473-12

U.S. ARMY
MATERIEL COMMAND

SENECA ARMY DEPOT
ROMULUS, NEW YORK

LAND MANAGEMENT PLAN

REVISED JULY 1988

DIRECTORATE of ENGINEERING and HOUSING
ENVIRONMENTAL MANAGEMENT DIVISION

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INTRODUCTORY MATERIAL

HISTORICAL SETTING

Pre-Installation History

Prior to settlement in the early 1800's, both the French and English explored the area where the depot is located. Both undoubtedly made contact with the Cayuga and Seneca Indians, two nations of the Iroquois Confederacy that inhabited this area. After the Revolutionary War, a great deal of the land in this area was proportioned out as payment to those who fought for this country's independence from Great Britain. The Cayuga Indians signed a treaty (now disputed) selling the land to the new American Government. The land was settled and gradually cleared by the new owners for farmland. This use remained unchanged until acquisition by the military.

No identified Indian villages exist within the confines of Seneca Army Depot. Indian villages, however, have been identified in some of the surrounding towns.

Seneca Army Depot's Airstrip and Lake Housing Area were acquired from the US Air Force and US Navy, respectively, but prior to those uses these areas were also utilized for farming.

History of Installation Activities

On 11 June 1941, the War Department announced official approval of eight million dollars to start a munitions project in Central New York State. The site selected covered 10,600 acres of farmland and affected 105 families. Construction of Seneca Ordnance Depot was started in July 1941 and nearly 500 storage igloos were completed by 13 November 1941. Twenty miles of steel fence were erected at the boundaries to seal off the site. (See Appendix C for the complete chronological development of all facilities.)

By 1943 the administration area, ammunition facilities, warehouses, utility structures, and a few housing quarters were completed. Water, sewage, heat, and electrical facilities were available and the depot was ready to begin its primary mission of the receipt, storage, maintenance, and supply of ammunition. The peak number of civilians employed for construction gradually declined and only a handful of new facilities were built. 1950 saw the addition of six ammunition related facilities reflecting the shift from wartime supply mission to the peacetime storage, maintenance and disposal mission. Two large General Services Administration warehouses were constructed in 1953-54 as Seneca received this tenant activity. The years 1956 through 1960 saw the development of the Special Weapons mission and the sites at the northern end of the base were designated as the North Depot Activity. Buildings 700-710, 715-741, 800-825, Quarters 200-207, 210-219, 221-245, and 17 additional storage igloos were constructed to support this new mission. Eight new buildings were built during 1961-62 in support of both missions. No new facilities were added again until 1969.

In 1961, the North Depot Activity was consolidated with the South Depot and overall command assumed by the Commanding Officer, Seneca Army Depot. During this period the depot was transferred from the Chief of Ordnance to the

US Army Supply and Maintenance Command and renamed Seneca Army Depot (SEAD). On 1 July 1966, the depot was reassigned to the US Army Materiel Command (USAMC). In 1969, SEAD received the function of storing Industrial Production Equipment (IPE). This was eventually expanded into mission status in 1974. SEAD now has the task of rehabilitating this equipment prior to storage. From 1969 to 1976 ten new structures were added as well as eight trailers for temporary housing at the lake. In general, these were added to support additional military personnel. In 1976, the US Army Materiel Command was redesignated the Army Materiel Development and Readiness Command (DARCOM). In 1976 an Army Travel Camp was established at the lake. In 1977, the US Coast Guard "Loran C" transmitting station was built at SEAD. The years between 1976 and 1979 saw more modifications to existing facilities than new facilities. These modifications reflected a number of things. The new IPE mission required the modification of Buildings 316, 317, 318 and 360 into machine shops. Increased emphasis on morale support and personnel services, led to the construction of a Skeet and Trap Range (Bldg. 2301), and Handball Court at the Gymnasium, an Auto Hobby Shop, a new Health Clinic (Bldg. 106), and an MCA (Military Construction, Army) project "Improvements to Family Housing Quarters" in the year 1978. In 1979, the TVOR (Teminal Very High Frequency Omni - Directional Radar) site (Bldg. 2307) was built at the Airfield to meet future mission requirements in this area. A Child Day Care Center was established with an addition to the Chapel (Bldg. 740). The Army Community Services Office was built in Bldg. 116. A picnic shelter (Bldg. 136) was built in Hancock Park and an addition to the NCO (Noncommissioned Officers) Annex was begun. Also during 1979, the MCA Security Upgrade project was started (Bldgs. 800, 812, 819) and insulation of Bldgs. 704, 708, 323, 316, and 317 under the Energy Conservation Investment Program (ECIP) was begun.

Between 1979 and the present, a substantial number of new facilities have been constructed at the Depot. The redeployment of the 833rd Ordnance Company from.Korea to SEAD has necessitated the construction of several new buildings on the North Post including the Ammunition Training Facility (Bldg. 747), Vehicle Maintenance Shop (Bldg. 746) and a new wing connecting barracks 704 to barracks 708. Other projects recently completed include a new gymnasium (Bldg. 744), rock salt storage building (Bldg. 128), used solvent storage facility (Bldg. 307), Army Travel Camp Service Center (Bldg. 2485) and additions to the NCO Club Annex.

Seneca Army Depot has received, stored, maintained, and issued ammunition during World War II, the Korean War, and the Vietnam Conflict. From this basic mission SEAD has been given the task to receive, store and maintain general supplies, Industrial Plant Equipment, Special Weapons and tank and automotive items and assemblies. The depot has been assigned a geographical area of distribution and has also been a reserve depot for general supplies. SEAD has command assigned TOE and TDA units as well as providing logistical support and training assistance to US Army Reserve and National Guard Units. SEAD processes and provides for the movement of household goods, personal baggage, and passenger services for military and civilian personnel residing in 15 counties in Central New York State. SEAD provides medical, dental, veterinary, commissary, post exchange, claims and legal assistance services for authorized personnel. SEAD operates a Class C Military Airfield for logistics shipments and provides logistical and administrative support for the following tenant groups: 295th MP Company; 833rd Ordnance Company, US Army

Readiness Group-Seneca; 143rd Ordnance Detachment (EOD); 902nd MI Group-Seneca Resident Office; 1st Region US Army CIDC-Seneca Branch Office; Ft. Drum Vet-MEDDAC-Seneca Branch; USACC-Seneca; US Army Health Clinic-MEDDAC; US Army Commissary; GAFB Exchange-Seneca; US Army Engineer District NY-Seneca Resident Office; US Coast Guard-Loran C Station-Seneca; Property Disposal DLA/DPDO-Seneca Branch; and GSA Activity.

Historical and Archeological Resources

There are no identified sites of archeological significance within the boundaries of SEAD. Furthermore, there are no designated historical buildings, structures, or sites on the reservation except for an old cemetary and ruins of a few old homes. The cemetary is maintained by Facility Engineering personnel and public access for the relatives of those buried there is allowed. No preservation or maintenance efforts are planned for the locations of rubble from a few old homes.

SENECA ARMY DEPOT

CHRONOLOGICAL DEVELOPMENT OF FACILITIES AND ACTIVITIES

1941-1943	Igloos Blocks A, B, C, D, E, Warehouses 312-350, Bldgs/ Facilities 4-13, 100-104, 109-127, 143, 300-311, 600, 604, 990-2072, 2077-2411, Qtrs 208, 209, 2401, 2403, 2404, 2406, 2412-2463
1945	Bldgs/Facilities T2105, T2110
1946	Bldg 2108
1947	Bldgs/Facilities 2079, TK7-TK9, TK16
1948	Bldg 2101
1950	Bldgs/Facilities 366, 2073, 2106, 2107, S2074, S2075, S2084, S2085
1953	Bldgs/Facilities 356, 358, 2076, 2302-2304
1954	Bldgs/Facilities 354, 257, 358, 608-611, 702, 2301, 2305, T2080, 2306
1955	Bldgs/Facilities 310, 322, S361, S2102, S2103
1956	Bldgs/Facilities 605-607, 700, 701, 706, 707, 709, 710, 715-730, 800-803, 818, 2113, S335
1957	Bldgs/Facilities 804, 805, 809, 810, 812-815, 819, A201, A203, A205, A207, A209, A211, A213, A215, A217, A302, A304, A306, A308, A310, A312, A314, A316
1958	Bldgs/Facilities 806, 807, 1495, 1593, T246
1959	Bldgs/Facilities 612, 740, 741, 824, 825
1960	Bldgs/Facilities 144, 200-207, 210-219, 221-245
1961	Bldgs/Facilities 367, 711, 2422, S131
1962	Bldgs/Facilities 731, 732, 742, T355
1969	Bldgs/Facilities 360, 368, 808, 817
1970	Bldgs/Facilities 826, 2456
1971	Bldgs/Facilities 362, 733, 2100
1972	Trailers 2, 3
1974	Bldg S363

1976	Bldgs/Facilities S2473-S2478
1977	Bldgs/Facilities 743, Loran C Station, Modify 316, 317, 318, 360
1978	Bldgs/Facilities 106, 2301, 742, Air Inflated Structures at Tennis Courts, Modify 732
1979	Bldgs/Facilities 2307, 136, Boat Docks
1980	Gym, DYA Building, Security Upgrade, NCO Annex, Insulate 704, 708, 323, 316, 317
1981	Used Solvent Facility (Bldg 307), Rock Salt Storage (Bldg 128), Addition to NCO Annex
1982	Barracks 703, 2445 Picnic Shelter, 129 Fuel Oil Storage Tank
1983	Bldg 747 Ammo Training Facility, 103 Addition, 746 Vehicle Maintenance Shop
1984	Bldg 137 Emergency Stand-by Generator, 2311 Guard House, 114 Parshall Flume, 317 Addition, 138 Car Wash, 124/125 Addition
1985	Bivouac Site
1986	Bldg 729 Addition, 750 Army Community Service, 2312 Equipment Shelter, 731 Burger King Addition
1987	Bldg 810 Addition, 119 Addition, Flammable Storage Sheds (Bldgs 316, 317, 318), Container Loading Yards, B110A Truck Scale, Physical Fitness Trail, 751 Outdoor Recreation Issue Center, Small Arms Range
1988	HVAC Controls, Vapor Barrier Alterations, Bldg 752 Child Development Center, 753 Guard House, 372 IPE Holding Barn, Guide Rail at Southwest Area, 123 Addition, 371 IPE Material Storage Building, purchased 5.168 acres of land, obtained easements to 41.8518 acres of land.

SENECA ARMY DEPOT
COMMUNITY FACILITIES

Building No.	Facility
101	Mail Room
106	Health Clinic & Dental Clinic
119	Credit Union
126	Youth Center
136	Recreational Building/Picnic Shelter
142	Thrift Shop/NCO Club
702	Education Center/Army Community Services/TEC Lesson Library
704	Laundry/Dry Cleaning
705	Recreation Center/Library/Equipment Checkout
706	Theater
707	Barber Shop/Clothing Sale/Country Store/Post Exchange
S-714	Bowling Alley
722	Baggage Store
723	Commissary
724	Skill Development Center/Ceramics/Photo Lab
731	NCO Annex
732	Car Wash/Auto Shop
740	Chapel/Child Care Center
742	Gas Station
744	Gymnasium
752	Child Development Center
2301	Skeet & Trap
2410	Officers Club
2485	Travel Camp

Additional Facilities: picnic areas - 2 locations; tennis courts - 2 locations; baseball fields - 2 locations; multi-purpose athletic field; playground; camping; and boat launching/dock facilities, and outdoor recreation checkout.

Community Facilities

Seneca Army Depot offers a wide variety of community facilities to its military and authorized civilian personnel. Located on the post itself are medical facilities, recreational areas, worship facilities and a commissary.

The children of military personnel living on-post and in the surrounding communities attend Romulus Central School, which is located east of the depot along State Route 96. Military dependents comprise one-fourth the total enrollment for grades Kindergarten through 12.

Community facilities situated on the South Post include the Medical Center, Dental Clinic, Credit Union, Youth Center, and a combined Thrift Shop/ NCO Club. The Officer's Club with its panoramic view of Lake Seneca is situated in the Lake Housing Area.

A majority of the post's shopping and recreational facilities are located within the North Post. Major facilities there include the Post Chapel, Gymnasium, Commissary, Theater, Skill Development Center, and Auto Shop. An index of on-post community facilities is included in Appendix D.

Shopping opportunities are rather limited in regard to existing on-post facilities. However, the nearby towns of Waterloo and Geneva offer a complete array of commercial opportunities, including several shopping malls.

Recreational facilities at Seneca Army Depot are both extensive and varied. The post offers a newly constructed gymnasium, outdoor sport fields, tennis courts, picnic areas, and boat launching/docking facilities. The location of the reservation provides for a wide spectrum of water activities including swimming, fishing, and boating.

MISSION AND SUMMARY OF SENECA ARMY DEPOT ACTIVITIES

The general mission of Seneca Army Depot is as follows:

To provide for the receipt, storage, stock distribution, and care and preservation of conventional ammunition and explosives, General Services Administration strategic and critical materials, and Office of Civil Defense engineer equipment.

To provide a special weapons activity to include the receipt, storage, and issue of primary and secondary items.

To perform depot level maintenance, demilitarization, and surveillance on conventional ammunition and special weapons.

To receive, inspect, test, classify, rehabilitate as required, preserve, store, and issue industrial plant equipment.

To command assigned Term of Enlistment (TOE) and Temporary Duty Assignment (TDA) units as well as provide logistical support and training assistance to U.S. Army Reserve and National Guard unit.

To process and provide for the movement of household goods, personal baggage and passenger services for military and civilian personnel residing in 15 counties in Central New York State.

To provide medical, dental, veterinary, commissary, post exchange, claims and legal assistance services for authorized personnel.

To operate a military Class C Airfield for logistics shipments, accommodating up to and including C-141 aircraft.

To provide logistical and administrative support for tenant units and other government agencies.

Assigned, attached, and tenant organizations are as follows:

1. Organizations assigned and attached to Seneca Army Depot:

   295th MP Company
   833d Ordnance Company
   HQ and HQ Company

2. Tenant activities stationed at Seneca Army Depot:

   USA Readiness Group - Seneca
   143d Ordnance Detachment (EOD)
   902d MI GP, Seneca Resident OFC
   Seneca BR OFC - 1st Region - USA CIDC
   WNY Section, VET - MEDDAC
   USACC - Seneca
   US Army Health Clinic - MEDDAC
   US Army Dental Clinic - MEDDAC
   US Army Commissary - SEAD

USA Engineer District NY - Seneca Resident Office
US Coast Guard Loran C Station - Seneca
DPDO Romulus Office - Site Scrap Branch
NE Flight Detachment - Seneca (AVN Sect.)
GAFB Exchange - SEAD
GSA - Office of Stockpile Management

Tenant units are a very important part of the Seneca Army Depot community. The tenant organizations perform a wide variety of support and service functions for the Department of the Army and Department of Defense. Activities of these tenant units include communications, navigation, health services, and numerous others. A chart showing the relationship of the various departments within the command of the depot and the tenant units is shown on the following page (Table I).

