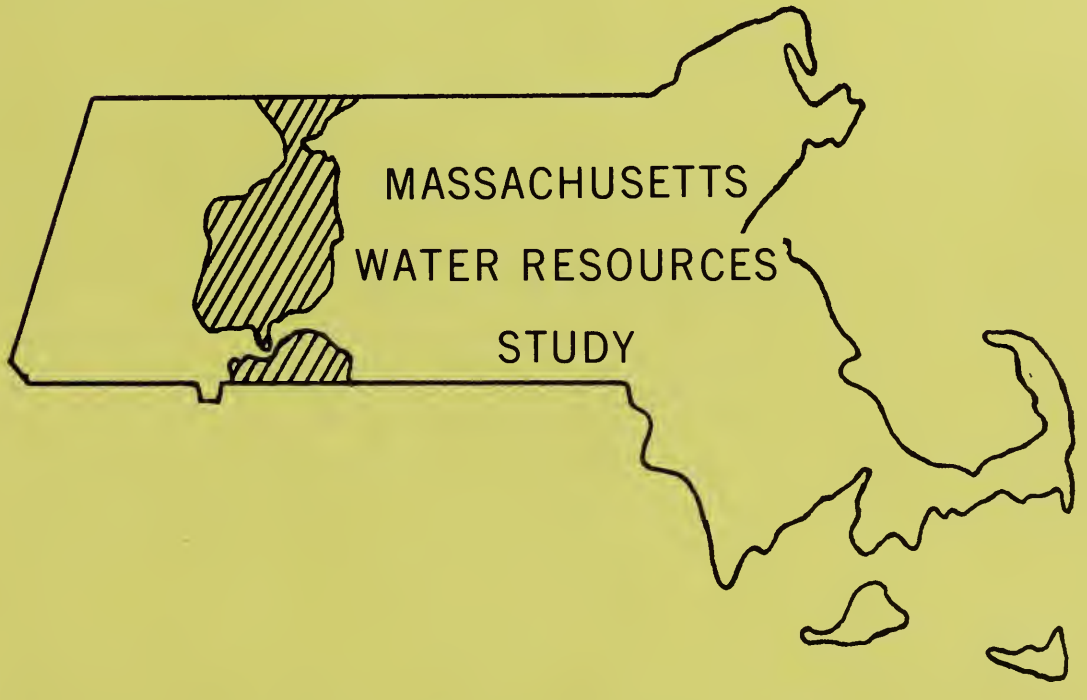
UNITED STATES DEPARTMENT of AGRICULTURE

INVENTORY
of
POTENTIAL and EXISTING
UPSTREAM RESERVOIR SITES
NORTHERN, CENTRAL, & SOUTHERN
CONNECTICUT VALLEY STUDY AREAS



U.S. DEPARTMENT of AGRICULTURE
Soil Conservation Service
Economic Research Service
Forest Service

In cooperation with the

MASSACHUSETTS WATER RESOURCES COMMISSION

JANUARY 1975

FOREWORD

The United States Department of Agriculture, in cooperation with the Massachusetts Water Resources Commission, is participating in the Massachusetts Water Resources Study of the water and related land resources of the Commonwealth. One phase of the study is the inventorying of potential and existing upstream reservoir sites.

The Commonwealth of Massachusetts, through the Water Resources Commission, provides guidance and significant financial contribution toward this phase of the Massachusetts Water Resources Study. The Massachusetts Water Resources Commission to fulfill its responsibilities under Sections 5 through 15 of the Massachusetts General Laws requires technical and engineering data and information on potential upstream reservoir sites. The Department of Agriculture is participating in this study under the provisions of Section 6 of the Watershed Protection and Flood Prevention Act (Public Law-566, 83rd Congress, as amended) which authorizes the Secretary of Agriculture to cooperate with other federal, state and local agencies, in surveys and investigations of the watersheds of rivers and other waterways as a basis for the development of coordinated programs.

This report, prepared by the Soil Conservation Service and submitted by the USDA Field Advisory Committee to the Water Resources Commission, identifies and inventories potential and existing upstream reservoir sites within the Connecticut Valley Study Areas.

The Massachusetts Water Resources Commission will use this report, together with other reports and studies prepared by the United States Department of Agriculture and others, in the preparation of a comprehensive plan for the Commonwealth's water and land resources.

The information and data contained herein will also assist local, state and federal agencies in their specific planning activities for the coordinated and orderly conservation, development, utilization and management of the water and land resources to meet the rapidly expanding needs.

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Massachusetts Water Resources Commission

Massachusetts Department of Natural Resources

Soil Conservation Service personnel prepared this report. Ernest Richards was responsible for the development of the engineering phases of the report. Raymond Curran, John Gammell, and Chester Konieczny collected and processed basic site data. Donald Mills reported on geological conditions. Kathy Gastinger typed the final manuscript. James Wesoloski was responsible for editing and publication.

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STUDY AREA
MASSACHUSETTS

USDA-SCS-HYATTSVILLE, MD. 1974

INVENTORY OF

POTENTIAL AND EXISTING UPSTREAM RESERVOIR SITES

in the

NORTHERN, CENTRAL & SOUTHERN
CONNECTICUT RIVER VALLEY STUDY AREAS

prepared by the

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

in cooperation with the

MASSACHUSETTS WATER RESOURCES COMMISSION

INTRODUCTION

This report presents data on 121 potential and 70 existing reservoirs in the Northern, Central and Southern Connecticut Valley Study Areas in Franklin, Hampden, and Hampshire Counties, Massachusetts.

DESCRIPTION OF STUDY AREAS

The Northern Connecticut Valley Study Area is located in Franklin County in northwestern Massachusetts. The main rivers include the Connecticut and Falls Rivers. The Study Area, which covers about 57,000 acres or 89 square miles, is divided into three subwatershed. All of Gill, most of Northfield, and portions of six other towns are located within the Study Area.

The Central Connecticut Valley Study Area is located in Franklin, Hampshire and Hampden Counties in west-central Massachusetts. The main rivers include the Connecticut, Fort, Manhan, Sawmill, and several Mill Rivers. The Study Area, which covers about 299,000 acres or 468 square miles, is divided into ten subwatersheds. All or portions of 30 cities or towns are located within the Study Area.

The Southern Connecticut Valley Study Area is located in Hampden County, Massachusetts. The main rivers are the Connecticut, Mill, and Scantic Rivers. The Study Area, which covers about 65,000 acres or 102 square miles, is divided into five subwatersheds. All or portions of eight cities or towns are located within the Study Area.

CRITERIA

Potential Reservoir Sites

The primary considerations used to identify potential reservoir sites were: suitable topography for a dam and reservoir, sufficient drainage area to maintain the proposed reservoir, and a relatively undeveloped pool area.

The following criteria were used as a guide in site selection:

1. Drainage area -- larger than one-half square mile, but not greater than 50 square miles.

2. Ratio of drainage area to beneficial pool area -- not less than 10 to 1.

3. Minimum beneficial pool depth -- 7 feet at the dam.

4. Minimum beneficial pool area -- 10 acres.

5. Minimum beneficial pool capacity -- 100 acre-feet.

6. Maximum beneficial pool capacity -- storage volume equal to 25 inches of runoff from the drainage area.

7. Maximum height of dam -- 100 feet.

8. Pool area relatively undeveloped -- no housing developments, industrial areas, or major highways inundated.

Existing Reservoirs

Existing reservoirs were located using the U.S. Geological Survey (USGS) quadrangle sheets. Two criteria were used to determine sites to be included in this report:

1. Surface area -- at least 10 surface acres or a pond identified by name on the USGS topographic map.

2. Man-made dam -- natural ponds and beaver dams are excluded.

The dams along the Connecticut River are not included in the inventory. Their primary function is to provide a head differential for generating electricity and not to provide water storage or increased surface area.

