with accessories, medicine cabinet claw foot tub,

Building Number	Work Location	Historic Fabric Present?	Historic Fabric affected?	Historic Fabric Present/Comments
				lighting
	Third floor bathroom	Yes	Yes	Period toilet, sink and accessories, molding
32B	Exterior	Yes	Yes	See 32A
	Primary Spaces	Yes	No	See 32A
	Kitchen/Pantry	No	No	
	Basement bathroom	Yes	Yes	Period toilet; abandon basement bathroom
	First floor half bath	Yes	Yes	Period toilet, corner sink, medicine cabinet, and molding
	Second floor master bath	Yes	Yes	Medicine cabinet
	Second floor bathroom	Yes	Yes	Period toilet, sink, claw foot tub, and molding
	Third floor bathroom	Yes	No	Wainscoting
	Third floor bathroom/laundry	Yes	Yes	Period toilet and sink (claw foot tub in 3rd floor trunk room storage)
34A	Exterior	Yes	Yes	Masonry penetrations
	Primary Spaces	Yes	No	Wood floors, period lighting, wainscoting, millwork/paneling, and plaster walls and ceilings
	Kitchen/Pantry	Yes	Yes	Glazed cupboard doors
	First floor half bath	Yes	No	Wainscoting (modern fixtures)
	Basement	Yes	Yes	Claw foot tub
	Second floor master bath	Yes	Yes	Period sink, medicine cabinet and accessories, claw foot tub, molding, porcelain light fixtures
	Second floor bathroom	No	No	
	Third floor bathroom	Yes	Yes	Period sink, medicine cabinet and accessories, claw foot tub and molding
34B	Exterior	Yes	Yes	See 34A
	Primary Spaces	Yes	Yes	Block fireplace
	Kitchen/Pantry	No	No	
	Basement	Yes	No	Porcelain laundry sinks
	Second floor master	No	No	

Building Number	Work Location	Historic Fabric Present?	Historic Fabric affected?	Historic Fabric Present/Comments
	bath			
	Second floor bathroom	Yes	No	Molding
	Third floor bathroom	Yes	Yes	Period sink, claw foot tub, molding, porcelain light fixtures
42A	Exterior	Yes	Yes	Masonry penetrations
	Primary Spaces	Yes	No	Wood floors, period lighting, wainscoting, millwork/paneling, and plaster walls and ceilings
	Kitchen/Pantry	Yes	Yes	Glazed cupboard doors in pantry
	Basement	Yes	Yes	Period toilet
	Second floor master bath	Yes	Yes	Claw foot tub, molding
	Second floor bathroom	No	No	
	Third floor bathroom	Yes	Yes	Period toilet, sink, claw foot tub, and molding
42B	Exterior	Yes	Yes	See 42A
	Primary Spaces	Yes	No	See 42A
	Kitchen/Pantry	No	No	
	Basement	Yes	No	Porcelain washtubs
	First floor half bath	No	No	
	Second floor master bath	Yes	Yes	Period toilet, claw foot tub, medicine cabinet, molding
	Second floor bathroom	No	No	
	Third floor bathroom	Yes	Yes	Period sink, claw foot tub, medicine cabinet, molding, porcelain light fixture
42C	Exterior	Yes	Yes	See 42A
	Primary Spaces	Yes	No	See 42A
	Kitchen/Pantry	Potentially; not inspected	Potentially	
	Basement	Potentially; not inspected	No	Porcelain washtub
	Second floor master bath	Potentially; not inspected	Potentially	
	Second floor bathroom	Potentially; not inspected	Potentially	Period sink and claw foot tub

Building Number	Work Location	Historic Fabric Present?	Historic Fabric affected?	Historic Fabric Present/Comments
	Third floor bathroom	Potentially; not inspected	Potentially	Claw foot tub
45A	Exterior	Yes	Yes	Masonry penetrations
	Primary Spaces	Yes	Yes	Wood floors, period lighting, wainscoting, millwork/paneling, and plaster walls and ceilings; box out pipes
	Kitchen/Pantry	No	No	
	Basement	Yes	No	Porcelain laundry sinks
	Second floor master bath	Yes	Yes	Claw foot tub
	Second floor bathroom	Yes	Yes	Light fixtures
	Third floor bathroom	Yes	Yes	Period sink, medicine cabinet, claw foot tub, molding, porcelain light fixtures
45B	Exterior	Yes	Yes	See 45A
	Primary Spaces	Yes	Yes	Block fireplace and repair wood paneling over fireplace in study
	Kitchen/Pantry	Yes	Yes	Glazed cupboard doors and period hardware in pantry; retain cabinets but reconfigure entry between kitchen and pantry
	Basement	Yes	No	Porcelain laundry sinks
	Second floor master bath	No	No	
	Second floor bathroom	No	No	
	Third floor bathroom	Yes	Yes	Claw foot tub and molding
45C	Exterior	Yes	Yes	See 45A
	Primary Spaces	Yes	No	
	Kitchen/Pantry	Yes	No	Glazed cupboard doors, period hardware, wainscoting; retain cabinets
	Basement	No	No	
	Second floor master bath	Yes	Yes	Claw foot tub, molding
	Second floor	Yes	Yes	Period sink, medicine cabinet, molding,