DEPOT LOCATION AND STUDY AREA

Seneca Army Depot is a 10,587 acre installation located in Seneca County, New York, adjacent to Seneca Lake. The Depot is situated due west of the village of Romulus, New York, 12 miles south of the villages of Waterloo and Seneca Falls, and 2.5 miles north of the village of Ovid, New York. The city of Geneva, New York is approximately 14 miles northwest of the Depot, while the city of Ithaca, New York is approximately 20 miles to the south. The nearest major cities are Syracuse, New York and Rochester, New York, each about 60 miles away.

The major highway access to Seneca Army Depot is from New York State Highways 96 and 96A. The Depot is bounded on the east by highway 96 and on the west by highway 96A. The main entrance to the Depot is from highway 96 at the village of Romulus. The North Depot entrance is located on highway 96A.

Plates 1 through 4 show Seneca Army Depot's location with respect to the surrounding communities, the reservation boundaries, and the cantonment areas, respectively.

TRANSPORTATION SYSTEMS

The transportation system serving Seneca Army Depot consists of highway, railroad, and airport facilities. Each of these elements is sufficient to fulfill present mission requirements if properly maintained. The transportation network serving the installation is shown on Plate 10.

Due to the quantity-safety distance criteria imposed by the depot's ammunition related activities; warehouses, igloos, and workshops are spread over a relatively large area. The transportation network of the post, principally its roadways, have evolved as the various operational, storage, and administrative areas were constructed. Thus, the depot's transportation system tends to reinforce the existing land use patterns. Since the installation Master Plan calls for proposed facilities to be sited in consonance with the existing land use plan, no major upgrading of the installation's transportation network is contemplated at this time. A brief discussion of the existing transportation facilities follows.

Railroads

A depot network of 42 miles of track provides access to all installation operational facilities. This network is served by the Conrail System along the depot's west boundary. This service is a single track to the north between SEAD and the rail hub which is located 14 miles distant in Geneva, New York. Routing from the rail hub is northwest to Buffalo via Rochester and east to Albany via Syracuse.

The depot system, including ties, ballast, and rails, has been programmed for extensive maintenance. The Conrail track to Geneva, while receiving little use, is in good condition and is adequate for depot needs.

Recently, significant portions of the installation trackage has been upgraded. The existing depot railway system is not projected to receive extensive usage, unless emergency expansion occurs.

Roadways

In order to assess various networks, the Department of the Army has established a classification system for roadways serving military installations. The four types of roadways are defined as follows:

Access Highways: Public highways that provide essential highway transportation services from a defense installation to suitable transportation facilities.

Primary Highways: Installation roads and streets that serve as the main distributing arteries for all traffic originating outside and within the installation and that provide access to, through, and within the various functional areas.

Secondary Highways: Installation roads and streets that supplement primary highways by providing access to, between, and within the various functional areas.

Tertiary Highways: Installation roads and streets that provide access from other roads and streets to individual units or facilities of a functional area.

The "Transportation Network" map documents the roadway system only in terms of access, primary, and secondary highways. The tertiary system is too extensive to show at this scale, however, this does not diminish its importance to the total network.

Primary access to the depot is provided by New York Routes 96 and 414. These routes run in a north-south direction and abut on the east border of the depot. Average traffic volumes for these roads are 75 and 100 vehicles per hour, respectively.

Secondary access to SEAD is provided by State Route 96A which also has a north-south alignment, but abuts the west border of the depot. Traffic on Route 96A averages 85 vehicles per hour.

Each of these access roads are paved, two-lane highways with earth shoulders. The pavements are constructed of bituminous concrete and are well maintained. Each of these three highways provide a northern access to Interstate Route 90, which is located approximately 15 miles north of Romulus.

Direct access to the Main Post is controlled by a network of gates at which strict security measures are maintained. The South Post is served by a gate complex located off of Route 96, while the North Post is accessed by two gates located off of Route 96A, one of which is used exclusively for trucks. Additionally, there is a gate complex located at the entrance to the Exclusion Storage Area in the North Post.

The depot roadway network totals approximately 141 miles. Macadam paving comprising approximately 113 miles provides a complete roadway system for the Restricted Storage Area, Exclusion Storage Area, and North Post. Concrete roads totalling 14 miles are located in the Administration and General Warehouse Area. The balance of the remaining roadways are paved with shale and/or gravel. These are utilized for access to remote and infrequently travelled areas.

There is an ongoing program to rehabilitate the macadam roadways in the Igloo Storage areas, which have become somewhat deteriorated over the years. Two alternate repair schemes are being used. One method involves tearing up the existing macadam, adding more asphalt to the torn up macadam, relaying the enriched mixture, then topping off the paving with new asphalt. The other method involves repairing the damaged sections wtih petromat, then bringing the sections to grade with bituminous concrete.

Due to the low volumes of traffic travelling on the installation roadways, signals at intersections have not been necessary. Traffic is controlled only by speed limits which, due to the nature of the installation, are low.

All existing facilities at the installation are adequately provided with parking.

Airfield

There are six airstrips located within a 12-mile radius of the depot. Of these six airstrips, two are private, and two have limited or no facilities. Seneca Falls Airport is the major general aviation facility for Seneca County. SEAD's airfield located on the southwest corner of the installation is for military aircraft only.

Seneca Falls Airport has no air traffic control facilities and operates on both IFR (instrument flight rules) and VFR (visual flight rules) system. On a busy weekend it may serve 400 to 500 operations (takeoff and landings).

Air traffic to and from the post utilizes the depot airfield, formerly called Sampson Air Force Base. The airfield is designed to service both fixed-wing and rotary-wing aircraft. It has air traffic control facilities and operates on an IFR (instrument flight rules) system.

The existing runway, recently lengthened to 7,000 feet, accommodates C-141 arrival/departure operations. However, C-130 cargo planes, DC-9, and occasionally C5A aircraft are also fixed-wing users of the depot airfield. Take-off and landing operations average one fixed-wing and two rotary-wing per day.

LAND USE

The existing land use patterns at Seneca Army Depot are well established, dating back to World War II. The development of the installation has centered around the depot's primary mission of providing for the receipt, storage, maintenance, and disposal of ammunition. The construction of new facilities since the end of World War II has proceeded in an orderly fashion in recognition of the basic land use pattern established by the depot's primary mission. The existing land use patterns at the depot are shown in Plate 5.

The historic development of the installation and man-made boundaries have served to divide SEAD into three major land areas.

- Main Post
- Depot Airfield
- Lake Housing Area

The Main Post accounts for the bulk of the installation's area, comprising 9,832 acres out of a total 10,587 acres. The ammunition storage and exclusion storage areas occupy the central portion of the Main Post, accounting for 4,008 acres. The ammunition storage area consists of 455 reinforced concrete igloos and eight permanent general storage magazines spread over 3,609 acres. The exclusion storage area contains 64 reinforced concrete igloos and one warehouse in support of the Special Weapons Directorate.

Operational facilities designed for the maintenance and demilitarization of ammunition are located around the periphery of the ammunition storage area. Those operational areas are:

- Ammo Workshop Area - Southwest
- Ammo Workshop Area - Southeast
- Ammo Demilitarization Area
- Ammo Surveillance and Receiving Area
- Ammo Demolition Area

The cantonment areas of the Main Post are designated as the North Post and the South Post. The South Post is located in the southeast portion of the depot adjacent to Route 96. Facilities situated in the South Post include administration, family housing, community services, and warehouse storage. Most warehouse storage at the depot is accomplished in 27 standard warehouses located within the South Post. Of these, two have floor space of 200,000 square feet each, while 21 contain 90,000 square feet. The remaining five warehouses have considerably less storage space.

The North Post is situated on the northern end of the Main Post and is accessed by Route 96A. Facilities situated within the North Post include troop housing, troop support, and community services. A majority of the new facilities constructed at SEAD over the past ten years are located within the North Post.

The area designated as open storage is predominantly woodland and ponds. The depot has made a conscious effort to protect and improve the natural habitats remaining on the reservation.

The Depot Airfield is situated on a 500 acre parcel off the southwestern corner of the Main Post. SEAD operates a Class C Airfield for incoming and outgoing logistic shipments. The fixed wing runway is 7,000 feet long. The small arms range portion of this parcel is used for troop training.

The Lake Housing Area provides 26 family housing quarters on 69 acres of depot property adjacent to Lake Seneca. To alleviate the strain on available on-post living quarters a new housing development is being built. This will add an additional 30 housing units.

Generally, the existing land use patterns at Seneca Army Depot are suitable for the continuing execution of the installation's mission. The dominant factor influencing land use on the depot is the quantity safety distance envelope which surrounds those facilities dedicated to the handling, maintenance, storage, and demilitarization of ammunition and related material. As can be seen on Plate 7, Hazardous Areas, the envelope surrounding the exclusion storage, ammunition storage, and various ammunition operational complexes occupies the major portion of the Main Post. Inside this envelope construction of new facilities should be restricted to areas already dedicated to that particular usage.

Outside the quantity-safety envelope no major revisions to the existing land patterns are proposed at this time. It is recommended that new facilities, such as family housing, be sited in areas adjacent to or near areas already dedicated to the particular usage and where damage to the natural environment can be minimized. The surviving natural habitats on the reservation should be protected and conserved.

Due to Seneca Army Depot's isolated location in a sparsely populated, rural County any revisions to land usage within the confines of the post will have little direct effect on the surrounding communities. The rural nature of the land surrounding the installation provides a very compatible land usage with that of the post itself.

The following section, Land Use Suitability, analyzes the existing land use patterns at the installation and makes reccommendations on their adequacy in regard to present and future master planning objectives. This analysis considers the environmental consequences of changes to the existing land use plan.

LAND USE SUITABILITY

The land use suitability analysis is one of the foundations of the master planning process. The existing land use patterns must be evaluated in view of the long term performance of the installation's assigned missions. The master plan of Seneca Army Depot must not only consider the current peacetime mission, but also provide for emergency expansion or mobilization.

The building suitability analysis which is primarily a function of the economic life of the existing structures is a major factor in determining the suitability of a particular land parcel. The availability and adequacy of the existing roadway network and utility systems to provide the necessary support for a particular activity in a particular land area are also major factors in defining the optimum land usage.

All decisions on land use suitability must consider the physical/ aesthetic constraints on the installation to new development. Physical constraints which can dramatically escalate the cost of new construction include such conditions as very steep slopes, poor soil conditions, high water table or marshland. New facilities should be sited so as to aesthetically conform to the installations natural features and existing structures.

One of the constraints to changing the existing land usage at Seneca Army Depot is the quantity-safety distance which must be maintained. Facilities which are not going to be utilized for either the handling, storage, maintenance, or disposal of ammunition must be sited outside this envelope.

The land use suitability is influenced by the environmental impacts associated with any changes to the existing land use plan. Any alternate or new land usage which will further disrupt or degrade the surviving natural habitats on the reservation or will intrude upon the surrounding community must be re-evaluated to see if the gain in operational efficiency outweighs the irreversible environmental damages.

Planning has been delineated into the following general categories as derived from AR 210-20.

- Continued Use, Built Areas
- Continued Use, Non-Built Areas
- Alternate Use Areas
- New Use Areas
- No Use Areas
- Hazardous Areas
- Areas of Potential Encroachments

Plate 6, Land Use Suitability, documents those areas on the installation which are recommended for Continued Use, both built and non-built, and those areas recommended for New Use. Areas of the installation which are considered Hazardous are shown in Plate 7. The criteria for assigning the above categories and the installation land areas which apply to each of these categories is discussed as follows.

Continued Use, Built Areas Recommendation

These areas are comprised of the permanent and semi-permanent buildings on the installation which are to be retained for their present usage. At Seneca Army Depot, these built-up areas contain established roadway and utility systems. Since the original natural environment has either been disrupted to a significant degree or destroyed, it becomes a matter of mitigating continuing adverse impacts such as air, runoff, and noise. It becomes both cost effective and economically beneficial to attempt, as far as practical, to limit proposed development to the built-up areas.

As can be seen in Plate 6, Land Use Suitability, all of the existing built-up areas of the reservation are recommended for Continued Use. All of the existing built-up areas are functional, in regard to the ongoing mission, with the exception of the Southwest Ammo Workshop Area, and conform to quantity-safety distance criteria. Although it is recommended that the buildings in the Southwest Ammo Workshop Area be demolished, a new complex with modern ammunition maintenance or demilitarization facilities could be constructed in this area.

Continued Use, Non-Built Areas Recommendation

These areas include parcels required for ammunition demolition, those used for open storage, and those reserved for recreational/open space. The pressure to site proposed facilities in these areas is a function of proximity to existing developed areas and lack of physical/environmental constraints.

Due to the hazardous nature of the materials handled at SEAD and the need to maintain proper quantity-safety distances, operational and storage facilities are spread out over the Main Post. Therefore, there is a great deal of land available for open storage or open space.

It is planned that all undeveloped parcels within the confines of the quantity-safety envelope surrounding the exclusion storage, ammunition storage, and operational areas be retained as non-built. The vast majroity of the non-built tracts outside of this envelope are also recommended for continued use, non-built. Existing natural habitats such as ponds and woodlands should be preserved. However, some of the parcels outside the quantity-safety envelope, which are designated as open storage, open space on the Existing Land Use Plan offer potential sites for New Use. These sites are addressed in more detail in New Use Areas, Recommendation.

Alternate Use Areas, Recommendation

Areas designated for possible alternate use fall into two categories. The first category are those parcels which currently contain outdated, outmoded temporary structures for which there is little current or projected future use. The second category of parcels recommended for alternate use are training areas in which the combination of proximity to developed areas and limitations imposed by the configuration of that particular parcel make an alternate usage more appropriate.

Since it is apparent that there are no parcels at SEAD that fall under these two categories, there are no areas of the reservation designated for Alternate Use on Plate 6, Land Use Suitability.

New Use Areas, Recommendation

Areas designated for new use are those parcels accessible to the built-up portions of Seneca Army Depot which are presently not experiencing major use and in general do not exhibit any major physical constraints to construction. Since conversion of these areas to developed land usage entails significant environmental impacts, the need for new facilities and the cost benefit thereof must be assessed in relation to the resulting environmental losses.

Those areas recommended for New Use are currently designated as Open Storage/Open Space on the existing Land Use Plan and are located in conformance with quantity-safety distance criteria. Since these sites are contiguous to existing built-up areas, utility-transportation networks are readily available. All of the parcels designated for New Use on the Land Use Suitability Plan are located in such a manner that existing woodland and pond environs should remain relatively undisturbed. Areas of SEAD recommended for New Use, should construction of new facilities become necessary, include:

- Lake Housing: parcel located south of Kendaia Creek and east of Liberator Road and Army Travel Camp.
  Projected Use: Family Housing (currently under construction - 30 units)

- North Depot: parcel located north of Access Road, west of fenceline, and east of Building S-714.
  Projected Use: Community Services

- North Depot: parcel located north of Access Road, west of fenceline, and east of Building 701.
  Projected Use: Administration or Community Services

- South Depot: parcel located west of East Patrol Road, south of West Romulus Road, north of East Kendaia Road.
  Projected Use: Warehouse Storage or Operations

- South Depot: parcel consisting of two parking lots which are located within the fenceline at the South Depot gate, west of Route 96.
  Projected Use: Community Services

- South Depot: parcel located south of Administration Area, north of Warehouse Area, and west of Family Housing units 233 to 243.
  Projected Use: Family Housing and/or Community Service

- South Depot: parcel located south of Buildings 339, 347, 348; east of Brady Road; and west of Buildings 356, 357.
  Projected Use: Warehouse Storage

No/Use Disposal Areas, Recommendation

An assessment of current installation land use patterns, installation security requirements, and projected land use requirements lead to the recommendation that no land areas on the depot be considered for disposal.