INVESTIGATIONS AND ANALYSES

Potential Reservoir Sites

Sites were located using the latest available USGS 7½ minute quadrangle sheets. Natural basins, or topography favorable for storage of water, and an undeveloped pool area were the primary considerations in the initial site selection. Watershed boundaries were delineated on the quadrangle sheets and the drainage area was determined for each site. Water storage areas and volumes available upstream of the site centerline were calculated. Data were also obtained to calculate the volume of earthfill required for the dam and any supplementary dikes that might be needed to maintain a reservoir.

At each site a field reconnaissance was made that included an inventory of land and facilities (man-made structures) that would be affected if a dam and reservoir were developed at the site. If it was determined that the reservoir would flood extensive man-made facilities, or a study of the elevation-area storage data showed that the site did not meet criteria for the study, the site was dropped from further consideration.

A surficial geologic investigation was made of each potential site to determine any obvious geologic conditions that might affect the water-holding capability or require extensive foundation preparation. A preliminary geological report was prepared which outlined the types of materials that might be expected at the site and their effect on construction costs and waterholding capabilities for the site. The report of geologic conditions was based on the geologist's interpretation following the surficial investigation of the site and surrounding area. No borings were made and subsurface conditions may vary from those indicated in this report.

Hydrologic and hydraulic data were calculated using methods developed by the Soil Conservation Service. Rainfall data were obtained from Technical Papers 40 and 49, U.S. Department of Commerce, Weather Bureau. Preliminary structure site analyses for several levels of development for each site were processed by computer, using a program which determines the most economical type of principal spillway; determines the runoff and peak flow for the 100-year frequency, 10-day duration, principal spillway design storm; routes the design storm to set the emergency spillway crest; performs other routings to determine the design high water and top of dam elevations; calculates embankment yardage and other construction quantities; determines the total estimated cost of the reservoir; and calculates "safe yield" for water supply purposes.

Existing Reservoirs

An inventory was made of 70 existing reservoirs that cover at least ten acres or are identified by name on the USGS quadrangle sheet, and are formed by a man-made dam. The reservoirs were located using the USGS quadrangle sheets. An engineer made a field reconnaissance to determine the physical condition of each structure and to assess the potential for expansion of the reservoir. While at the site, photographs were taken. Selected photographs are included in this report. Ownership and use information for the reservoirs was obtained from records of the Massachusetts Department of Public Works, the Massachusetts Water Resources Commission and from local interviews.

COSTS

Preliminary cost estimates for potential reservoir sites were based on construction costs and land values as of 1972. The cost estimates include: (1) construction costs; (2) contingencies; (3) engineering and administrative services necessary for surveys, geology, final design, and construction inspection; (4) cost for land required for the reservoir and construction of the dam and spillway; and (5) costs associated with purchase or relocation of man-made facilities affected by the constructed reservoir.

Construction costs were based on recent dam-construction contract costs in Massachusetts. A factor for contingencies, equal to 15% to 35% of the construction cost, was included to account for items that were not considered at this intensity of study. Engineering and administrative services ranged from 20% to 40% of the construction cost.

Costs for land acquisition were based on an evaluation of current real estate transactions and market conditions. Land with potential for development was valued at from $1,000 to $10,000 per acre; land with little development potential was valued at from $200 to $500 per acre. Land values also varied from site to site based on the proximity to developed areas and highways, development taking place in the area, and suitability for development. Land needed for the dam, spillway, and design high water pool was included in the land acquisition cost.

Cost estimates are presented on the basis of a cost per acre-foot of storage and cost per surface-acre to provide a comparison between different sites and different levels of development at the same site. Costs are based on preliminary estimates; firm cost estimates for any site can be determined only after completion of detailed geologic and engineering investigations, final structural designs, and land appraisals.

No cost estimates are included for existing reservoirs.

REPORT FORMAT

The report is divided into sections based on the eighteen subwatersheds in the study areas. The location map, placed after the Table of Contents, outlines the area covered by each subwatershed. To aid local residents in determining which sites are located in their city or town, the Municipal Index of Sites lists the site identification numbers for potential and existing reservoir sites within each municipality and the page number of this report on which data are recorded.

Each subwatershed section provides site data for the potential and existing reservoir sites located within the subwatershed which are included in this report.

Potential Reservoir Sites

Data for potential reservoirs are presented in the following format:

Location: includes a narrative description of the location of the site by reference to nearby roads, railroads, or other physical landmarks. In addition, the latitude, longitude, and USGS quadrangle sheet name are provided for more accurate location.

Facilities Affected: describes any man-made facilities that would be flooded by a reservoir at the potential site. The elevation of existing facilities was estimated during the engineer's field reconnaissance with the aid of the USGS quadrangle sheets.

Geologic Conditions: provides a summary of the preliminary geologic report. The material in the abutments (the valley sides) and the foundation (the valley floor) is described. An estimate is made of the depth to bedrock and the probable type of rock. The availability of fill material which could be used in the dam construction is noted.
Possible leakage problems are indicated and the waterholding capability of the site is subjectively described as "good," "fair," or "poor." The waterholding capability statement is based on the geologist's interpretation of the surficial conditions observed during the field reconnaissance.

Engineering Notes: provides information which should be helpful in preliminary design of a dam. One of the abutments is recommended as the location for an excavated emergency spillway. If an excavated emergency spillway is unable to carry the required flows at safe velocity, the need for a concrete emergency spillway is noted.

Public Ownership: indicates that some portion of a reservoir site is located on land owned by a governmental or quasi-public unit.

Sites which meet study criteria have been analyzed using a computer program which develops preliminary structure site analyses for several levels of beneficial pool. Results of the computer program are presented in the tables entitled "Summary Data for Potential Upstream Reservoir Sites" at the end of each subwatershed section. Two information lines contain data on site drainage area, USGS quadrangle name on which the site is located, latitude and longitude of the site, site rating, stream water quality, and principal spillway design storm runoff and peak flow. The site rating is based on geologic conditions and the expected waterholding capability. Sites are given one of the following ratings:

1. Suited for deep permanent storage (over 10 feet in depth).
2. Best suited for shallow water storage (3 to 5 feet maximum depth).
3. Best suited for temporary storage (e.g., floodwater and sediment storage).

In order to furnish the most data for potential reservoir sites, each site was considered to be suitable for deep permanent storage (rating "1") for purposes of design and analyses. The rating for any site could change based on detailed geologic investigations.

Stream water quality ratings are based on classifications assigned by the Division of Water Pollution Control, Massachusetts Water Resources Commission, and published in "Water Quality Standard," June 1967, and are as follows:

"Class A -- Waters designated for use as public water supply in accordance with Chapter 111 of the General Laws. Character uniformly excellent.

"Class B -- Suitable for bathing and recreational purpose including water contact sports. Acceptable for public water supply with appropriate treatment.
Suitable for agricultural, and certain industrial cooling and process uses; excellent fish and wildlife habitat; excellent aesthetic value.

"Class C -- Suitable for recreational boating; habitat for wildlife and common food and game fishes indigenous to the region; certain industrial cooling and process uses; under some conditions acceptable for public water supply with appropriate treatment. Suitable for irrigation of crops used for consumption after cooking. Good aesthetic value.