Building Number	Work Location	Historic Fabric Present?	Historic Fabric affected?	Historic Fabric Present/Comments
	bathroom			porcelain light fixtures
	Third floor bathroom	Yes	Yes	Period sink, claw foot tub, molding
48A	Exterior	Yes	Yes	Masonry penetrations
	Primary Spaces	Yes	No	Wood floors, period lighting, wainscoting, millwork/paneling, and plaster walls and ceilings
	Kitchen/Pantry	Yes	No	Glazed cupboard doors and period hardware in pantry; retain cabinets
	Basement	Yes	Yes	Period toilet; abandon basement bathroom
	Second floor master bath	Yes	Yes	Period toilet, claw foot tub, molding
	Second floor bathroom	No	No	
	Third floor bathroom	Yes	Yes	Period sink, claw foot tub, molding
48B	Exterior	Yes	Yes	See 48A
	Primary Spaces	Potentially; not inspected	Yes	Reconfigure front entry
	Kitchen/Pantry	Potentially; not inspected	No	Period counters and glass cabinet doors retain cabinets
	Basement	No	No	Nothing of historic value noted in MAA report
	Second floor master bath	Potentially; not inspected	Potentially	Claw foot tub, period lavatory
	Second floor bathroom	No	No	Nothing of historic value noted in MAA report
	Third floor bathroom	Potentially; not inspected	Potentially	Claw foot tub, period lavatory
48C	Exterior	Yes	Yes	See 48A
	Primary Spaces	Yes	No	See 48A
	Kitchen/Pantry	Yes	No	Glazed cupboard doors and period hardware in pantry; retain cabinets
	Basement/Laundry	Yes	Yes	Porcelain laundry sinks; period toilet; refurbish/ replace laundry sinks and abandon bathroom
	Second floor master	No	No	

Building Number	Work Location	Historic Fabric Present?	Historic Fabric affected?	Historic Fabric Present/Comments
	bath			
	Second floor bathroom	No	No	
	Third floor bathroom	Yes	No	Claw foot tub
61	Exterior	No	No	Vinyl siding
	Primary Spaces	Potentially; not inspected	Yes	Block fireplace
	Kitchen/Pantry	Potentially; not inspected	Yes	Install bathroom in pantry
	Second floor bathroom	Potentially; not inspected	Potentially	
	Second floor bathroom	Potentially; not inspected	Potentially	
103A	Exterior	Yes	Yes	Masonry penetrations
	Primary Spaces	Yes	No	Wood floors, chair rail, wainscoting, millwork, plaster walls and ceilings
	Kitchen/Pantry	Yes	No	Glazed cupboard doors in pantry; retain cabinets
	Laundry	Yes	Potentially	Wainscoting and wood floors
	First floor half bath	No	No	
	Second floor master bath	No	No	
	Second floor bathroom (addition)	Yes	Yes	Pedestal sink
	Second floor bathroom (main block)	Yes	Yes	Period toilet
	Third floor bathroom	Yes	Yes	Period sink, claw foot tub, wainscoting
103B	Exterior	Yes	Yes	See 103A
	Primary Spaces	Yes	No	See 103A
	Kitchen/Pantry	No	No	
	Basement	Yes	No	Wainscoting and wood floors in some rooms
	First floor half bath	No	No	
	Second floor master bath	No	No	
	Second floor bathroom (addition)	Yes	Yes	Period sink and claw foot tub