Hazardous Areas, Recommendation

Sites designated as Hazardous Areas on Plate 7 include the following:

- ammunition storage
- columbite ore storage
- proposed landfill

Additionally, the quantity-safety distance which must be maintained for facilities used for the maintenance, storage, or demilitarization of

ammunition and related materials, and the airfield clear zone preclude the use of the majority of the installation's land area for either Alternate Use or New Use.

Columbite ore which emits some radioactivity is stored in Building 357. The proposed landfill is sited in the southeast corner of the Main Post.

Sites designated as Hazardous Areas are recommended for either Continuous Use, Built or Continuous Use, Non-Built depending on the existing land usage. Hazardous substances stored within the installation are discussed in more detail in the Hazardous Substances section in the Environmental Assessement portion of this report.

Potential Encroachment Areas

Potential encroachment is defined as the extent and intensity of predictable future land use activities in the communities bordering the installation that would be detrimental to the successful accomplishment of the installation's mission. Potential encroachments can be divided into two categories; those that intrude upon the confines of the post and those that are outside the reservation boundary, yet affect the post.

Seneca Army Depot's geographic location in a sparesely populated, rural county minimizes the impact of surrounding communities upon the activity of the depot. The existing land use surrounding the depot is predominantly agricultural and institutional. It is the intent of both regional and county planning authorities that the rural nature of this portion of Seneca County remain intact. Therefore, it can be concluded that there are no land use activities in the surrounding communities, either present or future, which adversely intrude upon the activities of the depot.

BUILDING SUITABILITY

The nature of Seneca Army Depot's primary mission, that of operating a supply depot for the receipt, storage, issue, maintenance and disposal of assigned quantities has, over the years, resulted in a predominance of permanent buildings. The gross floor area of building construction types is as follows:

TABLE II
GROSS FLOOR AREA OF BUILDING CONSTRUCTION TYPES

	Number of Building	Square Feet
Permanent	798	4,464,409
Semi-permanent	71	91,405
Temporary	17	56,401

The building suitability analysis evaluates the structural stability and functional adequacy of the exiting buildings, then makes a recommendation relative to the future disposition of these buildings. These recommendations are made in accordance with AR 210-20 as follows:

- buildings or groups of buildings which should be retained for continued permanent use

- buildings or groups of buildings which are reommended for disposal or replacement

- buildings which should be converted to another usage

Buildings recommended for continued permanent use include the permanent and semi-permanent buildings on the installation with long term economic life after the year 2000. The "Building Information Schedule" indicates that nearly all the permanent buildings have an economic lifespan estimated beyond the year 2010. The average economic lifespan of the permanent buildings, by functional type, is as follows:

TABLE III
FINAL YEAR OF AVERAGE ECONOMIC LIFESPAN OF PERMANENT BUILDINGS

Function	Final Year of Average Economic Lifespan
Administration	2035
Family Housing	2010
Igloos	2060
Troop Housing	2035
Warehouses	2010

Nearly all the permanent buildings on the reservation, with the exception of the family housing units, are constructed of either concrete, block, or brick. The structural condition of these buildings ranges from fair to excellent, largely depending on age.

Family housing units and garages located in the Lake Housing Area account for the majority of semi-permanent buildings on the post. Originally constructed as summer cottages, these buildings have an economic lifespan to 1995, as indicated by the "Building Information Schedule." Recently, the condition of these family housing units has been upgraded by replacing doors and windows, and by installing insulation and new siding.

The preponderance of temporary buildings remaining on the installation are wooden structures which are World War II vintage. As these structures become deteriorated and their economic lifespan expires, they should be demolished. Permanent and semi-permanent buildings on the installation which are recommended for removal and/or replacement, mainly due to functional inadequacy include the following:

TABLE IV
PERMANENT AND SEMI-PERMANENT BUILDINGS RECOMMENDED FOR REMOVAL AND/OR REPLACEMENT

Building	Usage
2073	Rocket overhaul shop
2076	Storage
2077	Public toilet
2078	Ammunition Renovation Workshop
2079	Heating Plant
S-311	Deactivation Furnace
S-2074	Ammunition Maintenance
S-2084	Ammunition Renovation Workshop
S-2085	Ammunition Maintenance

At the present time, there are no buildings on the reservation which are recommended for conversion into another type usage. The recommendations regarding building suitability are illustrated on Plate 8, Building Suitability.

PHYSICAL/ENVIRONMENTAL CONSTRAINT COMPOSITE

The restraints to development of certain areas due to physical/environmental limitations has been summarized on one resource constraint composite map. These physical/environmental restraints include:

- quantity-safety distance criteria
- steep slopes
- natural habitats to be preserved
- ponds

It is this resource composite in combination with the building suitability analysis which when considered in the context of the requirements of the Depot mission forms the criteria for land use suitability recommendations. The proposed location of any new building or improvement can be sited on this map to determine the extent, if any, of physical/environmental constraints to construction at this location. This map provides a basis for siting new facilities so as to minimize both construction cost and damage to the environment, and conform to quantity-safety requirements.

At Seneca Army Depot, the dominant feature of this Physical/Environment Composite which effects the land use suitability analysis is the quantity-safety distance envelope which surrounds those areas already dedicated to the storage, maintenance, and disposal of ammunition and other related materials. The Physical/Environment Composite is shown on Plate 9.

Table B-1. Inventory of Land Use
Improved Grounds

Improved grounds classification	Total acres	Acres maintained with: Power mowers (5) Irrigated (7)	Power mowers (5) Unirrigated	Tractor mowers (6) Irrigated (7)	Tractor mowers (6) Unirrigated	Mowing frequency Mo. (8) Yr. (9)
Lawns mowed by facilities engineer (1)	255.25				255.25	12
Lawns mowed by others (1)	0					
Athletic fields (2)	2.87		2.87			12
Golf courses by facilities engineer	0					
Golf courses by others	0					
Parades and drill grounds	0					
Post cemeteries	0					
Private cemeteries	3.25		3.25			
Airfield and heliport (landing and parking) (3)	0					
Other improved grounds (4) Roads	41.32				41.32	12
(Specify kinds and use) Fencelines	94.52				94.52	12
Airport	112.50				112.50	12
Total	509.71		6.12		503.59	

(1) Include areas adjacent to buildings & structures normally described as lawns.
(2) Include turf area of ball fields and other outdoor recreational facilities (other than golf).
(3) Grassed landing and parking areas.
(4) List separately such areas as: ground cover (ivy, iceplant, periwinkle), crushed rock or gravel blanket on improved grounds, other landscape planted areads. and road shoulders in improved ground areas.
(5) Include acres mowed with hand push and self contained power units.
(6) Include acres mowed with farm or industrial type tractor mowers.
(7) Include acres regularly irrigated to prevent loss of turf. Do not include lawn areas in humid climate zones irrigated to preserve green color.
(8) Use the fig. 4 if mowed once a week or four times a month during mowing season; fig. 8 if twice weekly.
(9) Use the fig. representing the number of times mowed during the year.

Table B-1. Inventory of Land Use—Continued
Semi-Improved Grounds

Semi-improved classification	Total acres	Mowed	Weed control	Other maintenance
Airfield and heliports (1)	249.99	249.99		
Ammunition storage (2)	184.58	184.58		shrub control-184.58
Antenna fields	0			
Drop zones	0			
Small arms ranges	0			
Firebreaks (3)	0			
Road shoulders and railroad beds and appurtenant land areas (4)	56.29	56.29		
Picnic area (5)	0			
Wildlife food plots (6)	38.0	38.0		
Other grounds (7)	1186.66	1186.66		
Totals	1715.52	1715.52		184.58

(1) Do not include landing and parking area.
(2) Do not include unimproved area.
(3) Do not include firebreaks in forest areas.
(4) Do not include road shoulders of improved grounds or railroad acres of unimproved areas.
(5) Include picnic grounds and similar recreational areas.
(6) Include areas planted to annual and perennial plants and browse and seed crop areas provided incidentally by timely mowing or tilling operations
(7) Include crushed rock or gravel for dust control within semi-improved areas.

Table B-1. Inventory of Land Use—Continued
Unimproved Grounds

Unimproved classification	Total acres	Mowed	Weed control	Other (7) maintained	Not maintained
Ammunition storage (1)	3818.23				3818.23
Agricultural leases (2)	0				
Ponds, lakes and streams (3)	375.57				375.75
Pavements and railroads (4)	256.00				256.00
Buildings and structures (4)	104.14				104.14
Non-merchantable forest land (5)	300.00				300.00
Other areas (6)	3507.83				3507.83
Totals	8363.18				8363.18

(1) Do not include semi-improved areas.
(2) Indicate work performed by lessee and lessor (not to exceed total area leased.)
(3) Include surface areas in "maintained" and "not maintained" columns as appropriate.
(4) Include land area occupied and report in "not maintained" column. Do not include railroad acreage reported as maintained in semi-improved areas.
(5) Those areas composed of tree or brush cover, not economically productive and maintained for one or more uses such as: watershed protection, soil stabilization, military training, and for natural resource values such as wildlife habitat, natural beauty, and to enhance recreation potential.
(6) Include ranges other than small arms, maneuver areas, safety and security zones, areas prescribed burned not otherwise managed, desert and swamp areas, open storage areas other than ammunition storage, and crushed rock or gravel within unimproved areas.
(7) Specify type of maintenance performed.

COMMERCIAL FOREST LAND. TOTAL ACRES 7,378.
(Those areas classed as economically productive or economically potentially productive of wood products on a sustained yield basis. (AMS Code 728012-23000))

INSTALLATION TOTAL ACRES 10,587.
(Combined acreage of improved, semi-improved and unimproved grounds and commercial forest land)

Drainage System

There are four main watersheds on the installation. Surface runoff from within the southern part of SEAD which includes the Washout Plant area, the Ammunition Workshop area, and the E-800 area, flows into Indian Creek which empties into Seneca Lake just south of the air base.

Kendaia Creek receives the run-off from the central part of the installation and flows into Seneca Lake. Areas drained by Kendaia Creek include the Tank Farm, Warehouse Storage, GSA Open Storage, and the Headquarters complex. The storm drainage system in the Administration Area discharges directly into this stream.

Reeder Creek drains the major portion of the northwest and north central part of the depot. This drainage area includes a large part of the restricted area, the Demolition Grounds, Sewage Treament Plant No. 715 and most of the built-up area of the North Post. Storm drains discharge directly into this stream.

The northeast part of the reservation which includes part of the restricted area, the ponds and marsh areas north of Sewage Treatment Plant No. 4 drains into Kendig Creek, which flows north into the Cayuga-Seneca Canal. The ponds, which were created by damming, comprise 43 acres. The drainage and slope maps for the installation are shown on Plates 11 and 12.

External drainage of the soils found on the depot is generally poor. However, due to the slight slope, most of the depot is drained sufficiently to prevent accumulation and stagnation of water. To provide for surface drainage, an extensive system of channels has been excavated and drains constructed to cover most of the depot lands facilitating the flow of water into the natural streams within the area.

Internal drainage of the soils on the depot is very poor. Artificial internal drainage is expensive and, with the exception of the administrative, warehouse and airfield areas, it has not been required.

All of the streams which originate on the reservation are classified as intermittent. Water quality in the streams is generally good as evidenced by the presence of rainbow trout. Sedimentation of the streams is not a major problem. There is no major evidence of downstream siltation. This is due to several factors which are: the large expanses of undeveloped and semi-developed land, the surface clays and shales are not highly erodible, the requirement for all new construction to have an approved sediment control plan.

Physiography-Topography

Seneca Army Depot is situated on a plateau between Cayuga and Seneca Lakes. It is located within the glacial till plain of the Central Lowlands

Physiographic Province with the glacial lake plain on the north and the Appalachian Plateau to the south. The land at the depot slopes gently from a high point of 765 feet above sea level at the southeast corner to an elevation of 585 feet at the northwest corner, about seven miles distant. In addition to the main depot lands, there is a narrow strip of steep and gullied land of nearly 300 acres that extends about two miles from the Conrail Railroad on the west side of the depot down to Seneca Lake. The depot water supply line from Seneca Lake and the electrical and telephone distribution lines to the lake housing run along this strip. Also, Kendaia Creek, the main drainage artery for the central part of the depot, runs down this strip. Physiographic and Geologic maps of Seneca County are shown on Plates 14 and 15.

The Slope Map, Plate 11, graphically delineates the reservation topography into the following categories including development problems associated with each slope category.

0 - 5% The vast majority of the Main Post falls into this classification including all the built-up areas. These slopes are the most suitable for all types of construction. Problems can be encountered when an area is very flat and the soil has low permeability.

6 - 10% These slopes are present in a few isolated spots in the western portion of the Ammunition Storage Area and as a continuous ridge paralleling the Lake Seneca shoreline in the Lake Housing Area. The upper end of this category may present some limitations to construction, particularly for roads and utilities. Large warehouse type buildings will require extensive grading.

11 - 20% The only location where slopes in this category are found is in the steeply gullied land bordering Kendaia Creek in the Easement Area. The magnitude of construction costs increases significantly in this category. Sewer and water systems require extensive excavations or pumping stations. Slopes steeper than 15% present a serious erosion hazard if the natural vegetation is removed.

21% + The only location where slopes in this category are found is in the steeply gullied land bordering Kendaia Creek in the Easement Area. These slopes should be left in a natural, vegetated state due to the potential for soil erosion and the construction cost associated with development on this type of terrain.

Soils

Poorly drained silty clay loam and clay loam soils are predominant at Seneca Army Depot. These poorly drained soils have been mapped by the Soil Conservation Service as part of the Darien-Angola Association. Well drained and moderately well drained silt loams of the Honeoye-Lima Association are present along the western edge of SEAD and all land between the depot and Seneca Lake. The soil associations have been developed from the glacial

till of underlying shale bedrock, deposited during the Wisconsin glaciation 10,000 - 15,000 years ago. The typical soil profile at SEAD is as follows:

1. Top soils vary in depth from 6 to 17 inches and consist of a silty-clay loam underlain with silty clay often intermixed with hard gritty calcareous fragments to a depth of 40 inches.

2. Substratum consisting of limestone till and shale bedrock is generally found from 24 to 48 inches below the surface.

A soils map of Seneca County, New York, that was taken from the 1972 survey is shown on Plate 15. Due to their acidic characteristics, moderately fine texture and low permeability the soils found on the depot have limited suitability for agriculture and construction.