"Class D -- Suitable for aesthetic enjoyment, power, navigation, and certain industrial cooling and process uses. Class "D" waters will be assigned only where a higher water use class cannot be attained after all appropriate waste treatment methods are utilized."

The Summary Data for Potential Upstream Reservoir Sites tables also contain data for as many as six possible levels of development at each site. Elevations of the beneficial pool, emergency spillway crest, design high water, and top of dam are shown along with pertinent storage volumes, surface areas and depths. Total cost expressed in dollars per acre-foot of storage and dollars per surface-acre are provided to aid in comparison of levels of development. The emergency spillway type which was used in the preliminary design is indicated by an emergency spillway type code explained in the table notes.

These tables are photo-reductions of the computer output sheets. Elevations are shown to the tenth of a foot and costs to the nearest $10, but are not to be considered that accurate because of the limited investigations made with preliminary data. All the Summary Data Tables are based on preliminary reconnaissance-type investigations and computer-produced structure designs. Additional detailed engineering, geologic and design investigations must be made before final site selection, land acquisition and final design would be practical.

Estimated safe yield for each potential reservoir are also shown on the tables and were based on information extrapolated from data developed by Professor G. R. Higgins, Civil Engineering Department, University of Massachusetts. These estimated safe yields are based on a 95% chance, or the minimum yield that could be expected 19 years out of 20 -- taking into consideration reservoir storage-volume and expected runoff. These data do not consider evaporation, seepage, or prior upstream usage losses.

The Committee on Rainfall and Yield of Drainage Areas of the New England Water Works Association has recommended a figure of 600,000 gallons per day per square mile as a maximum economically feasible safe yield. Data for some of the potential sites in this report show a safe yield above 600,000 gallons per square mile per day. These higher values are useful to define the upper portion of a discharge-storage curve for preliminary analysis. For detailed evaluation of a potential site or water supply purposes, the recommendation of the New England Water Works Association should be considered.

Existing Reservoirs

Site data for existing reservoir sites are presented in the following format:

Location: of the dam is indicated by reference to nearby roads, railroads, or other physical landmarks. The appropriate USGS quadrangle sheet, latitude, and longitude are provided for more accurate location.

Physical data (surface area, height of dam, and drainage area) were estimated from the quadrangle sheet and by field reconnaissance.

Potential for Expansion: potential is estimated and any major man-made facilities which would be affected by an enlarged reservoir are noted. Some of the site narratives contain the phrase "Significant expansion

does not appear practical." The phrase is used to indicate that although the pool level might be raised by a few feet or the pool area increased by a few acres, any greater expansion does not appear feasible due to topography or facilities which would be flooded.

In some instances, the drainage area of the reservoir does not meet the criteria requiring a 10 to 1 drainage area to pool area ratio, below which there may be relatively high evaporation losses. An increase in reservoir surface area might increase evaporation losses to a point where the reservoir could not be maintained during the summer months. These situations are indicated by the statement "The small drainage area limits expansion potential."

Remarks: includes a description of the dam and spillway system. Construction materials, spillway type and size, and condition of the structure are noted.

Ownership and Use: is indicated, if available. In some cases, the pool is not maintained for a specific purpose, but may have incidental use for recreation. This is probably the situation for existing reservoirs which are indicated in the Massachusetts Department of Public Works records as being used to "store water." Typical of these sites are old mill dams which are no longer utilized for mill power.

Selected photographs of existing dams, spillways, and reservoirs are included in the report.

MAPS

Individual subwatershed maps appearing at the end of each section indicate the location of the potential and existing reservoir sites in that subwatershed. The maps are reductions of mosaics prepared from 7½ minute USGS quadrangle sheets (1" = 2000' scale). The quadrangle sheets used and publication dates are listed on the maps. Potential sites are indicated with a red rectangle surrounding the site number. Existing reservoirs are identified by a red circle surrounding the site number.

NORTHERN CONNECTICUT VALLEY STUDY AREA
SITE DATA FOR

Subwatershed NC-07, Ashuelot River

The Massachusetts portion of the Ashuelot River subwatershed covers about 4,300 acres in the town of Warwick, in Franklin County.

The major streams are Mountain and Kidder Brooks which originate in Warwick and join to form Mirey Brook which flows north to its confluence with the Ashuelot River in Winchester, New Hampshire.

Geology of the subwatershed is characterized by a thin mantle of soil underlain by gneiss bedrock.

One potential reservoir site was studied. There were no existing reservoirs which met study criteria.

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POTENTIAL SITE NC-0701

Location: On Kidder Brook about 2300 feet upstream from Old Winchester Road in Warwick, Mass.

Mt. Grace, Mass. - N.H. USGS quadrangle

Latitude: 42°42'22" Longitude: 72°20'11"

Facilities Affected:

Facility	Elevation
High tension lines	850
Robbins Road	800

Geologic Conditions: Both of the abutments are gneiss bedrock with a thin soil mantle. There is bedrock outcropping in the foundation. Surficial deposits are swamp, englacial drift and gneiss bedrock. Waterholding capabilities appear to be good. Insufficient borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

Public Ownership: Above elevation 820, a small area of the pool would be in the Warwick State Forest.

****

STUDY AREA-NORTHERN CONNECTICUT VALLEY SUBWATERSHED ASHUELOT RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV (MSL)	TYPE	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP EL (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-NC-0701 DA= 1.29 SQ MI = 826 AC USGS QUAD-MT GRACE LATITUDE 42-42-22 LONGITUDE 72-20-11																	
SITE RATING (1) STREAM WATER QUALITY (8) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 3.30 IN, PEAK FLOW = 397 CFS																	
805.3	0	0.0		3		5.3	832.0	E	286	4.1	1940	836.1	15	842.0	42	12[illegible]	*****
819.0	100	1.5	4410	11	41570	19.1	821.5	E	140	2.0	3160	828.6	15	833.3	33	7[illegible]	0.21
837.3	370	5.4	2150	19	41950	37.3	839.8	E	428	6.1	1850	846.0	23	850.[illegible]	51	1[illegible]	0.47
859.6	910	13.2	1520	29	47310	59.6	862.1	E	997	14.5	1390	867.5	34	872.0	72	461	0.81
875.6	1450	21.1	1220	36	46940	75.6	878.1	E	1552	22.6	1130	882.3	42	886.4	86	72[illegible]	1.00
892.5	1720	25.0	1180	42	48260	82.5	895.0	E	1838	26.7	1100	889.0	49	892.9	93	87[illegible]	1.09

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, L=CONCRETE LIP, E=EXCAVATED, T= TWO SPILLWAYS, N= NOT-
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.
** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

0701

WARWICK

MT. GRACE STATE FOREST

WARWICK STATE FOREST

72° 22' 30"

72° 20' 00"

42° 42' 30"

N

1 MILE

SOURCE – U.S.G.S. QUAD SHEETS
MT. GRACE – 1961
NORTHFIELD – 1961

LEGEND

WATERSHED BOUNDARY

DRAINAGE AREA ABOVE STRUCTURE

POTENTIAL SITE SHOWING BENEFICIAL POOL FOR LARGEST STRUCTURE

EXISTING POND OR RESERVOIR

ASHUELOT RIVER (NC-07)

NORTHERN CONNECTICUT VALLEY STUDY AREA

MASSACHUSETTS

EXISTING AND POTENTIAL RESERVOIR SITES

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

USDA-SCS-HYATTSVILLE, MD. 1974

NORTHERN CONNECTICUT VALLEY STUDY AREA
SITE DATA FOR

Subwatershed NC-08, Pauchaug Brook

The Pauchaug Brook subwatershed covers about 37,400 acres in Bernardston, Erving, Gill, Northfield, and Warwick; all in Franklin County.