Building Number	Work Location	Historic Fabric Present?	Historic Fabric affected?	Historic Fabric Present/Comments
	Second floor bathroom (main block)	Yes	Yes	Period sink, claw foot tub, porcelain light fixtures
	Second floor bathroom	No	No	
	Third floor bathroom	Yes	Yes	Period sink, claw foot tub, wainscoting
105A	Exterior	Yes	Yes	Masonry penetrations
	Primary Spaces	Potentially; not inspected	No	Wood floors, chair rail, wainscoting, millwork, and plaster walls
	Kitchen/Pantry	Potentially; not inspected	Potentially	
	Basement	Potentially; not inspected	Potentially	
	First floor half bath	Potentially; not inspected	Potentially	
	Second floor master bath	Potentially; not inspected	Potentially	
	Second floor bathroom (front addition)	Potentially; not inspected	Potentially	
	Second floor bathroom (rear addition)	Potentially; not inspected	Potentially	
	Third floor bathroom	Potentially; not inspected	Potentially	Period tub, lavatory, accessories and wainscoting
105B	Exterior	Yes	Yes	See 105A
	Primary Spaces	Yes	No	See 105A
	Kitchen/Pantry	No	No	
	Basement	Yes	Yes	Wood floors, wainscoting, period toilet and claw foot tub; abandon basement bathroom
	First floor half bath	No	No	
	Second floor master bath	No	No	
	Second floor bathroom (addition)	No	No	
	Second floor bathroom (rear add	No	No	
	Third floor bathroom	Yes	Yes	Marble sink, claw foot tub, wainscoting
107A	Exterior	Yes	Yes	Masonry penetrations

Building Number	Work Location	Historic Fabric Present?	Historic Fabric affected?	Historic Fabric Present/Comments
	Primary Spaces	Some	No	Wood floors and plaster walls; historic trim, casings, hardware, and interior doors removed in remodeling
	Kitchen/Pantry	Yes	Yes	Glazed cupboard doors and unpainted wood in pantry; no mention of retaining cabinets
	Basement	Yes	No	Wood floors in servants' quarters
	First floor half bath	Yes	Yes	Period sink, medicine cabinet, wall sconce
	Second floor master bath	Yes	Yes	Pedestal sink
	Second floor bathroom (main block)	No	No	
	Second floor bathroom (rear addition)	No	No	
	Third Floor bathroom (main block)	Yes	Yes	Claw foot tub, wainscoting, porcelain light fixtures
	Third floor bathroom (rear addition)	Yes	Yes	Claw foot tub, marble corner sink
107B	Exterior	Yes	Yes	See 107A
	Primary Spaces	Some	No	See 107A
	Kitchen/Pantry	No	No	
	Basement	Yes	Yes	Period toilet; abandon basement bathroom
	First floor half bath	Yes	Yes	Period sink, wainscoting
	Second floor master bath	Yes	Yes	Pedestal sink
	Second floor bathroom (rear addition)	Yes	Yes	Period toilet
	Second floor bathroom (rear addition)	No	No	
	Third floor bathroom	Yes	Yes	Marble sink, claw foot tub, wainscoting
109A	Exterior	Yes	Yes	Masonry penetrations; potentially abandon rear entry
	Primary Spaces	Yes	Yes	Reopen stairwells and

Building Number	Work Location	Historic Fabric Present?	Historic Fabric affected?	Historic Fabric Present/Comments
				rearrange rooms
	Kitchen/Pantry	No	No	
	Basement bathroom	Yes	Yes	Historic period sink, claw foot tub, wainscoting; porcelain laundry sinks
	First floor bathroom	Yes	Yes	Claw foot tub, wainscoting
109B	Exterior	Yes	Yes	See 109A
	Primary Spaces	Yes	Yes	See 109A
	Kitchen/Pantry	No	No	
	First floor bathroom (rear addition)	Yes	Yes	Historic period sink and medicine cabinet
	First floor bathroom	No	No	
109C	Exterior	Yes	Yes	See 109A
	Primary Spaces	Yes	Yes	Plaster walls and ceilings; wood floors; trim; see 109A
	Kitchen/Pantry	No	No	
	Second floor bathroom	Yes	Yes	Claw foot tub, historic period sink, medicine cabinet, wainscoting
	Third floor bathroom	Yes	Yes	Claw foot tub, historic period sink, medicine cabinet, wainscoting
109D	Exterior	Yes	Yes	See 109A
	Primary Spaces	Yes	Yes	Plaster walls and ceiling; wood floors; trim; see 109A
	Kitchen/Pantry	No	No	
	Second floor bathroom	Yes	Yes	Claw foot tub, historic period sink, medicine cabinet and wainscoting
	Third floor bathroom	Yes	Yes	Historic period sink and wainscoting
116A	Exterior	Yes	Yes	Masonry penetrations and exterior light replacement
	Primary Spaces	Yes	No	Wood floors, wainscoting, millwork/paneling, and plaster walls and ceilings
	Kitchen/Pantry	Yes	No	Pantry cabinets (doors removed)