Several factors are important in terms of the engineering requirements for the construction of facilities: (1) the soils have a moderately high bearing capacity and generally are not compressible; (2) erosion is a potential hazard, but since the ground is level, soil losses can be controlled through simple erosion control measures; and (3) prolonged seasonal wetness and slow permeability make septic tank disposal systems unsuitable and place restrictions on the construction of building foundations. The depth to the water table at Seneca varies between 0.3 meters and 7.0 meters below the surface. Frost action within the soils on the depot seldom exceeds three feet in depth. During infrequent periods of extended sub-zero temperatures and light ground cover, frost may reach depths as great as four and one-half feet.

Climate

The climate of Seneca County is quite good in terms of human comfort. There are 80-90 days when there is summerlike weather (over 50 degrees F.), usually between the first week of June and the first week of September. Temperatures fall below 20 degrees F. for approximately three months (December through February) to form the winter season. The local climate is significantly moderated by Seneca, Cayuga and Ontario Lakes, both in terms of temperature and precipitation. The average annual precipitation is 75 cm and the average growing season 160 days. The first and last killing frosts usually occur October 11 and May 5, respectively. The prevailing winds are out of the west and northwest; the occurrence of an east wind is a rarity. Summer winds are usually out of the south. Wind speed averages 15-20 miles per hour (mph) with 90 mph the highest on record. Thunderstorms are common in Spring and Fall and tornadoes or hurricanes are rare.

Natural Habitats and Vegetation

A map of the existing habitats is shown on Plate 16. Woodlands containing both hard and softwood trees cover approximately 3,600 acres. Hardwood stands account for 95% of the total woodland acreage. Elm, maple, and oak are the dominant hardwood species. Softwood trees, such as pine and hemlock comprise the remaining 5% of the woodland area.

The agricultural fields which have been abandoned since the depot was established in 1941, have undergone secondary successional changes. This successional stage, characterized as a sapling shrub community is currently dominated by elm, elder, and hawthorn with other sapling tree species, berry bushes, vines, herbs, and grasses also present.

The remaining portions of the depot are covered with grasses, annuals and other herbaceous plant species and are in the initial stages of old field succession. Clear zones are maintained (mowed) as required along all roads and around all igloos. There are no unique or endangered habitats at SEAD.

At SEAD the management of the installation's natural resources is an integral part of the operations of the depot. Sound resource management programs can often mitigate the adverse impacts caused by man. Seneca Army Depot, through the activities of the Facilities Engineer, has always strived to preserve and improve the woodlands scattered throughout the installation.

The scope of the depot's resource management program is evidenced in many ways. Professional foresters have been retained to mark dead or diseased trees for removal. Biologists and wildlife experts have been consulted to identify areas with a potential for habitat improvement. These policies have resulted in a gradual expansion of wood areas and the introduction of conifer stands to the predominantly deciduous forests on the installation. Each year forage plots are seeded by volunteers as part of SEAD's fish and wildlife plan. There are several areas noted on Plate 16 that have had 20 foot wide parallel strips cut in the shrub growth to increase the available browse for deer. The ponds in the northeast corner were constructed by depot personnel in the early 1970's by building a dike around a wet, swampy area and allowing the water depth to gradually increase. Waterfowl have become increasingly abundant and presently the ponds serve as a very popular way station for ducks and geese during the spring and fall migrations. Nesting boxes for woodducks and eastern bluebirds have been placed in the pond area and throughout the depot as part of the habitat enhancement program.

The habitats most affected by the activities of the depot are the woodlands and ponds. Both of these environments harbor species of flora and fauna sensitive to the activities of man. The installation master plan attempts to protect these sensitive environs by siting new facilities in areas previously developed.

Appendix I lists the major plant species found in the area of SEAD.

Fish and Wildlife Management

The fence surrounding the depot is an artificial barrier that interferes with the ingress of wildlife other than birds or waterfowl. This restraint to migration creates a large scale laboratory condition for the study of wildlife.

Off-Road Vehicle Areas

Seneca Army Depot has no designated off-road vehicle areas. Since the mission requirements of Seneca Army Depot do not involve the use of off-road

vehicles, Seneca Army Depot is in compliance with the objectives, policies, responsibilities and environmental considerations of AR 210-9.

Firebreaks

Appendix 4 is a map of Firebreaks for the Seneca Army Depot.

MANAGEMENT PRACTICES AND MAINTENANCE PROCEDURES

Chemical Vegetation Control

Vegetation control is practiced on railroad and fenceline areas. Herbicides used are the following:

Fences - #1 Roundup (Glyphosate)
Princip 80-W (Simazine)
Arsenal

Restricted Area Fence and Some Utilities - Boracil (for total kill)

Railroads - Atrex-4-L (Atrazine)
- 2, 4-D (for broadleafs)

There is no expected change in vegetation control needs. Seneca Army Depot plans to use only biodegradable herbicides. Shrub control on earth covered structures is performed with 2, 4-D.

Erosion Control

Erosion of the soil is very slight. The land is rather flat; see discussion under Physical/Biological Features, Physiography - Topography and Plates 9 and 11. Present drainage channels are of long standing and have established width and depths adequate to provide for stream flow of low velocity. Stream beds are bed rock, mostly shale. No erosion control is practiced or required. Erosion on igloos is controlled by vegetation and is not considered soil erosion control for the purpose of this paragraph.

This area is not in a dust region. Adequate moisture, heavy vegetation, and hardstands in parking areas control all dust. No program of dust control is required beyond the spreading of calcium chloride on the few roads where road dust is a problem.

For areas of seasonal flooding see Plate 12, Drainage Map. Seasonal flooding at Seneca Army Depot does not induce erosion problems.

Construction actions are performed in accordance with the environmental protection constraints of the National Environmental Policy Act.

Drainage Requirements

Drainage requirements at Seneca Army Depot are small due to the slope of the area (see Physiography - Topography). Drainage systems (see Physical/ Biological Features) involve surface drainage, which includes existing streams and open ditches.

Developed areas are drained by storm sewers, which exit to the surface drainage system (maps and tabulations of storm drainage system are available at the installation as part of the Master Planning Program).

Prescribed Burning

Prescribed Burning is not practical at Seneca Army Depot.

Fire Protection

Fire prevention on the installation consists of inspection, education and preventive maintenance. Inspection is a continuing process. Members of the depot's Fire Department and of the Security Patrols inspect all areas for any fire outbreak or for any accumulation of debris that would create a fire hazard. These problem areas are reported to the Roads and Grounds Department for correction.

Education is through the use of daily orders bulletins, the installation newspaper, and releases from the Safety Manager. In addition, movies and lectures on fire prevention and suppression are occasionally given.

Preventive maintenance consists of maintaining all fire breaks by the Roads and Grounds Department and the correction of unsafe conditions by the same department as requested.

Fire prevention is also included in depot safety and conduct rules and regulations, for conduct in buildings as well as in the area. For example, no fire producing materials (lighters, matches, or spark producers) are allowed in the ammunition storage area.

Vegetative fires are detected by security patrol, guards, or depot personnel who might be in the aea of the fire breakout. Reporting is done by security patrol over shortwave radio, by guards and depot personnel over administrative and fire reporting telephone systems.

Control of fires is directed by the Fire Chief or Assistant. Fires in grass areas are answered with a pick-up and 500 GPM pumper truck, and if needed tanks and pumpers equipped with two-way radio. If fire is in igloo area, vent doors and stacks of igloos in immediate area involved are closed automatically and responding crews fight fire with back pack pumps, fire brooms, fire rakes, and shovels. If quantity of water is needed immediately, the 1,000 gallon tanker (Roads and Grounds Equipment) and necessary distributing equipment is used. Backfiring is started if necessary. Complete cooperation of the grounds maintenance personnel and equipment is always available. Firebreaks may be made with heavy equipment if necessary and other work as requested. This method, however, is believed seldom necessary due to

the vast network of road and railroad locations acting as firebreaks throughout he depot.

Mutual Aid, provided through written cooperative agreements with the New York State Fire Radio Network and the Seneca County Mutual Aid System provides assistance from thirteen fire departments in neighboring communities, of which about six departments could be on the depot within 10 minutes if requested.

The responsibilities of Army supervisory personnel are to furnish equipment to the fire department and to maintain the fire stations. Army personnel, however, do not play any active part in directing fire fighting.

Resource Requirements

Non-Recurring Work Items - Clear vegetation and limbs in Seneca Army Depot Exclusion Area, PR 13-85. Area to be redesignated as a limited area. Required removal of brush and trees up to 4" in diameter, removal of all branches on trees over 4" in diameter to a height of 3 meters.

Recurring Work Items -

	Annual Mandays
Mowing	798
Cemeteries	29
Bale Fields	10
Unimproved Grounds	521
Electric Distribution Lines	27
Herbicide	38
Aerate Lawns	9
Repair Winter Damaged Lawns (Renovate Turf)	33
Plant Wildlife Food Plots	11
Remove Undesirable or Unnecessary Trees and Shrubs	48
Debris Clean-Up	41
Prune Shade Trees	15
Plant Trees	8
Fertilize	2
	1,590

Equipment

3 Pick-up (1/2 ton Trucks)
2 Pick-up (1/4 ton 4-Wheel Drive)
5 Dump Trucks
1 1,000 gal Water Truck
1 Refuse Truck
1 Shovel Crane
1 Crane - Crawler 40 Ton
2 Mobile 25 Ton Cranes
1 Mobile 100 Ton Crane
1 Wabco Grader
2 Cat-12 Graders

1 10 Ton Roller
1 Tandem Roller
1 Dozer Case
2 Dozer D-7
1 IHC Tractor with Broom
1 IHC
2 Ford Tractors w/Bucket
1 Backhoe
1 Jacobsen Gang Reel Mower
1 42" Cut John Deere Mower
10 Hustler Mowers
6 Tractors
5 Tractors w/Front End Loader
1 Hydro Ax
1 Gradall
1 Payloader
1 GMC w/Plow
1 Brockway
1 Saw Track Power
2 Air Flow Spreaders
6 Batwings
2 Bush Hogs
1 Slope Mower (Gas)
1 Slope Mower (Diesel)
1 Air Compressor
1 Railroad Car
1 Wood Chipper
10 Hand Propelled Lawn Mowers
3 Chain Saws

Fire Department

Forced Entry and Rescue tool 12,000 lbs rated capacity
Generator, Portable 1500 watts
Truck, firefighting Aircraft Crash and Rescue Purple K.
Truck, firefighting 100 gpm tactical type (2 ea.)
Truck, firefighting crash and rescue Purple K.
Truck, firefighting attack pumper brush and structural.

LAND MANAGEMENT AND GROUNDS MAINTENANCE

Planted Areas

There are no current leases. Agricultural outleasing at Seneca Army Depot has been discontinued due to problems, such as farmer access only during duty hours and low amount of interest, and master plan goals (See Land Use Suitability).

Species of grasses used for ground cover are timothy and switchgrass, which is used for wildlife cover. Agway Wear-Gree mix is used for grass seeding as needed on improved grounds. Semi-improved and unimproved grounds are naturally seeded (See Appendix I).

Species used for landscape plantings include the following:

Silver Maple Trees	Skyline Thornless Locust Trees
Arborbitaes Shrubs	Crimson King Maple Trees
London Plain Trees	Norway Maple Trees
Colorado Blue Spruce Trees	White Spruce Trees

Agricultural Outleasing

Agricultural outleasing was attempted in 1948 for the first time. Invitations for the bids were first solicited for 14 October 1948. Three bids were received and two leases were negotiated.

50 acres leased from 1 November 1948 to 31 October 1949. This lease was terminated on 1 September 1950 as the lessee had never exercised the lease privileges.

77 acres were leased from 1 November 1948 to 31 October 1953 for a 5 year period. This lease was terminated on 29 October 1949 at the request of the lessee. Invitations for Bids for Outleasing were again solicited for 23 March 1949. There were no interested bidders. This was the last solicitation for Agricultural Outleasing until 1961. The difficulties experienced in coordinating outleasing with military use of the installation were numerous and in certain instances impossible to correct. Lessees complained that the limiting of working hours, to correspond with the established working hours for installation's personnel, worked extreme hardship in performing agricultural work. Farming operations were not governed by established working hours and working days. Crops needing care or harvesting could not be adequately handled during set hours. This was the main reason for failure of the agricultural outleasing program. Secondary causes were the limitations regarding safety measures for the operations of farm equipment on the installation.

Outleasing of 6,886.81 acres was attempted in 1961 and again in 1962. Invitations for Bids were issued under direction of the Corps of Engineers, New York District. The results in both instances were negative.

Agricultural Outleasing

Money received from outleasing: $127 paid for two leases in 1948.

There were no services provided by lessee in lieu of cash rent.

No livestock have been grazed at the installation.

Golf Courses

There are no golf courses on this installation.

Cemeteries

There is no post cemetery.

There is one private cemetery at this installation. This cemetery of about 3.25 acres is maintained by the installation. This cemetery is semi-active, the lots now sold are being used and bodies are from time to time interred there. There is no information at this installation on any agreement with the former owners of this property (See Appendix III).

Ammunition Storage Magazines

There are 519 earth covered storage magazines (igloos) on the Depot.

Igloos presently are covered with a mixture of Timothy, Canadian Blue Grass and Chewings together with miscellaneous weeds common to the area. Presently no (0) igloos are reported as in need of repair to resore soil cover to original grade. However, rodents, mostly woodchucks, burrow into the soil requiring a rodent control program. After the woodchuck has been removed, new soil is placed, tamped, fertilized, and reseeded as previously described. Occasional development of the grass cover and tree and shrub control is practiced.

Irrigation System

There are no irrigation systems on the installation. Some sprinkling is done using hose and commercial lawn type sprinkler heads in a few areas on the request of those in authority but normally requests are practically non-existant. Normal rainfall, here in the center of the Finger Lakes, is adequate to maintain lawns.

LAND MANAGEMENT PRACTICES

Planting and Feeding

Planting on improved grounds involves trees and shrubs (as described under Landscape Plan) and grass seeding as needed. Fertilization is performed on cover plots using 15-15-15 (for Wildlife Management).

Mowing

Mowed areas are shown on Appendix III.

The following information and requirements are given occupants of quarters:

1. SEADR 210-16 - Occupant Maintenance of Government Quarters.

"Para n.) Special Instructions: Occupants will mow and trim lawns and shrubbery. Grass will be cut to a height not less than 1-1/2 inches will be watered as required.

ELLIOT ACRES: Area will be from the street pavement edge, including ditch, fronting or adjoining a quarters, to not more than 50 feet, approximately, in the rear of the quarters. Side limits will be one-half the distance to the adjoining building.

LAKE: Area will be from the street or driveway edge to the Lake Shore. Side limits will be one-half the distance to the adjoining house. Between S-2427 and S-2429, and between S-2429 and S-2432, occupants need not exceed a 50 foot limits.

2. SEADR 420-5 - Self Help Program:

Para (3) Responsibilities:
(12) Mow and Trim Lawns

3. SEADR 420-14 - Family Quarters Fire Prevention Inspection Plan:

Para (4) General:
(6) Improper Storage of Flammable Liquids

Irrigating

See Irrigation System under Land Management and Grounds Maintenance. Newly planted trees, shrubs, and grasses are watered occasionally as needed.

Disease and Insect Control and Sanitation

All American Elm trees were harvested. Beech trees have exhibited a fungal disease, and Ash trees have exhibited dieback. For these reasons, these species are planned to be harvested under the Forest Management Plan.