The major stream is the Connecticut River from the Massachusetts-Vermont state line downstream to the Turners Falls' dam.

Geology of the potential reservoir sites is characterized by glacial till underlain by gneiss or schist bedrock.

Twelve potential reservoir sites and four existing reservoirs were studied.

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POTENTIAL SITE NC-0801

Location: On Lovers Retreat Brook about 4400 feet upstream from Bent Pond in Warwick, Mass.

Northfield, Mass. - N.H. USGS quadrangle

Latitude: 42°43'12" Longitude: 72°23'20"

Facilities Affected:

Facility	Elevation
Trail Road	680
High tension lines	680

Geologic Conditions: Both of the abutments are thin silty sand with gravel, cobbles, and boulders. At about elevation 750 on the right abutment is englacial drift with outcrops of gneiss bedrock. Surficial deposits are swamp, englacial drift and gneiss bedrock. Depth to gneiss bedrock in the foundation is estimated to be from 5 to 15 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location. If the site is developed to elevation 675 an auxilliary dike will be required.

****

POTENTIAL SITE NC-0802

Location: On East Wait Brook about 4,000 feet upstream from Caldwell Road in Northfield, Mass.

Northfield, Mass. USGS quadrangle

Latitude: 42°42'40" Longitude: 72°29'37"

Facilities Affected:

Facility	Elevation
Vernon Road	400

Geologic Conditions: Both abutments are gneiss bedrock with a thin soil mantle. Depth to gneiss bedrock in the foundation is estimated to be from 5 to 10 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

Public Ownership: Above elevation 390, a portion of the reservoir would be within the Northfield State Forest.

****

POTENTIAL SITE NC-0803

Location: On Mill Brook about 1,200 feet downstream from White Road in Warwick, Mass.

Northfield, Mass. USGS quadrangle

Latitude: 42°42'02" Longitude: 72°23'09"

Facilities Affected:

Facility	Elevation
White Road	865
Warwick Road	830

Geologic Conditions: Both abutments are thin silty, sand with gravel, cobbles, and boulders (glacial till) with gneiss bedrock outcrops. Surficial deposits are swamp, glacial till and gneiss bedrock. Depth to gneiss bedrock in the foundation is estimated to be from 5 to 10 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location. If the site is developed to elevation 875 an auxilliary dike will be required.

****

POTENTIAL SITE NC-0804

Location: On Bennett Brook about 100 feet upstream from Mt. Herman Station Road in Northfield, Mass.

Northfield, Mass. USGS quadrangle

Latitude: 42°21'27" Longitude: 72°29'13"

Facilities Affected:

Facility	Elevation
House	375
House	365
House	355
Caldwell Road	340
Vernon Road	340
Cottage	335

Geologic Conditions: Both abutments are ice-contact sand and gravel. Surficial deposits are ice-contact sand and gravel. Depth to bedrock in the foundation is estimated to be over 90 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and the foundation. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location. If the site is developed to elevation 365, two dikes will be required, and three dikes if developed to elevation 375. Refer to Existing Site NC-0804 (Sawyer Pond) for data on the existing dam and reservoir at this site.

****

POTENTIAL SITE NC-0805

Location: On Dry Brook about 7,300 feet upstream from State Route 10 in Bernardston, Mass.

Bernardston, Mass. USGS quadrangle

Latitude: 42°41'23" Longitude: 72°31'08"

Facilities Affected: None below elevation 550

Geologic Conditions: Both abutments are thin discontinuous outcrops of silty sand with gravel, cobbles and boulders (glacial till) and outcrops of schist bedrock. There is a gravel terrace at the toe of the right abutment. Surficial deposits are swamp, glacial till, and schist bedrock. Depth to schist bedrock in the foundation is estimated to be from 20 to 25 feet. Waterholding capabilities appear to be fair. Leakage is expected at the toe of the right abutment and possibly in the foundation. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

POTENTIAL SITE NC-0806

Location: On Bailey Brook about 850 feet upstream from Mt. Herman Station Road in Northfield, Mass.

Northfield, Mass. USGS quadrangle

Latitude: 42°40'50" Longitude: 72°29'47"

Facilities Affected:

Facility	Elevation
Railroad	370
Route 10	362
Telegraph lines	360
House and Barn	360

Geologic Conditions: The left abutment is outwash sand and gravel with bedrock outcrops. The right abutment is bedded silty sand and gravel. Surficial deposits are swamp, outwash sand and gravel, and gneiss bedrock. There are bedrock outcrops at the centerline of the dam. Water-holding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE NC-0807

Location: On Dry Brook about 1,700 feet upstream from State Route 10 in Bernardston, Mass.

Bernardston, Mass. USGS quadrangle

Latitude: 42°40'34" Longitude: 72°30'42"

Facilities Affected:

Facility	Elevation
House and garage	460
Purple Meadow Road	450
A-frame chalet	430
Cottage	410

Geologic Conditions: Both abutments are thin discontinuous deposits of silty sand with gravel, cobbles and boulders (glacial till) and schist bedrock. Surficial deposits are terrace sand and gravel, glacial till, and schist bedrock. Depth to schist bedrock in the foundation is estimated to be 40-50 feet. Waterholding capabilities appear to be fair to poor. Leakage is expected in the foundation. Pervious borrow material for dam construction was located near the site; impervious material was not located.

POTENTIAL SITE NC-0807 (cont'd)

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location. If the site is developed to elevation 455 an auxilliary dike will be required.

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POTENTIAL SITE NC-0809

Location: On an unnamed tributary to Otter Brook about 1600 feet upstream from Doyle Road in Bernardston, Mass.

Bernardston, Mass. USGS quadrangle

Latitude: 42°39'32" Longitude: 72°31'26"

Facilities Affected:

Facility	Elevation
Greenhouse	375

Geologic Conditions: Both abutments are silty sand with gravel, cobbles, and boulders (glacial till) and fine sand and gravel at the toe of the slopes. Surficial deposits are terrace sand and gravel and granitic bedrock. Depth to bedrock in the foundation is estimated to be from 20 to 25 feet. Waterholding capabilities appear to be fair to good. Leakage is expected in the foundation and at the toe of both abutments. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location. If the site is developed to elevation 365 an auxilliary dike will be required.

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POTENTIAL SITE NC-0810

Location: On Otter Brook about 3500 feet downstream from Ben Hale Road in Gill, Mass.

Bernardston, Mass. USGS quadrangle

Latitude: 42°39'15" Longitude: 72°30'40"

Facilities Affected:

Facility	Elevation
Gill Road	325
Center Street	325
Race track	322
House and barns	322
House and barns	312

Geologic Conditions: Both abutments are silty sand with gravel, cobbles, and boulders, (glacial till) with gneiss bedrock outcropping at about elevation 340. Surficial deposits are glacial till and gneiss bedrock. Depth to gneiss bedrock in the foundation is estimated to be from 15 to 20 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE NC-0811

Location: On Fisher Brook about 900 feet upstream from South Mountain Road in Northfield, Mass.