Building Number	Work Location	Historic Fabric Present?	Historic Fabric affected?	Historic Fabric Present/Comments
	Basement	Yes	No	Porcelain laundry sinks
	Second floor master bath	No	No	
	Second floor bathroom	No	No	
	Third floor bathroom	Yes	Yes	Claw foot tub, molding
116B	Exterior	Yes	Yes	See 116A
	Primary Spaces	Yes	No	See 116A
	Kitchen/Pantry	No	No	
	Basement	Yes	Yes	Porcelain laundry sinks; period toilet; abandon basement bathroom
	Second floor master bath	No	No	
	Second floor bathroom	No	No	
	Third floor bathroom	Yes	Yes	Period sink, toilet
118A	Exterior	Yes	Yes	Masonry penetrations
	Primary Spaces	Yes	No	Wood floors, wainscoting, millwork/paneling, and plaster walls and ceilings
	Kitchen/Pantry	No	No	
	Basement	Yes	Yes	Claw foot tub; abandon basement bathroom
	Second floor master bath	No	No	
	Second floor bathroom	No	No	
	Third floor bathroom	Yes	Yes	Period sink, claw foot tub, molding
118B	Exterior	Yes	Yes	See 118A
	Primary Spaces	Yes	No	See 118A
	Kitchen/Pantry	No	No	
	Basement	Yes	No	Porcelain laundry sinks
	Second floor master bath	No	No	
	Second floor bathroom	No	No	
	Third floor bathroom	No	No	
120A	Exterior	Yes	Yes	Masonry penetrations

Building Number	Work Location	Historic Fabric Present?	Historic Fabric affected?	Historic Fabric Present/Comments
	Primary Spaces	Yes	No	Wood floors, wainscoting, millwork/paneling, and plaster walls and ceilings
	Kitchen/Pantry	No	No	
	Basement	Yes	Yes	Period sink, toilet, porcelain laundry sinks; abandon basement bathroom
	Second floor master bath	No	No	
	Second floor bathroom	No	No	
	Third floor bathroom	Yes	Yes	Claw foot tub, period sink, medicine cabinet, molding
120B	Exterior	Yes	Yes	See 120A
	Primary Spaces	Yes	No	See 120A; period lighting
	Kitchen/Pantry	No	No	
	Basement	Yes	Yes	Porcelain laundry sinks; period sink and toilet; abandon basement bathroom
	Second floor master bath	No	No	
	Second floor bathroom	Yes	Yes	Art Deco style lights
	Third floor bathroom	Yes	Yes	Claw foot tub, molding
122A	Exterior	Yes	Yes	Masonry penetrations
	Primary Spaces	Yes	No	Wood floors, wainscoting, millwork/paneling, and plaster walls and ceilings
	Kitchen/Pantry	No	No	
	Basement	Yes	No	Porcelain laundry sinks
	Second floor master bath	No	No	
	Second floor bathroom	No	No	
	Third floor bathroom	Yes	Yes	Claw foot tub, medicine cabinet, molding
122B	Exterior	Yes	Yes	See 122A
	Primary Spaces	Yes	No	See 122A; period

Building Number	Work Location	Historic Fabric Present?	Historic Fabric affected?	Historic Fabric Present/Comments
				lighting
	Kitchen/Pantry	Yes	Yes	Porcelain kitchen sink
	Basement	No	No	
	Second floor master bath	No	No	
	Second floor bathroom	No	No	
	Third floor bathroom	Yes	Yes	Claw foot tub, period toilet, sink, molding
146	Exterior	Yes	Yes	Masonry penetrations
	Primary Spaces	No	No	
	Kitchen	No	No	
	Basement bathroom	No	No	
	Second floor bathroom	No	No	
374	Exterior	Yes	Yes	Masonry penetrations
	Primary Spaces	Potentially; not inspected	No	Plaster walls and ceilings, wood floors, decorative trim
	Kitchen	Potentially; not inspected	Potentially	
	First floor bathroom	Potentially; not inspected	Potentially	Claw foot tub

** Complete exterior and interior descriptions of most of the family housing quarters were completed for the 1983 HABS/HAER survey of the USMA (HABS 1983), and additional exterior and interior conditions were examined in the 1988 Study/Survey of Historically Significant Army Family Housing Quarters at USMA (Mariani& Associates Architects [MAA] 1988).*

MAJA-AL 11 July 05

MEMORANDUM FOR Mr. Alan Bjornsen, NEPA Coordinator

SUBJECT: Review of Final Environmental Assessment (EA) for the Family Housing Renovation

1. This memorandum responds to your request for a legal review of the Final EA and Finding of No Significant Impact (FNSI). I have no legal objection to the documents. The NEPA analysis was completed in accordance with AR 200-2.

2. If you have any questions about this opinion, please call me at extension 6375.

FOR THE STAFF JUDGE ADVOCATE:

DANIEL D. GRIESER
CPT, JA
Environmental Law Attorney