Policing

Minor repairs to damaged turf, eroded soil, surface water drainage system, and debris removal is performed on a continual basis for the Roads and Grounds Department.

Work Programming

Work programming is planned to be performed and organized in accordance with Annual Work Plans - Land Management and Grounds Maintenance, TM 5-630. Funding for fertilizer for corn plots is from 21X5095 funds. All other funding support for all activities is from appropriated funds.

LANDSCAPING PLAN

Areas Landscaped

Landscaping activities were performed in 1982, 1983, and 1985. All landscape activities are performed by contractor services.

1982 - Around the Health Clinic and Building 103, ten diseased trees were removed and 17 Silver Maple trees were planted.

1983 - Along the Access Road to the gymnasium and restricted area, 26 Silver Maple and 25 London Plain trees were planted near existing trees. Six arborbitaes shrubs were planted next to the NCO Annex.

1985 - One 15-foot Colorado Blue Spruce tree was planted as a Christmas tree for the troops, next to their barracks (Building 703). 100 White Spruce (4-plus feet high) were planted along the Capehart Housing fenceline. Ten (each) Norway Maple, Silver Maple, Crimson King Maple, London Plain, and Skyline Thornless Locust were planted along Administration Avenue and as various replacements. (These were 2 - 2-1/2 inches d.b.h., 12 foot high trees).

Areas to be Landscaped

Administration (North and South Depot areas) and housing areas and their access roads are designated for future landscaping activities. The Lake Housing area is an area of scenic beauty which does not require landscaping; however, a thirty unit housing project that is currently under construction includes landscaping the site. Landscaping is not designated for semi-improved and unimproved grounds.

APPENDIX I

MAJOR PLANT SPECIES FOUND IN THE AREA OF SEAD

Common Name	Scientific Name
White Elm	Ulmus americana
Red Maple	Acer rubrum
Sugar Maple	Acer saccharum
White Oak	Quercus alba
White Ash	Fraxinus americana
Red Oak	Quercus rubra
American Beech	Fagus americana
Wild Black Cherry	Prunus serotina
Shagbark Hickory	Carya ovata
Silver Maple	Acer saccharinum
Burr Oak	Quercus macrocarpa
Cottonwood	Populus deltoides
Bitter-Nut Hickory	Carya minima
Quaking Aspen	Populus tremuloides
Choke Cherry	Prunus virginiana
Swamp White Oak	Quercus bicolor
American Basswood	Tilia americana
Black Locust	Robinia pseudacacia
Staghorn Sumac	Rhus typhina
Iron-Wood	Ostrya virginiana
Hornbeam	Carpinus caroliniana
Gray Birch	Betula populifolia
Black Walnut	Juglans nigra
Sycamore	Platanus occidentalis
Honey Locust	Gleditsia triacanthos
Horsechestnut	Aesculus hippocastanum
Lombardy Popular	Populus nigra italica
White Pine	Pinus strobus
Red Pine	Pinus resinosa
White Spruce	Picea glauca
Eastern Hemlock	Tsuga canadensis
American Arborvitae	Thuja occidentalis
Red Cedar	Juniperus virginiana
Colorado Blue Spruce	Picea pungens
Eastern Larch	Larix laricina
Silky Dogwood	Cornus amomum
Australian Pine	Pinus nigra
Scotch Pine	Pinus sylvestris
Douglas Fir	Pseudotsuga menziesii
Butternut	Juglans cincerea
Yellow Poplar	Liriodendron tulipifera
Pignut Hickory	Carya glabra
White Poplar	Populus alba
Bigtooth Aspen	Populus grandidentata
Eastern Hophornbeam	Ostrya virginiana
Grape	Vitus ssp.
Raspberry	Rubus ssp.
Blackberry	Rubus ssp.

APPENDIX I
(Continued)

Common Name	Scientific Name
Poison Ivy	Toxicadendron radicans
Sweet Clover	Melilotus ssp.
Canada Bluegrass	Poa compressa
Bentgrass	Agrostis ssp.
Fescue	Festuca ssp.

SENECA ARMY DEPOT

ROMULUS, NEW YORK 14541

FISH AND WILDLIFE MANAGEMENT PLAN

(Rev. ~~May 1985~~ June 89)

PREPARED BY:

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APPROVED:

JOHN S. WILSON
Colonel, OrdC
Commanding

U. S. ARMY

MATERIEL COMMAND

SENECA ARMY DEPOT

ROMULUS, NEW YORK

FISH AND WILDLIFE MANAGEMENT PLAN

REVISED ~~MAY 1985~~ June 1988

FACILITIES ENGINEERING DIVISION

SENECA ARMY DEPOT

1982

~~1984~~

FISH & WILDLIFE MANAGEMENT PLAN

CONTENTS

TM5-633

I. INTRODUCTION

The Fish & Wildlife Management Plan of Seneca Army Depot (SEAD) is prepared in accordance with the provisions of AR 420-74 and TM 5-633. The control ~~and control~~ and administration of this program is the responsibility of the Facilities Engineer. Technical assistance is available through a cooperative agreement with the New York State Department of Environmental Conservation (NYSDEC). (1) The goals and objectives outlined in this plan have been chosen to further the enhancement of fish and wildlife resources consistent with mission, economic, and environmental constraints. The following objectives will be accomplished concurrently:

a. Protect existing habitats and develop new ones for the reasonable production of game and non-game species.

b. Provide for the proper harvesting and control of the white-tailed deer population including the maintenance of the white strain peculiar to SEAD.

c. Enhance the populations of non-game species for their aesthetic, recreational, and educational values.

d. Establish and implement long range goals and schedule specific work for featured species. Featured species are the Eastern Bluebird, Ring-necked Pheasant, Wood Duck, White-tailed Deer, and Wild Turkey.

II. FISH & WILDLIFE RESOURCES AT SENECA ARMY DEPOT

A. History:

The perimeter fence surrounding the depot is an artificial barrier that interferes with the ingress and egress of wildlife other than birds or waterfowl. Because of this, the depot has often been referred to as a wildlife laboratory.

Our "laboratory" has been used by the NYSDEC, Cornell University, and others for various studies. Most of the population, growth, and reproduction models used by NYSDEC for deer management decisions were developed and verified at SEAD. This occurred during the initial harvests to control the over-population of deer which rose to 2,500 in the late 1950's. NYSDEC still sends biologists to the annual harvests to collect information on diseases, parasites, etc. (2) NYSDEC also conducted fox reproduction inhibitor studies during the 1960's. Baits containing Diethyl Stilbestrol (DES) were placed during the late winter and the effects on fox reproduction documented. This program was an attempt to document a more economical method of reducing fox populations (the fox being a major carrier of rabies in the state) than by trapping.

In addition ~~More recently~~, Cornell University entomologists have ~~been~~ conducted ~~conducting~~ studies on the Northern Corn Rootworm, specifically its ability to traverse large areas of non-cropland. The depot is an ideal area for this study.

In summary, the knowledge gained from studies such as these is perhaps the most important benefit that the public and wildlife have received from the natural resources of SEAD. Future studies of this nature will be encouraged, however, the depot has the opportunity to provide greater benefits also.

Everyone would agree that the white deer of SEAD are one of the rarest herds known to exist and provide an unusual and important aesthetic value. The "white buck" is the official emblem of SEAD and knowledge of their existence has spread throughout the United States. Visitors are always anxious to see a white deer and it is common to see passers-by stop and stare at the white deer inside the fence.

The reason for the white condition is not fully understood even though it has been studied for years. These deer are not albinos. For some reason, the gene(s) causing skin and/or hair color has been "selected" and the white deer persist. This is probably caused by the confined nature of the herd and gene pool. Because of the uncertainties involved, the white deer must be managed separately to insure their survival for future generations to enjoy.

1) "new paragraph"

Construction of two "duck ponds" in the northeast corner of the depot during the 1960's was perhaps the largest project ever undertaken for the benefit of wildlife at SEAD. This area has been used consistently by waterfowl for nesting as well as resting during spring and fall migrations. More recently, the multiple use concept has been encouraged. The depot has stocked the ponds with fish, providing recreation for family members, and placed several picnic tables nearby to encourage use. (2) Roads & Grounds personnel have planted trees for shade as well as for reforestation in adjacent areas. The ponds currently cover 87 acres of land.

The fabrication, erection, and maintenance of over 70 bluebird houses was perhaps the most ambitious project undertaken by volunteers in the past. At the present time, the program is highly successful and will be continued, ~~and expanded~~. The bluebird houses have resulted in a significant population of breeding pairs returning annually, and this past winter many bluebirds remained all year. (3)

About the time the "duck ponds" were constructed, interest in Wood Duck boxes swelled. The Wood Duck, probably the most beautiful North American species, was favored and encouraged by placing nesting boxes near suitable habitat. To date, there are 25 boxes which have approximately an 80% utilization rate. ~~Since Wood Ducks do not exhibit territoriality, additional boxes are contemplated in successful areas.~~

To a large extent, the history of fish and wildlife management at SEAD is important to this plan. Successful programs will be continued and/or duplicated in other areas of the depot.

B. Potential:

Fish and wildlife populations and diversity are affected by man's deliberate and/or accidental alterations of the environment. In the case of SEAD, the establishment of the depot, together with the fencing of the perimeter, abruptly halted the land use patterns of that time.

The majority of land, which was formerly fields, brushlots, and small woodlots, was allowed to "grow wild". For awhile, this resulted in wildlife population explosions, especially for deer. The number of deer increased from around 100 to almost 2,500. While this may seem desirable to some, the results were disastrous. Starvation, disease, and in-breeding problems soon followed. While the succession of old fields to brushlots favored deer populations, it eliminated necessary habitat for pheasants and other wildlife.

Thus, the current emphasis is on maintaining a balance between the available habitat types and the diversity of wildlife that results. All of the techniques described below are utilized in an effort to manipulate the vegetation and physical features of the land to provide food, water, and cover for wildlife.

III. FISH & WILDLIFE MANAGEMENT

A. Habitat Improvement:

The preponderance of old field/brushlot habitat and the natural tendency of open fields to revert to this type requires periodic mowing and brush cutting. Every year, areas of thick brush are mowed to ground level, usually in long strips approximately 16 feet wide. This allows new growth of grasses, annuals, and legume species, and increases the available browse as well as creating "edge effects" which are necessary for many forms of wildlife.

The forest or woodlot habitat is professionally managed in accordance with the Forest Management Plan. The forest lands at SEAD are managed to produce high quality sawtimber, firewood, and desirable wildlife as well as recreational and aesthetic benefits. This multiple use concept sometimes creates conflicts. For example, the emphasis on timber harvests to generate money cannot override the need to maintain mature hardwood stands necessary for Wild Turkey. ~~Similarly, obvious den trees are left standing and not marked for firewood sale.~~

Some forest management practices, such as reforestation, can be planned such that an eventual cash crop will be produced while providing needed habitat. At Seneca, this occurs by planting conifer species. Scarce evergreen habitat is developed, promoting increased grouse and songbird populations and a pulpwood cash crop at maturity. Planting stock is procured ~~annually~~ from the Soil and Water Conservation Service, USDA, in Waterloo, NY for planting by in-house forces. Contract tree planting is also utilized.

Ring-necked Pheasant populations in Seneca County have declined drastically in the last decade due to changes in farming practices. The depot retains a remnant population of this desirable game bird.

The pheasants' greatest need is for undisturbed nesting cover and suitable winter cover near food supplies. The former habitat is limited but still available at SEAD and this is most likely the reason we still have a few birds left.

Management efforts to restore the pheasant population at SEAD will concentrate on establishing suitable nesting cover. Suitable nesting cover is defined as fields of dense, native grasses, preferably five acres or greater in area. (1) Initial plots have been mowed and will receive agricultural lime to promote grass growth over goldenrod (see Fig. 1). A more rigorous development is planned for the next fiscal year (FY 85).

Plots will be mowed, tilled, fertilized, and seeded with a mixture of Timothy and Blackwell Switchgrass, as recommended by NYSDEC wildlife biologists. This mixture, with the switchgrass in particular, is very resistant to flattening by snow, rain, and wind, is dense, and provides not only nesting and roosting cover, but ideal winter cover as well.

With any luck at all, SEAD could single-handedly restore the population of this game bird in this area of Seneca County.

B. Pond Development and Wetland Protection:

There are 10 areas on the depot that are designated as freshwater wetlands by the NYSDEC (see Fig. 2). The largest is the pond area which was created in the 1960's. These areas are to be maintained as "forever wild". (Any work in these areas requires a permit from NYSDEC.)

Nine of the wetland areas are in woodlots in which the ground surface is covered with water for at least part of the year. Management efforts are aimed at constructing open water areas or ponds adjacent to the protected wetlands. This will optimize the amounts and types of waterfowl and other wildlife utilizing these areas.

The design of all ponds constructed in the future will be dependent on the following constraints. Dikes or berms will be limited to a height of two feet. Deeper impoundments require a permit from NYSDEC and the establishment of a warm water fishery is not desired at these sites. Deeper water, four to five feet, will be created by digging down in certain areas, preferably around nesting islands. Nesting islands will be kept small (less than 50 square feet), but numerous. Trees larger than 4-inches DBH (diameter breast high) will be left to accommodate new Wood Duck nesting boxes. Ponds will be built adjacent to, but not within, protected wetland areas first. Additional areas will be considered after this priority is met.

(2)

C. Winter Feeding:

(3) In the past, approximately 25 acres of land in several locations were planted with buckwheat by volunteers. Last year (1982), field corn was planted with a newly acquired seed drill. Results were excellent. The corn provided winter food for pheasants and deer, whereas the buckwheat was always eaten before September. Attempts will be made to increase the total acreage planted this year. Hopefully, enough help will be volunteered to accomplish this. Seed is procured each year using 21X5095 funds.

Wildlife shrub packets are procured from time to time from the Soil Conservation Service. These include species such as ~~multi-flora rose, autumn olive,~~ Russian olive, AND honeysuckle. ~~etc.~~ They have been planted in various areas, including the pond area, and provide cover as well as food for a variety of wildlife.

Aquatic plants such as arrowhead, duck potatoe, and wild rice have been planted in the ponds, ~~however,~~ Additional planting is not anticipated.

D. Nesting Boxes and Structures:

Artificial nesting boxes are built and maintained for several species. SEAD currently has 25 Wood Duck nesting boxes, with predator guards, located in several wetlands in addition to the nesting islands ~~we~~ constructed for Mallards and Canada Geese in the larger pond areas.

Last year, 15 boxes were utilized by Wood Ducks and an undetermined number of Mallard pairs used the nesting islands. A pair of Canada Geese remained all summer but did not produce a brood.

In addition to waterfowl, SEAD embarked on a vigorous Eastern Bluebird nesting box program ~~several years ago.~~ Bluebirds utilize old woodpecker holes, hollows in trees, etc. The introduction of the English Sparrow and the Starling into the United States resulted in severe competition for available sites. Bluebirds, the official bird of New York State, dwindled in numbers. The SEAD program has reversed this trend on the depot. A statewide interest in these birds ARE reflected in a regional increase in sightings.