Northfield, Mass. USGS quadrangle

Latitude: 42°38'55" Longitude: 72°26'27"

Facilities Affected:

Facility	Elevation
South Mountain Road	780

Geologic Conditions: Both abutments are silty sand with gravel, cobbles and boulders (glacial till). Surficial deposits are glacial till and gneiss bedrock. Depth to bedrock in the foundation is estimated to be from 5 to 10 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

POTENTIAL SITE NC-0811 (cont'd)

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location. If the site is developed to elevation 765, one dike will be required and two dikes if developed to elevation 815.

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POTENTIAL SITE NC-0812

Location: On an unnamed tributary to Dry Brook about 1300 feet upstream from Main Road in Gill, Mass.

Bernardston, Mass. USGS quadrangle

Latitude: 42°38'09" Longitude: 72°30'36"

Facilities Affected:

Facility	Elevation
House	400
House and garage	400
House and garage	388
Main Road	385
House and barn	385

Geologic Conditions: Both abutments are gneiss bedrock with a thin soil mantle. There are bedrock outcrops in the brook at the toe of the right abutment. Surficial deposits are gneiss bedrock and a thin mantle of sand and gravel. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: There is a topographic saddle just beyond the right abutment that should be considered for the excavated emergency spillway to about elevation 395. Should the site be developed to this elevation a dike would be required in this saddle. A topographic saddle on the right abutment should be considered for the excavated emergency spillway location. If the site is developed above elevation 395, a dike will be required across the saddle.

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POTENTIAL SITE NC-0813

Location: On an unnamed tributary to the Connecticut River about 200 feet upstream from Barney Hale Road in Gill, Mass.

Greenfield, Mass. USGS quadrangle

Latitude: 42°36'36" Longitude: 72°30'24"

Facilities Affected:

Facility	Elevation
Barney Hill Road	385

Geologic Conditions: Both abutments are schist bedrock with a thin soil cover. Surficial deposits are swamp and schist bedrock. Depth to bedrock in the foundation is estimated to be from 5 to 10 feet. Waterholding capabilities appear to be good. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location. Excavation of the emergency spillway may be in shale. An investigation should be made of the shale to determine if it could be used as fill in the dam.

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-NORTHERN CONNECTICUT VALLEY SUBWATERSHED PAUCHAUG BROOK

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV ** TYPE (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-NC-0801 DA= 0.88 SQ MI = 563 AC USGS QUAD-NORTHFIELD LATITUDE 42-43-12 LONGITUDE 72-23-20																
SITE RATING (1) STREAM WATER QUALITY (8) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.40 IN, PEAK FLOW = 275 CFS																
666.7	0	0.0		5		1.7	678.9 E	195	4.1	1540	682.0	26	686.0	21	42	*****
674.5	100	2.0	3240	18	1815C	9.5	677.0 E	155	3.3	2100	681.8	25	685.2	20	38	0.18
682.7	279	5.9	1810	27	1901C	17.7	685.2 E	357	7.6	1420	689.0	35	692.5	28	80	0.34
693.3	637	13.6	1210	40	1937C	28.3	695.8 E	746	15.8	1030	699.0	45	702.2	37	166	0.56
701.5	994	21.2	1020	48	2098C	36.5	704.0 E	1127	24.0	900	706.8	57	709.8	45	261	0.69
702.5	1045	22.2	980	50	2053C	37.5	705.0 E	1182	25.2	870	707.2	58	710.0	45	264	0.70
SITE-NC-0802 DA= 0.73 SQ MI = 467 AC USGS QUAD-NORTHFIELD LATITUDE 42-42-40 LONGITUDE 72-23-37																
SITE RATING (1) STREAM WATER QUALITY (8) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.40 IN, PEAK FLOW = 224 CFS																
390.7	0	0.0		4		2.7	403.4 E	162	4.1	880	406.2	22	409.2	21	16	*****
400.4	100	2.5	1690	17	999C	12.3	402.9 E	151	3.9	1120	406.4	22	409.3	21	17	0.17
403.6	160	4.1	1250	20	1002C	15.6	406.1 E	218	5.6	910	409.6	25	412.3	25	22	0.23
409.0	279	7.1	920	25	1038C	21.0	411.5 E	351	9.0	730	414.5	35	417.5	30	34	0.32
412.5	376	9.7	780	31	964C	24.5	415.0 E	464	11.8	630	417.5	40	420.0	32	41	0.39
SITE-NC-0803 DA= 3.17 SQ MI = 2029 AC USGS QUAD-NORTHFIELD LATITUDE 42-42-02 LONGITUDE 72-23-09																
SITE RATING (1) STREAM WATER QUALITY (8) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.40 IN, PEAK FLOW = 682 CFS																
861.4	0	0.0		12		11.3	872.9 E	702	4.1	620	877.0	109	881.8	32	56	*****
865.1	100	0.6	3830	44	867C	15.2	867.6 E	263	1.6	1450	873.5	97	877.6	28	41	0.32
873.5	736	4.4	840	97	635C	23.6	876.0 E	1015	6.0	610	881.0	127	885.1	35	73	1.01
884.3	2009	11.8	520	147	710C	34.3	886.8 E	2419	14.2	430	890.5	185	894.5	45	158	1.87
891.8	3282	19.4	420	191	723C	41.8	894.3 E	3797	22.5	360	896.9	217	899.9	50	231	2.41
892.5	3419	20.2	410	195	718C	42.5	895.0 E	3944	23.2	350	897.4	220	900.0	50	233	2.45

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-NORTHERN CONNECTICUT VALLEY SUBWATERSHED PAUCHAUG BROOK

BENEFICIAL POOL						EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-NC-0804	DA= 3.42 SQ MI = 2189 AC						USGS QUAD-NORTHFIELD				LATITUDE 42-21-27		LONGITUDE 72-29-13			
SITE RATING (3)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.40 IN, PEAK FLOW = 755 CFS					
331.6	0	0.0		17		2.5	348.9 E	757	4.1	360	351.2	95	354.2	25	17	*****
336.1	100	0.5	2810	26	10650	7.1	348.6 E	739	4.1	380	351.1	94	354.1	25	17	0.33
350.1	830	4.6	510	89	4700	21.1	356.6 E	1541	8.3	270	359.0	131	362.0	33	36	1.13
362.4	2291	12.6	300	144	4700	33.4	364.9 E	2691	14.7	250	367.4	152	370.4	41	71	2.08
372.5	3959	21.7	270	198	5370	43.5	375.0 E	4509	24.7	240	377.4	251	380.0	51	156	2.69
SITE-NC-0805	DA= 2.71 SQ MI = 1734 AC						USGS QUAD-BERNARDSTON				LATITUDE 42-41-23		LONGITUDE 72-31-08			
SITE RATING (2)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.40 IN, PEAK FLOW = 848 CFS					
461.2	0	0.0		4		11.3	492.2 E	500	4.1	1190	496.2	41	505.7	56	217	*****
472.7	100	0.7	4420	14	31960	22.7	475.2 E	157	1.1	2820	480.7	22	486.0	36	70	0.30
495.0	686	4.6	1320	38	23790	45.0	497.5 E	800	5.5	1130	503.5	46	508.9	59	251	0.92
519.0	1857	12.8	790	58	25050	69.1	521.5 C	2030	14.0	720	527.2	55	532.5	83	619	1.67
536.9	3028	20.9	720	75	29230	86.9	539.4 E	3240	22.4	670	544.5	73	549.7	100	1033	2.11
542.5	3464	24.0	700	81	29980	92.5	542.5 T	3486	24.1	690	547.4	86	550.0	100	1041	2.19
SITE-NC-0806	DA= 1.07 SQ MI = 685 AC						USGS QUAD-NORTHFIELD				LATITUDE 42-40-50		LONGITUDE 72-29-47			
SITE RATING (1)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.40 IN, PEAK FLOW = 339 CFS					
351.2	0	0.0		4		6.4	362.9 E	237	4.1	860	365.1	42	368.1	23	22	*****
358.5	100	1.7	2120	24	8970	13.5	361.0 C	176	3.0	1200	363.5	37	366.5	21	15	0.20
362.9	230	4.0	1340	36	8610	17.9	365.4 E	337	5.9	920	367.9	50	370.9	26	33	0.33
368.7	490	8.6	1070	53	9940	23.7	371.2 E	641	11.2	810	373.6	69	376.6	32	64	0.53
372.5	707	12.3	970	65	10530	27.5	375.0 E	889	15.6	770	377.2	82	380.0	35	88	0.65

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, I= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.
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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-NORTHERN CONNECTICUT VALLEY SUBWATERSHED PAUCHAUG BROOK

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV ++ TYPE (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	PERCENT CHANCE (MGD)
SITE-NC-0807 DA= 3.37 SQ MI = 2157 AC USGS QUAD-BERNARDSTON LATITUDE 42-40-34 LONGITUDE 72-30-42																
SITE RATING (2) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.40 IN, PEAK FLOW = 1055 CFS																
404.2	0	0.0		8		6.3	433.2 E	966	5.4	730	435.7	64	438.7	41	191	*****
412.0	100	0.6	6900	19	36250	14.1	412.0 T	127	0.7	5430	427.0	47	430.7	33	117	0.33
431.4	832	4.6	1270	55	19160	33.4	443.9 E	1716	9.5	620	446.2	88	449.4	51	322	1.12
450.7	2297	12.8	680	99	15840	52.6	459.2 E	3257	18.1	480	461.5	129	465.2	67	610	2.07
468.2	4493	25.0	500	155	14440	70.3	472.7 E	5257	29.2	430	475.2	132	478.2	80	954	2.75
SITE-NC-0809 DA= 0.78 SQ MI = 499 AC USGS QUAD-BERNARDSTON LATITUDE 42-39-32 LONGITUDE 72-31-26																
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.30 IN, PEAK FLOW = 241 CFS																
361.2	0	0.0		5		1.2	368.7 E	173	4.1	710	370.9	51	374.0	14	9	*****
366.7	100	2.4	1600	30	5270	6.6	369.2 E	196	4.6	820	371.7	55	374.7	15	11	0.17
368.7	170	4.1	1150	39	4970	8.8	371.2 E	291	7.0	670	373.6	67	376.6	17	15	0.24
370.4	241	5.8	930	48	4710	10.3	372.9 E	383	9.2	590	374.9	75	377.9	18	18	0.30
372.5	356	8.5	900	60	5300	12.5	372.5 T	362	8.7	880	375.0	75	378.5	19	19	0.37
SITE-NC-0810 DA= 2.64 SQ MI = 1690 AC USGS QUAD-BERNARDSTON LATITUDE 42-39-15 LONGITUDE 72-30-40																
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.30 IN, PEAK FLOW = 629 CFS																
305.7	0	0.0		11		3.6	318.2 E	584	4.1	380	320.7	113	323.7	22	19	*****
310.9	100	0.7	2320	31	7520	8.8	317.4 E	502	3.5	460	319.9	107	322.9	21	18	0.30
315.2	308	2.2	920	67	4210	13.2	319.7 E	716	5.1	400	322.1	122	325.2	23	22	0.56
320.0	725	5.1	480	108	3250	18.0	322.5 E	1039	7.3	340	324.9	139	327.9	26	28	0.94
322.5	1021	7.1	390	124	3210	20.5	325.0 E	1370	9.7	290	327.4	154	330.0	28	34	1.17

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
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(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-NORTHERN CONNECTICUT VALLEY SUBWATERSHED PAUCHAUG BROOK

BENEFICIAL POOL						EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV ** TYPE (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-NC-0811 DA= 0.92 SQ MI = 589 AC USGS QUAD-NORTHFIELD LATITUDE 42-38-55 LONGITUDE 72-26-27																
SITE RATING (1) STREAM WATER QUALITY (8) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.30 IN, PEAK FLOW = 285 CFS																
763.5	0	0.0		3		5.6	786.5 E	204	4.1	2290	789.0	20	792.0	34	104	*****
779.5	100	2.0	4210	10	42450	21.6	782.0 E	138	2.8	3040	784.5	15	787.5	30	73	0.18
791.2	288	5.9	2380	23	29760	33.2	793.7 E	358	7.3	1920	796.0	31	799.0	41	166	0.36
802.8	663	13.5	1540	40	25230	44.8	805.3 E	775	15.7	1320	807.7	45	810.7	53	309	0.58
811.0	1039	21.2	1230	51	25270	53.0	813.5 E	1182	24.1	1080	816.0	64	819.0	61	448	0.72
812.5	1117	22.7	1180	55	24140	54.5	815.0 E	1264	25.7	1040	817.3	68	820.0	62	467	0.73
SITE-NC-0812 DA= 0.99 SQ MI = 634 AC USGS QUAD-BERNARDSTON LATITUDE 42-38-09 LONGITUDE 72-30-36																
SITE RATING (1) STREAM WATER QUALITY (8) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.30 IN, PEAK FLOW = 306 CFS																
373.5	0	0.0		4		3.5	387.9 E	219	4.1	1060	390.2	32	393.6	24	19	*****
383.1	100	1.9	2280	18	12470	13.1	385.6 E	159	3.0	1430	388.1	28	391.1	21	14	0.18
389.1	244	4.6	1380	30	11110	19.1	391.6 E	335	6.3	1000	394.0	40	397.0	27	28	0.33
396.7	533	10.1	1020	45	12010	26.7	399.2 E	659	12.5	820	401.6	54	404.6	35	58	0.53
402.4	821	15.5	900	55	13540	32.4	404.9 E	969	18.4	760	407.1	61	410.0	40	89	0.68
402.5	824	15.6	900	55	13530	32.5	405.0 E	973	18.4	760	407.1	61	410.0	40	89	0.68
SITE-NC-0813 DA= 0.52 SQ MI = 333 AC USGS QUAD-GREENFIELD LATITUDE 42-36-36 LONGITUDE 72-30-24																
SITE RATING (1) STREAM WATER QUALITY (8) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.30 IN, PEAK FLOW = 161 CFS																
373.9	0	0.0		3		1.9	383.7 E	115	4.1	820	386.2	20	389.2	17	8	*****
383.2	100	3.5	1300	17	7650	11.2	385.7 E	150	5.4	870	388.1	22	391.1	19	10	0.15
385.6	145	5.1	1040	19	7790	13.6	388.1 E	201	7.3	750	390.6	24	393.6	22	13	0.18
389.9	236	8.5	820	24	8110	17.9	392.4 E	303	10.8	630	394.7	29	397.7	26	20	0.26
392.5	303	10.8	720	26	8300	20.5	395.0 E	376	13.6	580	397.2	31	400.0	28	26	0.29

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
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(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

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EXISTING SITE NC-0804 (Sawyer Ponds)

Location: On Bennett Brook at State Route 142 in Northfield, Mass.