Results last summer were quite impressive with 42 fully fledged young birds produced by 13 nesting adults out of 73 usable boxes. Since bluebirds return to the area they were raised in, it is anticipated that the summer of 1984 will be even better. An additional 40 boxes will be placed adjacent to the existing boxes that were utilized by bluebirds in 1983 to guarantee available sites for the returning young.

(1) 'new paragraph'

Tree swallows and house wrens also nest in the bluebird boxes and they produced 307 and 58 fledged young last year.

E. Fish and Game Stocking:

~~Recent~~ Discussions with wildlife biologists from NYSDEC have indicated that there is not a future in stocking gamebirds on the depot. The current state pheasant stocking program is merely eyewash to appease license holders. Studies indicate that the pen raised birds do not survive the first winter. The state would not consider a "put and take" pheasant program on the depot unless the general public was allowed to hunt.

With these considerations in mind, it appears that the depot must concentrate on providing ideal conditions for the few wild birds that remain. In this way, the population can be managed and, hopefully, increased to the point where it is again a viable and desirable species for hunting.

The reaction to our inquiries regarding the transfer of Wild Turkey to the depot was also negative. The state is of the opinion that turkeys have been re-established in all of the former range through a "trap and transfer program". The introduction of birds into new areas and areas bordering existing ideal habitat (such as SEAD) is not planned. As turkey populations increase, a "spill over" is expected. Apparently this has recently occurred on the depot. There were ~~three~~ six confirmed sightings of Wild Turkey during the 1982 deer harvest. It is hoped that these birds are not transient and that they will establish a breeding population consistent with the amount of habitat (~~mature hardwood forest~~) available here. ~~The next year or two should tell~~. — not necessarily -- need more discussion & plan development on this.

Approximately 500 channel catfish (fingerlings) were obtained from the US Fish & Wildlife Service and stocked in the two main ponds in 1982-83. This is the second time we have stocked channel catfish. The objective is to supplement the Large Mouth Bass and Bullhead fishery existing there now in hopes of establishing a high quality fishery for military family members. (Each year a children's fishing derby is held at the pond area, & proving that previous stocking efforts were successful — funds?

F. Predator Control:

Predator control is not practiced at SEAD. Annual trapping of fox and raccoon by depot employees is sufficient to keep the populations of these two species in control.

Several coyote have been spotted in recent years, however, control is not necessary at this time. If coyote numbers increase, the logical course of action would be to encourage hunters to take some during the annual deer harvest. IAW State GAME laws.

G. Harvest Management:

~~Population control~~ MANAGEMENT of the white-tailed deer herd has been necessary for the last ~~twenty~~ twenty-three (23) years. Population indices prepared by NYSDEC are compared to aerial counts performed by SEAD employees. Together, they provide accurate year to year data on the number of deer and the white-to-brown ratio. From this, the NYSDEC recommends the allowable take for each hunting season. The allowable white deer take is decided by the SEAD Commander and the Facilities Engineer in order that this unique resource is never threatened.

Small game hunting, trapping, and fishing are also permitted on SEAD. Procedures and responsibilities are outlined in SEAD Regulation 190-6. An annual fee of $4.00 is charged for hunting privileges on depot. This money is deposited in the 21X5095 account. Where is it?

H. Regulatory Controls and Coordination:

The ~~regulation~~ management of wild animal populations is performed as a function of Wildlife Management at Seneca Army Depot. ~~Control~~ management of all species is performed in accordance with the NYSDEC.

Fish ~~control~~ management is not required at this time, since overpopulation is not a problem. The fish management program is in it's early stages. It is planned to use the fishing derby (Section III, E) for data gathering purposes to enhance the development of this program.

Predator control is not necessary at this time. (See Section III, F). Annual hunting and trapping currently keeps these populations in control.

~~Control~~ management of mammals involves muskrats, woodchucks, and deer. Detrimental muskrat activities involve burrowing into pond dikes, while woodchucks cause problems from burrowing into earth-covered structures. Trapping is encouraged and is performed by in-house personnel in removing woodchucks from a restricted area. Many fence areas have fences extending into the ground, which restricts the movements of the rodents.

~~Control~~ management of the deer herd is a necessary and important aspect of wildlife management at SEAD (See II, A). This is performed through an annual Deer Harvest. A nominal fee is charged to encourage hunting. The harvest is performed with technical advice from the NYSDEC and in accordance with NYS regulations. Special "deer-of-either-sex" permits are annually obtained from NYS to allow the taking of more female deer (a doe may be taken instead of a buck). This has a strong impact upon the effectiveness of the Deer Harvest; much coordination between SEAD and NYS is performed annually to obtain these permits.

~~Since a large herd requires a large expenditure of funds and manpower, and due to problems in the past (II, A), SEAD is in the process of reducing the herd size. The 1984 take has facilitated this, and a harvest of similar magnitude in 1985 will attain the desired herd size.~~

the deer herd is maintained at a level that MGMT philosophy will insure a healthy stock for the resources that are available. Data ~~gained~~ gathered by SEAD personnel during the deer harvest on sex and age distribution becomes a valuable tool in the management of the herd. The data will indicate the degree of annual replenishment ~~of the herd, the data will indicate the degree of~~ of young stock as well as the decline or increase of certain age classes.

I. FISH AND WILDLIFE ANNUAL WORK PLAN

INSTALLATION: Seneca Army Depot, Romulus, NY 14541-5001

FISCAL YEAR: FY 85-86

1. NARRATIVE: Work planned for FY 85.

a. Complete major revision to Fish and Wildlife Management Plan.

b. Deer Management: A total of 418 deer were harvested (which included 205 females and 213 males) in the 1984 season. Due to high costs and problems associated with managing a large deer herd, Seneca Army Depot plans to further decrease the herd size. NYSDEC recommends another take of this magnitude to decrease the herd size to more manageable numbers. The large number of females taken was due to the use of deer-of-either-sex permits, which encourages the taking of female deer. This is planned for the 1985 season. Additional deer stands will be built in FY 85.

c. Wildlife Forage Planting: Corn feed plots will be planted in FY 85. Thirty acres will be planted. The buckwheat planting program has been terminated. The corn will be more beneficial to pheasants as well as deer, for it will stand well into the winter months and continue to offer nourishment.

d. Ponds: There will be no stocking of ponds in FY 85. No other work is planned for FY 85.

e. Nesting Facilities:

1. Pheasant Nesting Habitat Program: Fifteen acres of switchgrass/timothy mixture will be planted for pheasant cover in FY 85.

2. Wood Duck and Bluebird Nesting Boxes: For the 1984 nesting season, 8 out of 27 wood duck and 9 out of 77 bluebird boxes showed nesting evidence of these respective species. Twenty-eight working wood duck and 77 working bluebird nesting boxes are available for the 1985 nesting season.

2. WORK PLANNED FOR FY 86:

a. Deer Management: Deer harvest for FY 86 will be assessed in accordance with the results of the 1985 harvest. Additional hunter stands will be constructed and placed in designated areas.

b. Wildlife Forage Planting: No additional corn feed plots are planned for FY 86. The amount of plots for FY 85 (30 acres) will be fertilized and replanted in FY 86.

c. Ponds: Repair of beaver damage to one dike is planned for FY 86. Weed control for "choked" ponds is planned for FY 86. This involves the placing and securing of plastic sheets on the bottom(s) of pond(s). One new pond is planned to be built in FY 86.

d. Nesting Facilities:

1. Pheasant Nesting Habitat Program: 7 acres of switchgrass/timothy mixture are to be planted in FY 86. The policy of mowing overgrown areas after the nesting season will be continued.

2. Wood Duck and Bluebird Nesting Boxes: Twenty-two wood duck and 14 bluebird boxes are to be built and installed in FY 86. Predator protection devices will be installed on wood duck boxes. New and old wood duck boxes will be placed and moved, respectively, to remote areas to decrease the possibility of human interference. Hardware cloth will be added to the inside front of both new and old boxes to assist ducklings in exiting the nesting box. Bottoms of boxes will be hinged to aid cleaning. Volunteer work will be encouraged.

3. PERSONNEL REQUIREMENTS AND ESTIMATED COST FOR FY 86:

	UNIT	EST. MANDAYS	EST. COST
a. Deer Management	Stands	5	$647 (Labor) 300 (Materials)
b. Wildlife Forage Planting	30 Acres	4	$518 (Labor) 500 (Seed) 500 (Fertilizer)
c. Ponds	1 New	3	$388 (Labor)
	Weed Treatment	7	906 (Labor) 500 (Materials)
	Dike Repair	2	259 (Labor)
d. Nesting Facilities	7 Acres	2	$259 (Labor)
	Boxes	3	388 (Labor) 300 (Materials)
e. Totals		26	$5,465

APPENDIX I

MAJOR PLANT SPECIES FOUND IN THE AREA OF SEAD

Common Name	Scientific Name
American ~~White~~ Elm	Ulmus Americana
Red Maple	Acer Rubrum
Sugar Maple	Acer Saccharum
White Oak	Quercus Alba
White Ash	Fraxinus Americana
Red Oak	Quercus Rubra
American Beech	Fagus Americana
Wild Black Cherry	Prunus Serotina
Shagbark Hickory	Carya Ovata
Silver Maple	Acer Saccharinum
Burr Oak	Quercus Macrocarpa
Cottonwood	Populus Deltoides
Bitter-Nut Hickory	Carya Minima
Quaking Aspen	Populus Tremuloides
Choke Cherry	Prunus Virginiana
Swamp White Oak	Quercus Bicolor
American Basswood	Tilia Americana
Black Locust	Robinia Pseudacacia
Staghorn Sumac	Rhus Typhina
Iron-Wood	Ostrya Virginiana
Hornbeam	Carpinus Caroliniana
Gray Birch	Betula Populifolia
Black Walnut	Juglans Nigra
Sycamore	Platanus Occidentalis
Honey Locust	Gleditsia Triacanthos
Horsechestnut	Aesculus Hippocastanum
Lombardy Popular	Populus Nigra ~~Italica~~
White Pine	Pinus Strobus
Red Pine	Pinus Resinosa
White Spruce	Picea Glauca
Eastern Hemlock	Tsuga Canadensis

APPENDIX III

MAMMALS FOUND IN THE AREA OF SEAD

Common Name	Scientific Name
OPOSSUMS	MARSUPIALIA
Opossum	Didelphis virginiana
MOLES AND SHREWS	INSECTIVORA
Common mole	Scalopus aquaticus
Hairy-tailed mole	Parascalopus breweri
Star-nosed mole	Condylura cristata
Common shrew	Sorex cinereus
Smoky shrew	Sorex fumeus
Gray long-tailed shrew	Sorex dispar
Thompson pigmy shrew	Microsorex hoyi thompsoni
Least shrew	Crytotis parva
Short-tailed shrew	Blarina brevicauda
BATS	CHIROPTERA
Little brown bat	Myotis lucifungus
Indiana bat	Myotis sodalis
Sya's bat	Myotis keenii septentrionalis
Silver-haired bat	Lasionyctenis noctivagans
Pygmy bat	Pipistrellus subflauus
Big brown bat	Eptesicus foscus
Red bat	Lasiurus borealis
Hoary bat	Lasiurus cinereus
FLESH EATERS	CARNIVORA
Racoon	Procyon lotor
Small brown weasel ?	Mustela cicognanii
New York weasel ?	Mustela frenota noveboracensis
Northeastern mink	Mustela vison
Common skunk	Mephitis mepitis
Red fox	Vulpes fulva

APPENDIX II

(Continued)

Common Name	Scientific Name
RODENTS	RODENTIA
Woodchuck	Marmot monax rufescens
Northeastern chipmunk	Tamias striatus lysteri
Red squirrel	Tamiasciurus hudsonicus lognax
Gray squirrel	Sciurus carolinensis leucotis
Flying squirrel	Glaucomys volans
Beaver	Castor canadensis
RATS AND MICE	CRICETIDAE
Wood mouse	Peromyscus leucopus
Lemming mouse	Synaptomys cooperi
Red-backed mouse	Clethrionomys gapperi
Field mouse	Microtus pennsylvanicus
Pine mouse	Pitynys pinetorum
Muskrat	Ondatra zibethica
Jumping mouse	Zapus hudsonius
Woodland jumping mouse	Napaeozapus insignis
PORCUPINES	ERETHIZONTIDAE
Porcupine	Erethizon dorsatum
RABBITS	LAGOMORPHA
Cottontail	Sylvilagus floridanus
DEER	ARTIODACTYLA
Northern Virginia deer	Odocoileus virginianus borealis

APPENDIX ~~K~~ III

BIRDS IDENTIFIED IN THE AREA OF SEAD

The following classification system indicates the breeding status of birds on the Depot:

c = Common Breeder (observed parental behavior patterns in adults, nest with young, etc.).

pr = Probable Breeder (breeding behavior observed, i.e. courtship and display, territoriality, etc.).

po = Possible Breeder (observed during breeding season in possible breeding habitat, but no other evidence).

h = Hypothetical Breeder (known to breed in region and seen within a few miles of the Depot during breeding season).

Bird Name	Classification	Bird Name	Classification
Pled-billed Grebe	po	Great Blue Heron	h
Green Heron	c	Least Bittern	c
Mallard	c	American Bittern	h
Wood Duck	c	Blue-winged Teal	pr
Turkey Vulture	h	Hooded Merganser	h
Red-shouldered Hawk	pr	Red-tailed Hawk	c
American Kestrel	c	Marsh Hawk	h
Ring-necked Pheasant	c	Ruffed Grouse	pr
Killdeer	c	Common Gallinule	c
Common Shipe	po	American Woodcock	po
Upland Sandpiper	po	Spotted Sandpiper	pr
Mourning Dove	c	Rock Dove	c
Barn Owl	h	Black-billed Cuckoo	c
		Screech Owl	pr

APPENDIX ~~I~~ III

(Continued)

Bird Name	Classification	Bird Name	Classification
Great Horned Owl	c	Common Nighthawk	po
Chimney Swift	c	Ruby-throated Hummingbird	pr
Belted Kingfisher	c	Common Flicker	c
Pileated Woodpecker	pr	Red-bellied Woodpecker	c
Red-headed Woodpecker	pr	Hairy Woodpecker	c
Downy Woodpecker	c	Eastern Kingbird	c
Great Crested Flycatcher	pr	Eastern Phoebe	c
Traill's Flycatcher (Willow)	c	Least Flycatcher	pr
		Eastern Wood Pewee	pr
Horned Lark	pr	Tree Swallow	c
Rough-winged Swallow	pr	Barn Swallow	c
Mockingbird	c	Purple Martin	h
Blue Jay	c	Common Crow	c
Black-capped Chickadee	c	Tufted Titmouse	pr
White-breasted Nuthatch	c	Brown Creeper	h
House Wren	pr	Carolina Wren	pr
Long-billed Marsh Wren	pr	Catbird	c
Brown Thrasher	c	Robin	c
Wood Thrush	c	Veery	h
Eastern Bluebird	c	Blue-gray Gnatcatcher	h
Cedar Waxwing	c	Starling	c
Red-eyed Vireo	pr	Warbling Vireo	pr
Black and White Warbler	h	Blue-winged Warbler	po
Yellow Warbler	c	Chestnut-sided Warbler	h
Ovenbird	h	Morning Warbler	h
Yellowthroat	c	Yellow-breasted Chat	pr
American Redstart	po	House Sparrow	c
Bobolink	pr	Eastern Meadowlark	c
Redwinged Blackbird	c	~~Baltimore~~ Northern Oriole	c
Common Grackle	c	Brown-headed Cowbird	c

APPENDIX ~~K~~ III

(Continued)

Bird Name	Classification	Bird Name	Classification
Scarlet Tanager	pr	Cardinal	c
Rose-breasted Grosbeak	po	Indigo Bunting	pr
American Goldfinch	c	Rufous-sided Towhee	c
Savannah Sparrow	c	Grasshopper Sparrow	h
Honslow's Sparrow	h	Vesper Sparrow	c
Chipping Sparrow	c	Field Sparrow	c
Swamp Sparrow	pr	Song Sparrow	c

SOURCE: Jones, Morgan LTC, Unpublished field notes, observations on Seneca Army Depot, 1972-1975.