Northfield, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
332	20	15	2,200	3.44

Potential for Expansion: Please refer to Site Data and Design Summary Table for Potential Site NC-0804 for details.

Remarks: The dam is an earthfill structure with a concrete core. The spillway is a 3-foot by 5-foot concrete box weir which outlets through a 5-foot by 5-foot concrete conduit with a gate. The upstream slope is covered with dense trees and brush. The downstream slope has scattered trees.

Ownership and Use: The pond is privately owned and is used for recreation.

****

EXISTING SITE NC-0808 (Stevens Swamp Pond)

Location: On an unnamed tributary to Mill Brook about 100 feet upstream from Chestnut Hill Road in Warwick, Mass.

Northfield, Mass. USGS quadrangle

Surface Elevation:	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
950	105	10	450	0.70

Potential for Expansion: The small drainage area limits potential.

Remarks: The dam is a combination earth-and rock fill structure about 250 feet long. The spillway is a 6-foot wide chute. Both the upstream and downstream slopes are covered with dense trees and brush. There is evidence of seepage on the left abutment.

Ownership and Use: The pond is privately owned and is used for recreation.

****

EXISTING SITE NC-0820 (Seminary Reservoir)

Location: On Louisiana Brook about 2,900 feet upstream from Winchester Road in Northfield, Mass.

Northfield, Mass. USGS quadrangle

Surface Elevation:	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
686	5	15	400	0.63

Potential for Expansion: The small drainage area limits potential. Steep topography limits any significant increase in surface area.

Remarks: The dam is an earthfill structure about 120 feet long. The upstream slope is riprapped below the normal water level. The downstream slope is vegetated and well maintained. The spillway is a 45 foot wide concrete chute located on the left abutment. The spillway has provision for flashboards to raise the water level 1.5 feet.

Ownership and Use: The reservoir is owned by the Mt. Hermon School in Northfield and used for water supply.

****

EXISTING SITE NC-0821 (Wanamaker Lake)

Location: On Pauchaug Brook at State Route 63 in Northfield, Mass.

Northfield, Mass. USGS quadrangle

Surface Elevation:	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
198 (est.)	2	6	4,350	6.80

Potential for Expansion: Steep topography limits any significant increase in surface area.

Remarks: The dam is an earthfill structure with a concrete-block wier located near the center. The spillway weir is 30 feet wide and 2 feet deep. There are provisions for flashboards to raise the water level. The spillway outlets into a rock-lined channel under Route 63.

Ownership and Use: The lake is owned by Mt. Hermon School in Northfield and has no specific use at the present time.

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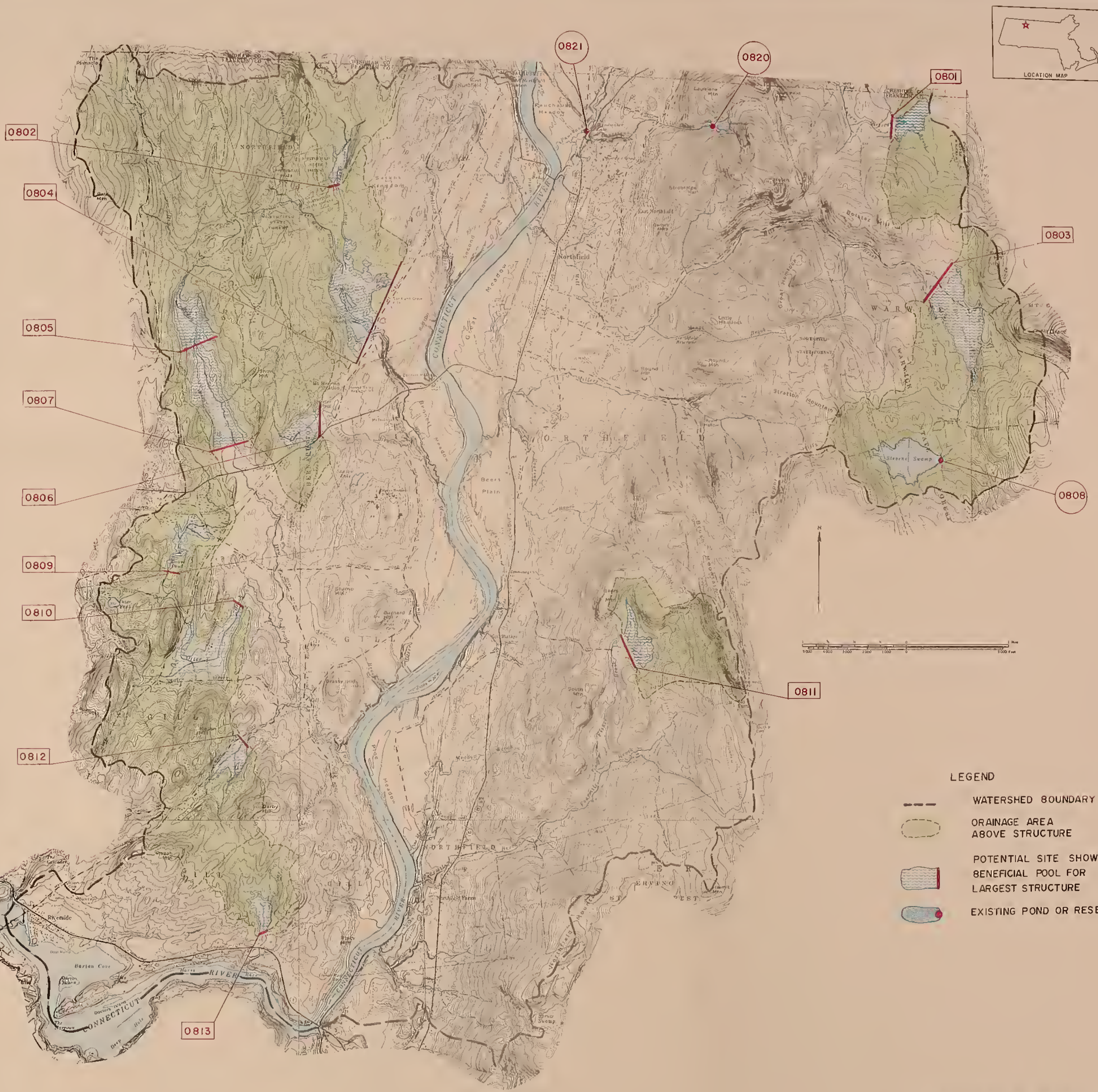
NC-0804
Sawyers Pond

NC-0821
Wanamaken Lake

NC-0808
Stevens Swamp

NC-0820
Seminary Reservoir

EXISTING RESERVOIRS
SUBWATERSHED NC-08
PAUCHAUG BROOK



PAUCHAUG BROOK (NC-08)

NORTHERN CONNECTICUT VALLEY STUDY AREA

MASSACHUSETTS

EXISTING AND POTENTIAL RESERVOIR SITES

UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

NORTHERN CONNECTICUT VALLEY STUDY AREA
SITE DATA FOR

Subwatershed NC-09, Falls River

The Massachusetts portion of the Falls River subwatershed covers about 15,000 acres in Bernardston, Gill, Greenfield, and Leyden; all in Franklin County.

The major stream is the Falls River which originates in Guilford, Vermont and flows southerly through Bernardston to the Connecticut River on the Greenfield-Gill town line.

Geology of the potential reservoir sites is characterized by thin glacial till or glacial outwash underlain by schist bedrock.

Six potential reservoir sites were studied. There were no existing sites that met study criteria.