Draft Env. Copy

SENECA ARMY DEPOT
ROMULUS, NEW YORK 1454

FOREST MANAGEMENT PLAN

(Rev. May 1985)

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U. S. ARMY

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SENECA ARMY DEPOT

ROMULUS, NEW YORK

FOREST MANAGEMENT PLAN

REVISED MAY 1985

FACILITIES ENGINEERING DIVISION

SENECA ARMY DEPOT

FOREST MANAGEMENT PLAN

CONTENTS

I. INTRODUCTION: The Forest Management Plan is prepared in accordance with the provisions of AR 420-74, AR 200-1, and TM 5-631. The plan contains information as well as required actions necessary to manage the forest resource at Seneca Army Depot. The effective and efficient management of the forest land at this depot must be consistant with mission, economic, and environmental constraints. The following objectives will be accomplished concurrently:

1. Protect the forest resource from depreciation, depletion, or exploitation.

2. Provide for the optimum sustained yield of forest products consistant with the military mission.

3. Contribute forest products to the local and national economy.

4. Reforest areas of otherwise idle land to achieve an economic benefit.

5. Maintain a mobilization reserve of high quality Black Walnut and White Oak timber.

6. Develop and maintain forest areas for their environmental, wildlife, and recreational values.

II. HISTORY: Seneca Army Depot was established on 11 June 1941. This land, typical of central New York State, was previously private farm land. In general it was used for annual crops, orchards, and vineyards. Most farms had some land unsuitable for cultivation which was often utilized for forest land. The amount of acreage devoted to forest land at the time these lands were acquired by the Army is not known; estimates indicate that there were approximately 1000 acres. Since the establishment of the depot in 1941, a number of measures have been taken for the care and preservation of the forest lands. These included the harvesting of merchantable timber, planting of seeds and seedlings, pruning and releasing high value species, removal of diseased trees, and spraying to control forest pests. There has never been a forest fire during the operation of this depot. Currently 1650 acres are managed as productive forest land. Approximately 500,000 board feet (BF) of timber was sold in 1965 for timber stand improvement purposes. In 1967, an additional 14,500 BF was sold completing the sale of all timber in need of harvest at that time. In 1976, 251,000 BF of hardwood sawtimber, 494 cords of pulpwood, and 3,275 BF of Black Walnut was sold for a total of $12,821.00. Marking has begun for the current cutting cycle 1975 - 1985 and 100,000 BF has been marked to date (see Appendix 4). Firewood sales since FY 81 have accounted for over $6,400.00 in revenue. Reforestation efforts consisted of several plantations of Spruces, Pines, Larch, and Black Walnut. Successful stands are noted in Appendix 11. Approximately 20 acres were planted with spruce and pine transplants between 1981 - 1983. Natural black walnut stands were pruned in 1971, 1982 and 1983. Pine and spruce plantations were released in FY-84.

III. DESCRIPTION OF FOREST LAND: General information on the managed forest land is as follows:

Estimated volume of sawtimber (1973)	2,647,152	BF
Estimated cords of firewood (1973)	4,786	Cords
Estimated annual allowable harvest for the next five years	20-30,000 300-400	BF Cords

Estimated annual operating cost for the next five years		
	FY 85	$19,000.
	FY 86	$20,000.
	FY 87	$21,000.
	FY 88	$22,000.
	FY 89	$23,000.
	FY 90	$24,000.

Current cutting cycle (10 years)	1975 - 1985
Current cutting planned (1985, 1986)	Appendix 18

A. Land Classes and Acreage:

Classification	Acreage
Commercial Forest Land (CFL)	7378
Regulated CFL	1000
Modified CFL	650
Restricted CFL	5728
Non-Commercial Forest Land	3209
Non productive	300
Other (Improved and Semi improved Grounds)	2909
Total Installation Acreage:	10587

B. Types of Timber: Principal tree species found on Seneca Army Depot are listed in their relative order of value/importance as a crop.

Black Walnut	Juglans Nigra (L.)
Black Cherry	Prunus Serotina
Red Oak	Quercus Borealis (Michx. F.)
White Oak	Quercus Alba (L.)

Sugar Maple	Acer saccharum (Marsh)
Basswood	Tilia americana (L.)
White Ash	Faxinus americana (L.)
Yellow Popular	Liriodendron tulipifera (L.)
White Pine	Pinus strobus
Beech	Fagus grandifolia (Ehrh.)
Shagbark Hickory	Carya ovata (K. Hoch.)
Pignut Hickory	Carya glabra (Sweet)
Bitternut Hickory	Carya cordiformis
Butternut	Juglans cinerea (L.)
Chestnut	Castanea dentata
Elm	Ulmus americana (L.)
Red Maple	Acer rubrum (L.)
Trembling Aspen	Populus tremuloides (Michx.)
Swamp White Oak	Quercus borealis (Michx. F)
Silver Maple	Acer saccharinum (L.)
Black Locust	Robinia pseudoacacia (L.)
White Spruce	Picea glauca
Norway Spruce	Picea abies
Austrian Pine	Pinus nigra
Red Cedar	Juniperus virginiana (L.)
Larch	Larix decidua (Mill.)
Eastern Hophornbeam	Ostrya virginiana (Mill.)
Cottonwood	Populus deltoides (Bartr.)
Pin Cherry	Prunus pennsfranica

IV. MANAGEMENT:

A. General: High quality veneer logs and sawtimber are the main products to be grown under this management plan. Valuable quantities of firewood are also produced from thinning, cutting, etc., while at the same time promoting maximum yield and the desired composition of the major crop species. Because the present timber stand is basically immature and scattered, small improvement type timber sales may not contain economical volumes to attract commercial buyers.

The firewood program is designed to accomplish the goals of this plan while providing an alternate source of revenue to timber harvests. Anticipated management for the remainder of the cutting cycle consists of timber stand improvement work, selective thinning cuts, intermediate and harvest cuts, reforestation, pruning (Black Walnut), and release work (Pines, Spruces).

B. Species to be Grown: The species of timber to be grown and managed for timber production, veneer production and firewood are listed below. They have been chosen on the basis of value, abundance, and adaptability to the depot soils.

Common Name	Scientific Name	Product	Approx. Relative Abundance
Black Walnut	Juglans Nigra (L.)	veneer	common
Black Cherry	Prunus Serotina	veneer	scarce
Basswood	Tilia Americana	sawtimber	common
Ash	Faxinus Americana	firewood	common
Sugar Maple	Acer Saccharum	sawtimber/ veneer	abundant
Red Maple	Acer Rubrum	firewood	abundant
Silver Maple	Acer Saccharinum	firewood	scarce
Red Oak	Quercus Borealis	sawtimber	common
White Oak	Quercus Alba	sawtimber/veneer	common
Hickory (sp)	Carya (sp)	firewood	common
Beech	Fagus Grandifolia	firewood	common
Locust	Robinia Pseudoacacia	firewood/fence posts	common
White Spruce	Picea Glanca	sawtimber/ pulpwood	scarce
White Pine	Pinus Strobus	pulpwood	scarce

C. Rotation and Cutting Cycle: With the exception of Black Locust, which has a 30 year rotation age, the species selected for management have rotation ages between 70 and 90 years.

Species	Rotation Age (Yrs.)
Black Walnut	90
Black Cherry	80
Basswood	80
Ash(s)	80
Maples	90
Oaks	90
Hickory	70
Beech	70
Black Locust	30
White Spruce	80
White Pine	80
Larch	70

The cutting cycle has previously been set at 10 years. This is the estimated time necessary for the timber stands to become fully stocked without stagnation after each improvement harvest. Thinning and releasing of Pine and Spruce stands are scheduled as needed to allow space for proper developement of the stands into sawtimber/pulpwood crop trees.

D. Compartments and Cutting Units: Because of the small total area of the existing stands of timber, the entire depot is treated as one compartment with cutting units as shown in Appendix 2 .

E. Harvest Schedule, Timber and Firewood Sales and Marking: Periodic harvests will be employed at Seneca Army Depot due to the nature of the timber stand. If sufficient volumes are available to attract competitive bids the harvests will be made once during each cutting cycle. The nature of the existing stands is such that this may not be feasible. Several stands were marked during Oct-Nov 82 (See Appendix 4) in preparation for a declaration of availability.

It is felt that additional volume is required to attract bids, however, prescriptions for all other stands are required before marking continues.

The firewood program will be utilized to perform timber stand improvement work either in conjunction with commercial harvests or by itself. Cutting units will be cruised and a prescription will be made by a qualified forester. A decision will be made as to the suitability of including a particular unit in a commercial harvest or the firewood program. When a cutting unit needs are adequately provided through the firewood program, the unit will be physically divided into smaller lots using engineering tape or twine. The lots will be marked in accordance with the prescription for the entire cutting unit. The volume of cord wood marked will be computed to determine the selling price of the lot. In general, the rate charged will be between 50-75% of the present commercial rate for hardwood logs delivered on site ($28.00/ton in 1982).

Military and civilian personnel will be allowed to buy a firewood lot. The buyer will be required to remove all marked trees . Branches and tops of trees will be reduced to chips. The chips will be spread in the same firewood lot. Cutting unmarked trees, cutting in other lots, and other like offenses will result in the loss of this privilege for the offender.

The following marking rules apply to both timber harvests and firewood sales. Tree marking is done by, or under, the supervision of a qualified forester. Marking is done by either a two-man crew (marker and tally man) or a three-man crew (two markers and one tally man). Ordinarily, it is more efficient to use a three-man crew.

A one quart size tree marking gun (Eagle or equivalent) is preferred because of economy, ease of operation, and efficiency. Yellow or red tree marking paint is used and two spots, one at the base for identification after the tree is cut, and one on the bole approximately five feet high, are painted on each tree to be removed. Trees are marked in parallel strips of approximately 25 to 50 feet for each marker (the width depending on the density of the trees and underbrush).

On two-man crews, the tally man walks along with the marker; on three-man crews, he walks between the strips of the two markers. Marks on all trees in a plot are made to face in the same direction, preferably toward the road. To insure that no trees are overlooked, all trees are marked on the side facing the next unmarked strip. Trees are marked in successive strips until marking is completed.

The markers estimate or measure marked trees and call the information to the tally man. Tree diameters are measured by a diameter tape or a Biltmore cruising stick. Merchantable heights are estimated, and frequently checked by a Merritt hypsometer or an Abney level to determine the accuracy of the estimates. Each tree is tallied as to species or species group, diameter breast high, and total merchantable heights to the nearest one-half log. A sample copy of an approximate tally sheet is found in Appendix 3.

The species of trees listed in Section IV, para B, are favored as crop trees. When these species are available to fully utilize an area, the low quality and low valued species are marked for harvest to allow the growing space to be occupied by the high quality sawtimber/veneer stock. Furthermore, veneer and sawtimber species are favored over the firewood and pulpwood species when all are present in a particular stand.

Normally, only trees fourteen inches DBH or larger and containing a minimum of one log ten feet long are marked. Ordinarily, at least 1,500 board feet of sawtimber are marked per acre. If accessibility is very good, a smaller volume may be marked per acre, but in no case less than 1,000 board feet per acre.

Every effort is made to remove trees of the following classes when a tree contains at least one merchantable log ten feet long; mature, over-mature, decadent, crooked, excessively sweeped, forked, excessively limby, leaning, short period, diseased, insect infested, defective due to rot, and split or bark scarred. All merchantable elm trees are marked for harvest because of Dutch Elm disease in the area.

Marking of trees is carried out with the objective of growing, as rapidly as is consistent with quality, enough crop trees to provide a fully stocked stand at maturity. Accomplishment of this objective does not lengthen the rotation period. Enough trees are maintained to provide trainers, intermediate products, and a pool from which to select crop trees. Periodic thinnings are required to keep crop trees growing rapidly. However, stand density is not reduced to the point that the site becomes underutilized. Cutting to lower densities wastes growing space, encourages undesirable undergrowth, and may reduce quality by causing crop trees to have lower crowns.

The desired basal area (square feet of breast high cross section for all designated trees) per acre after harvest cutting is 70 to 75 square feet in all trees of merchantable species two inches DBH and larger. If stand density is low and will not support a merchantable harvest plus leaving a basal area of 70 square feet per acre, the harvest is postponed until the next scheduled cutting cycle. An exception to the rule is made if trees are mature, over-mature, decadent, or infested with insects and disease. Such trees will be marked for harvest to prevent waste even though the leave basal area is below 70 square feet per acre.

If thinning immature stands of timber, the following spacing guidelines are used to obtain the desired basal area:

AVERAGE DBH	AVERAGE SPACING BETWEEN THINNED TREES	NO. LEAVE TREES PER ACRE
6	11 feet	360
7	13 feet	258
8	15 feet	194
9	16 feet	170
10	18 feet	134

AVERAGE DBH	AVERAGE SPACING BETWEEN THINNED TREES	NO. LEAVE TREES PER ACRE
11	20 feet	109
12	22 feet	90
13	23 feet	82
14	25 feet	70
15	27 feet	60
16	29 feet	52

When the above spacing guide is used during intermediate harvest, even-aged stands of timber should produce the following number of final crop trees per acre of the specified optimum DBH at rotation age:

SPECIES	NO. FINAL CROP TREES	OPTIMUM DBH AT MATURITY
Coniferous	60	22 inches
Hardwood	50	24 inches

When immature even-aged stands are thinned down to the above number of final crop trees, no further intermediate cuttings will be made (except for salvage or sanitation cuttings) and the final crop trees will be left to mature to the desired DBH and rotation age.

If desired reproduction in sufficient quantities is present at final maturity of crop trees, the stand will be clear cut. If desired reproduction is not present, a regeneration harvest will be made and the remaining trees harvested when desired regeneration is established. In all-aged stands, the group selection system of harvest cutting will be made. In this system, groups of merchantable trees will be clear cut to create openings large enough, at least 1/2-acre in size, for proper regeneration.

F. Special Areas:

1. Exclusion Area - This high security area contains 624 acres and is classified as non-commercial forest land (NCF). Approximately 50 acres are wooded but are considered permanently inaccessible due to security restrictions. Management of these stands is not practical.

2. Kendaia Creek Ravine (Lake Area) - This area contains 186 acres (NCF) and has been set aside as "forever wild". The steep slopes and inaccessible nature of the land would make harvests difficult at best. This area is also adjacent to the Lake Housing Area and serves as a nature trail, fishing stream, and buffer zone. Forest management is not contemplated here.

3. Freshwater Wetlands - The areas outlined in Appendix 12 are classified as NYS Freshwater Wetlands. While timber harvest may be conducted with an appropriate permit on hand, these areas were assigned a lower priority than

others. Logging operations would have adverse environmental impacts on these areas regardless of the time of year, weather, etc.

4. Semi-Improved Grounds - The reforestation effort described elsewhere will focus on converting otherwise idle grounds into productive forest land. A by-product of this scheme is a reduction in costs associated with maintaining (mowing) these areas.

G. Other Silviculture Treatment: Prescribed burning is not planned as most forest land is within the Ammunition Storage Area where burning is forbidden. Silviciding is not required but mechanical treatment will be used for thinning and releasing conifer stands.

H. Reforestation: Past efforts in reforestation by planning have had varying degrees of success. The records show that during 1951-53 and again in 1968 and 1976, roughly 600 acres were planted with Pines, Spruces, and Larch. The successful plantations are noted on the General Tree Cover Maps, Appendix 11.

Recent reforestation projects completed in 1981-82 have been successful. This is due in part to the reduction in the size of the deer herd as well as planting 2-2 transplants - vs. - seedlings. Planting has been accomplished by contract and by in-house forces. Stock for in-house projects is obtained from the USDA Soil and Water Conservation Service in Waterloo, New York 13165. The goal is to plant as much of the 3,100 acres of improved and semi-improved grounds as safety, security, and mission constraints will allow.

The 5,700 acres of restricted CFL located throughout the depot will be regenerated by natural seeding. Ash, Walnut, Locust, Maple, Oak, and Hickory are the dominant species regenerating in this manner.

Conifer species selected for the reforestation effort are Scotch Pine, White Pine, White Spruce, and Norway Spruce. These species have been selected for their suitability to local soils, value, and availability from commercial and USDA sources. Scotch Pine has exhibited the best success in reforestation efforts; due to this, concentration of reforestation efforts in recent years is on Scotch Pine. Seedlings two or more years old (2-0, 3-0) or transplants (2-2. 2-3) will be planted in the spring at 10 ft. intervals in rows spaced 10 ft. apart. This spacing facilitates the maneuvering of mowing equipment, reduces the cost of reforestation, provides areas useful for wildlife, and results in faster growth. Reforestation is accomplished with in-house personnel; plantations will be maintained as required with dead trees replaced the following year. All planting will be done by hand with shovels or with the help of a 6-inch auger. Minimal ground preparation is required as the land to be planted is level with no bush growth. Herbiciding prior to planting was attempted on an experimental basis in FY-83 & 84 to reduce competition from grasses; results showed this to be ineffective. Reforestation planned for FY-85 & 86 involves planting 1,000 and 10,000 Scotch Pine, respectively (See Appendix 18).

Reforestation Programmed

FY	Acres to be Planted	Acres Site Prep Required	Species
83	10	9	Scotch Pine, Norway Spruce
84	10	5	White Spruce

FY	Acres to be Planted	Acres Site Prep Required	Species
85	10	5	Scotch Pine
86	100	5	Scotch Pine
87	10	5	Scotch Pine
88	10	5	Scotch Pine

I. Environmental and Wildlife Consideration: All timber harvests require the preparation of an environmental assessment in accordance with the provisions of AR 200-1 and the National Environmental Policy Act (NEPA). The forest resource at Seneca Army Depot is a renewable one and, as such, does not result in an irreversible commitment. Nevertheless, large scale timber harvests would have immediate effects on wildlife habitat, runoff and erosion, etc. Silvicultural treatments described in this plan reflect the compromise between the production of a crop (trees) and the responsibility to maintain adequate wildlife habitat. For example, some stands that have reached rotation age (see Appendix 4) in this cutting cycle are also prime habitat for wild turkey. A harvest cut in these stands would likely result in the disappearance of the few birds that have begun to repopulate the depot. Concerns such as this impact must be adequately addressed in all environmental documents. A Record of Environmental Consideration form is included in Appendix 17.

J. Fire Protection, Insect and Disease Control: The purpose of fire protection is to prevent fire damage to personnel and property. Fires in military forest lands are especially damaging because of stored ammunition, supplies, and equipment. The partial or even complete destruction of timber, wildlife, and wildlife habitat may result from fire. The destruction of vegetative growth, be it forest land or grass land, denudes the soil and makes it subject to erosion. For these reasons, fire protection on the installation is of major importance.

Inspection is a continuing process. The depot utilizes members of depot Security Patrol and the Fire Department to inspect all areas for fire outbreaks and fire hazards. Accumulations of trash, debris, etc., that might present a fire hazard are reported to the Roads & Grounds Section which removes such hazards. Education is accomplished through the use of the Depot Bulletin, the installation newspaper, and releases from the Safety Office.

There is no prescribed burning in connection with forest land management at the installation.

Cooperative agreements are in effect with twelve (12) fire companies, all located in Seneca County. Under the terms of these plans, the depot may request the aid of any of these fire companies by telephone. All 12 companies may be called if necessary and if additional assistance is needed, it may be obtained through the statewide Mutual Aid Program by calling the Seneca County Mutual Aid Base Station in Waterloo, New York, telephone 315-539-2425. The Seneca County Base Station may then request the assistance of fire companies that are in mutual aid plans in adjoining counties.

All roads, railroad, division fences with mowed areas, and other mowed areas provide a complete firebreak network throughout the installation. This network, which has a total of 207 miles, is itemized below:

Roads	137 miles
Railroads	42 miles
Division fence w/mowed strip 40 ft. wide	4 miles
Division fence w/mowed strip & vegetative-free strip - total width of 160 ft.	4 miles
Mowed strip 20 ft. wide over water line	2 miles
Boundary fence - total width 60 ft. (minimum)	18 miles

No additional firebreaks are proposed. See Appendix 10 for a map of the firebreaks and water supplies.

With the relatively small forest land areas, the extensive network of firebreaks, and the intensive patrol schedule, the danger of a fire reaching major size is definitely minimized. No additional facilities are required. The direct method of fighting grass and forest fires is used by this installation.

There have been no forest fires on the depot. Grass fires, usually started by the railroad, have always been readily extinguished. The relatively small size of areas within firebreaks and the rapid response to alarms has confined fires to very small areas. No mopping up has been necessary because fires that have occurred have been extinguished before any appreciable damage was caused.

Fire Reports - The two forms used in reporting fires are DA Form 5-1, Fire Department Individual Run Report, and DA Form 5-2, Fire Report.

Facilities Engineer Insect & Rodent Control personnel are responsible for the control of insects, diseases, and rodents of the forest. Surveillance and periodic inspections are made by the Roads & Grounds personnel and any evidence of damage is reported. No forest insects are known to be causing damage to the forest. The following insects, although not now present in the forest, may become a threat in the future:

Common Name	Scientific Name
White Pine Weevil	Pissodies strobi
Spruce Gall Aphids	Chermes abiatis

The White Pine Weevil attacks the terminal shoots of White Pine and Norway Spruce saplings causing deformity and sometimes exposing the trees to entrance of heart rot. Closely spaced conifers usually suffer the least amount of damage. If large outbreaks occur, they may be controlled by spraying or dusting with insecticides from aircraft. Small outbreaks may be controlled by spraying with "Sevin" using a knapsack sprayer. Only the terminal shoot or leader is sprayed using a nozzle that produces a hollow-cone spray. Spraying for adult insects is done in

the early spring. Norway and White Spruce are attacked by Spruce Gall Aphids. These may be controlled by spraying with Malathion. The insects are sprayed when in the nymph stage in early April. Field mice (Microtus spp) are often a problem in new plantings. Damage to seedlings is usually worse in areas containing heavy grass and weed growth.

Damage may be particularly bad when the snow is deep. Poisoned grain bait is used to control field mice. The bait, prepared with either strychnine or zinc phosphide, is applied at the rate of six to ten pounds per acre.

A heavy deer population can be detrimental to the reforestation program, as has been the case in the plantings made in 1951 to 1953. The deer population is now within the recommended carrying capacity. It is controlled by harvests through hunting and maintained within the carrying capacity as recommended by the New York State Conservation Department.

Diseases - The following tree diseases are found in the depot forests:

Common Name	Scientific Name
Dutch Elm Disease	Ceratostomella ulmi
Ash Dieback	Cytophoma pruinosa
Heart Rot	Fomes spp.
	Polyporus spp.
	Stereum spp.

To prevent loss of elm trees from Dutch Elm Disease, and ash trees from Ash Dieback, a majority of merchantable elm and ash trees were harvested during the scheduled harvest in 1965. All merchantable trees of these species will be harvested during future harvests.

Heart Rot is a slow killing disease and, in most cases, renders the tree worthless for timber products. This disease is found in all tree species. Individual trees showing evidence of Heart Rot by scars, broken limbs and trunks, and fungi fruiting bodies, are harvested during scheduled harvesting operations when merchantable. Trees that have become cull trees because of Heart Rot will be felled during harvesting operations unless they are desirable den trees, in which case they will be left standing for wildlife in accordance with the Migratory Bird Act. Trees to be cut shall be determined by a qualified forester.

K. Management Records and Annual Work Plans: The map in Appendix 11 depicts existing forest land, plantations, proposed plantings, etc. Appendix 18 is the current annual work plan. Also included in Appendix 18 is the proposed format for future annual work plans from TM 5-631.

APPENDIX AND DRAWINGS

Appendix

1. Prospective Timber Buyers
2. Stumpage Prices
3. Marking Tally Sheet
4. November 1982 Marking for Harvest
5. Present Stand Table
6. Local Volume Table
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8. Basal Area Tally
9. Unit Area Treatment Map
10. Firebreaks
11. Plantings and General Tree Cover Map
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15. MOU/Corps Forestry
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17. Record of Environmental Consideration
18. Annual Work Plans

Prospective Timber Buyers for Seneca Army Depot

1. F. L. Lamphier Lumber Company, Locke, New York
2. Stanley Regman, Venice Center, New York
3. Leland Weed, New Hope, New York
4. Arthur Baker, Slaterville, New York
5. William C. Dean, Speedsville, New York
6. Volbrecht lumber Company, S. Lansing, New York
7. H. R. Wilbur, Danby, New York
8. Howland Bros., Berkshire, New York
9. Barden and Robeson Corp., Penn Yan, New York
10. R. E. Coats, R.D.. Newfield, New York
11. Edward M. Short, Dryden, New York
12. Fred Barkley, RFD#3, Canandaigua, New York
13. Ray King, RFD#3, Naples, New York
14. Barker Lumber Company, Painted Post, New York
15. Cotton and Hanlon, Odessa, New York
16. J. E. Harrington, Montour Falls, New York
17. George Morrow, Beaver Dams, New York
18. Martin Lumber Company, Interlaken, New York
19. Arthur Warner, Interlaken, New York
20. Todder Lumber Company, Avoca, New York
21. Bailey Bros., Red Creed, New York
22. Raymond Boughton, North Rose, New York
23. Heindenreich Bros., Lyons, New York
24. Kanaval Bros., Cohocton, New York
25. Aubrew Seagers, Sodus, New York
26. Seeley Ladder Company, North Rose, New York
27. Harold Smith, RFD#2, Lyons, New York

Prospective Timber Buyers for Seneca Army Depot (continued)

28. Emerson Lumber Company, Middlesex, New York
29. Wilfred Knapp, Dundee, New York
30. Union Fork and Hoe Company, Frankfort, New York
31. Ellicottville Basket Company, Ellicottville, New York
32. Webster Basket Company, Webster, New York

APPENDIX 2

Stumpage Price Report

January 1985 / Number 26

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Division of Lands and Forests
New York State Department of Environmental Conservation
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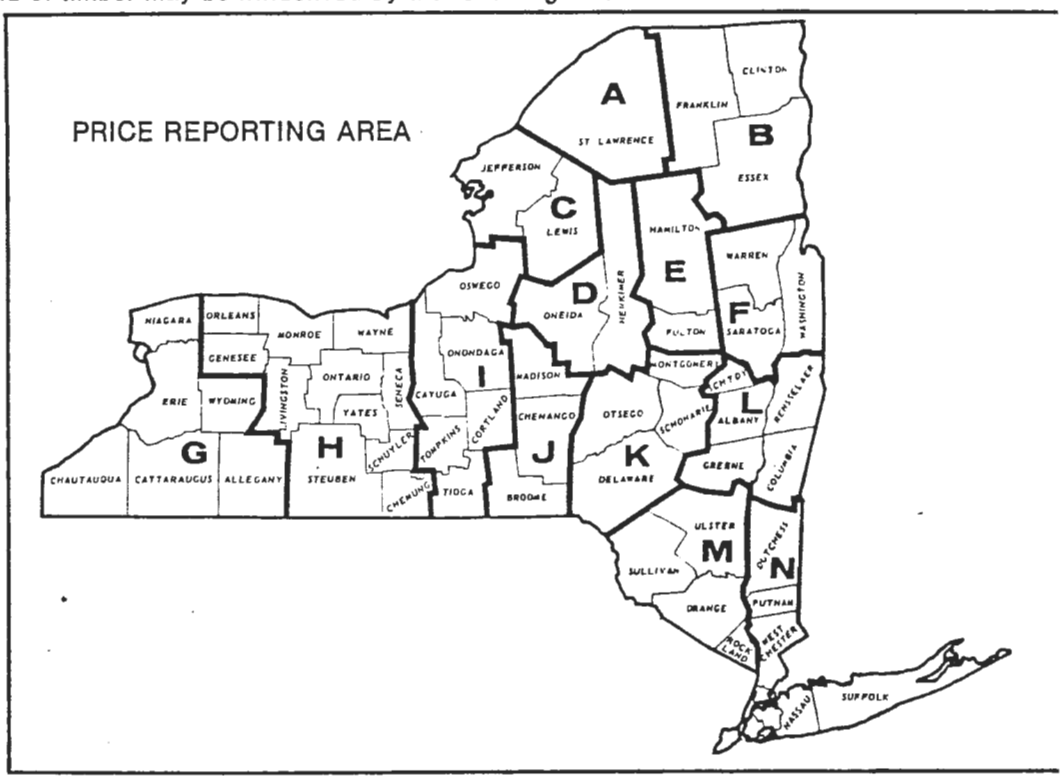
The prices contained in this publication are collected from harvesters and wood processors in 14 price-reporting areas throughout New York State, and are intended to serve only as a guide in the marketing of standing timber.

The actual value of a specific stand of timber may be influenced by the following factors:

1. Timber quality
2. Volume to be cut per acre
3. Logging terrain
4. Market demand
5. Distance to market
6. Season of year
7. Distance to public roads
8. Woods labor costs
9. Size of the average tree to be cut
10. Type of logging equipment
11. Percentage of timber species in the area
12. End product of manufacture
13. Landowner needs
14. Landowner knowledge of market value
15. Property taxes
16. Capital gains aspect of Internal Revenue Code

Any one of the above factors can have a highly significant effect on stumpage prices for a species in one given area, while it may have a less significant effect in another area.



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