****

POTENTIAL SITE NC-0901

Location: On Beaver Meadow Brook about 700 feet downstream from Alexander Road in Leyden, Mass.

Colrain, Mass. USGS quadrangle

Latitude: 42°43'34" Longitude: 72°37'59"

Facilities Affected:

Facility	Elevation
Cottage	940
Alexander Road	910

Geologic Conditions: Both abutments are outwash sand and gravel at the toe with silty sand, (glacial till) above elevation 900. The sand and gravel may be thin. Exposed rock in the streambed may be schist bedrock or large boulders. Surficial deposits are outwash sand and gravel, glacial till, and schist bedrock. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE NC-0902

Location: On Beaver Meadow Brook about 1100 feet upstream from Greenfield Road in Leyden, Mass.

Bernardston, Mass. USGS quadrangle

Latitude: 42°43'15" Longitude: 72°37'28"

Facilities Affected:

Facility	Elevation
Alexander Road	815

Geologic Conditions: Both abutments are shcist with a thin soil mantle, and glacial till high on the left abutment. There is bedrock outcropping in the stream. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE NC-0903

Location: On Beaver Meadow Brook about 1,300 feet upstream from East Hill Road in Leyden, Mass.

Bernardston, Mass. USGS quadrangle

Latitude: 42°43'16" Longitude: 72°36'48"

Facilities Affected:

Facility	Elevation
Trailer house	770
Cemetery	760
Barn	760
Barn and garage	760
House	752
House and barn	750
Barn	750
Flower shop	748
High tension lines	740
Brattleboro Road	737

Geologic Conditions: Both abutments are schist bedrock with a thin soil mantle. There is rock outcropping at the centerline. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

POTENTIAL SITE NC-0903 (cont'd)

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE NC-0904

Location: On Couch Brook about 3600 feet upstream from U.S. Route 5 in Bernardston, Mass.

Bernardston, Mass. USGS quadrangle

Latitude: 42°42'03" Longitude: 72°34'36"

Facilities Affected:

Facility	Elevation
Haigis Road	640
Telephone cable	640
House and barns	640
Cottage	610

Geologic Conditions: Both abutments are schist bedrock with a thin soil cover and a thin sand and gravel bar at the toe of each slope. Surficial deposits are schist bedrock and sand and gravel. Depth to bedrock in the foundation is estimated to be from 5 to 10 feet. Waterholding capabilities appear to be good. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

****

POTENTIAL SITE NC-0905

Location: On an unnamed tributary to Falls River about 6,300 feet upstream from Route 91 in Bernardston, Mass.

Bernardston, Mass. USGS quadrangle

Latitude: 42°42'57" Longitude: 72°33'08"

Facilities Affected: None below elevation 760.

Geologic Conditions: Both abutments and the surficial deposits are thin englacial drift underlain by schist bedrock. There is schist bedrock outcropping in the streambed. Waterholding capabilities appear to be good. Borrow material for dam construction was not located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE NC-0906

Location: On Falls River about 3,500 feet upstream from Factory Hollow Road in Gill and Greenfield, Mass.

Bernardston, Mass. USGS quadrangle

Latitude: 42°37'35" Longitude: 72°33'04"

Facilities Affected:

Facility	Elevation
House and barn	258
House and barn	255
Bascom Road	250
House foundation	235
15 Boy Scout buildings	230

Geologic Conditions: Both abutments and the surficial deposits are Arkosic sandstone and conglomerate with a thin soil mantle. Depth to bedrock in the foundation is estimated to be from 5 to 10 feet. Waterholding capabilities appear to be good. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The left abutment is recommmended for the excavated emergency spillway location.

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-NORTHERN CONNECTICUT VALLEY SUBWATERSHED FALLS RIVER

BENEFICIAL POOL						DEPTH	EMERGENCY SPILLWAY				DESIGN	DAM			SAFE
											HIGH WATER				YIELD
ELEV	STORAGE		COST PER AC FT	AREA	COST/ SURF AC	AT DAM	CREST ELEV + TYPE	STORAGE AT CREST		COST PER AC FT	ELEV	AREA	TOP ELEV	HGT	FILL VOL (1000	AT 95 PERCENT CHANCE
(MSL)	AC FT	IN	($)	(AC)	($)	(FT)	(MSL)	AC FT	IN	($)	(MSL)	(AC)	(MSL)	FT	CY)	(MGD)
SITE-NC-0901 DA= 0.61 SQ MI = 390 AC USGS QUAD-COLRAIN LATITUDE 72-37-59 LONGITUDE 42-43-34																
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.40 IN, PEAK FLOW = 191 CFS																
887.0	0	0.0		1		7.1	911.1 E	135	4.1	1810	913.5	14	917.0	37	42	*****
908.5	100	3.0	2640	10	26200	28.5	911.0 E	133	4.1	1990	913.4	14	916.4	36	40	0.16
917.4	219	6.6	1740	17	22220	37.4	919.9 E	268	8.2	1420	922.3	20	925.3	45	71	0.26
928.9	457	14.0	1220	23	23910	48.9	931.4 E	524	16.1	1070	933.8	27	936.8	57	134	0.40
937.8	694	21.2	1050	30	24010	57.8	940.3 E	778	23.9	940	942.5	34	945.6	66	198	0.48
941.5	813	25.0	1000	33	24360	61.5	944.0 E	902	27.7	900	946.5	37	949.5	70	233	0.50
SITE-NC-0902 DA= 1.14 SQ MI = 730 AC USGS QUAD-BERNARDSTON LATITUDE 72-37-28 LONGITUDE 42-43-15																
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.40 IN, PEAK FLOW = 357 CFS																
791.5	0	0.0		2		6.6	814.0 E	252	4.1	980	816.4	26	819.5	35	41	*****
806.5	100	1.6	2530	15	17430	21.5	813.0 E	232	3.8	1090	815.5	25	818.5	33	36	0.21
817.7	337	5.5	1270	28	15430	32.7	820.1 E	418	6.8	1020	822.5	32	825.5	41	72	0.42
831.6	810	13.2	910	39	19100	46.7	834.1 E	917	15.1	800	836.5	41	839.5	55	187	0.72
843.0	1283	21.1	790	46	22200	58.0	845.5 E	1411	23.2	720	848.0	50	851.0	66	327	0.88
847.9	1520	25.0	760	50	22840	62.9	850.4 E	1658	27.2	690	852.9	55	855.9	71	401	0.93
SITE-NC-0903 DA= 2.13 SQ MI = 1363 AC USGS QUAD-BERNARDSTON LATITUDE 72-36-48 LONGITUDE 42-43-16																
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.40 IN, PEAK FLOW = 667 CFS																
725.3	0	0.0		4		10.3	744.7 E	471	4.1	830	749.0	66	754.0	39	35	*****
735.0	100	0.8	3190	21	14890	20.0	737.5 E	179	1.6	1780	744.7	52	749.5	35	25	0.27
746.5	557	4.9	1040	58	9910	31.5	749.0 E	729	6.4	790	754.4	78	759.2	44	49	0.74
759.0	1470	12.8	820	85	14040	44.0	761.5 E	1709	15.0	700	765.9	102	770.2	55	93	1.32
768.5	2383	21.0	790	108	17400	53.5	771.0 E	2681	23.6	700	774.5	124	778.7	64	141	1.66
772.4	2840	25.0	760	118	18340	57.4	774.9 E	3156	27.7	690	778.2	132	782.0	67	164	1.74

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

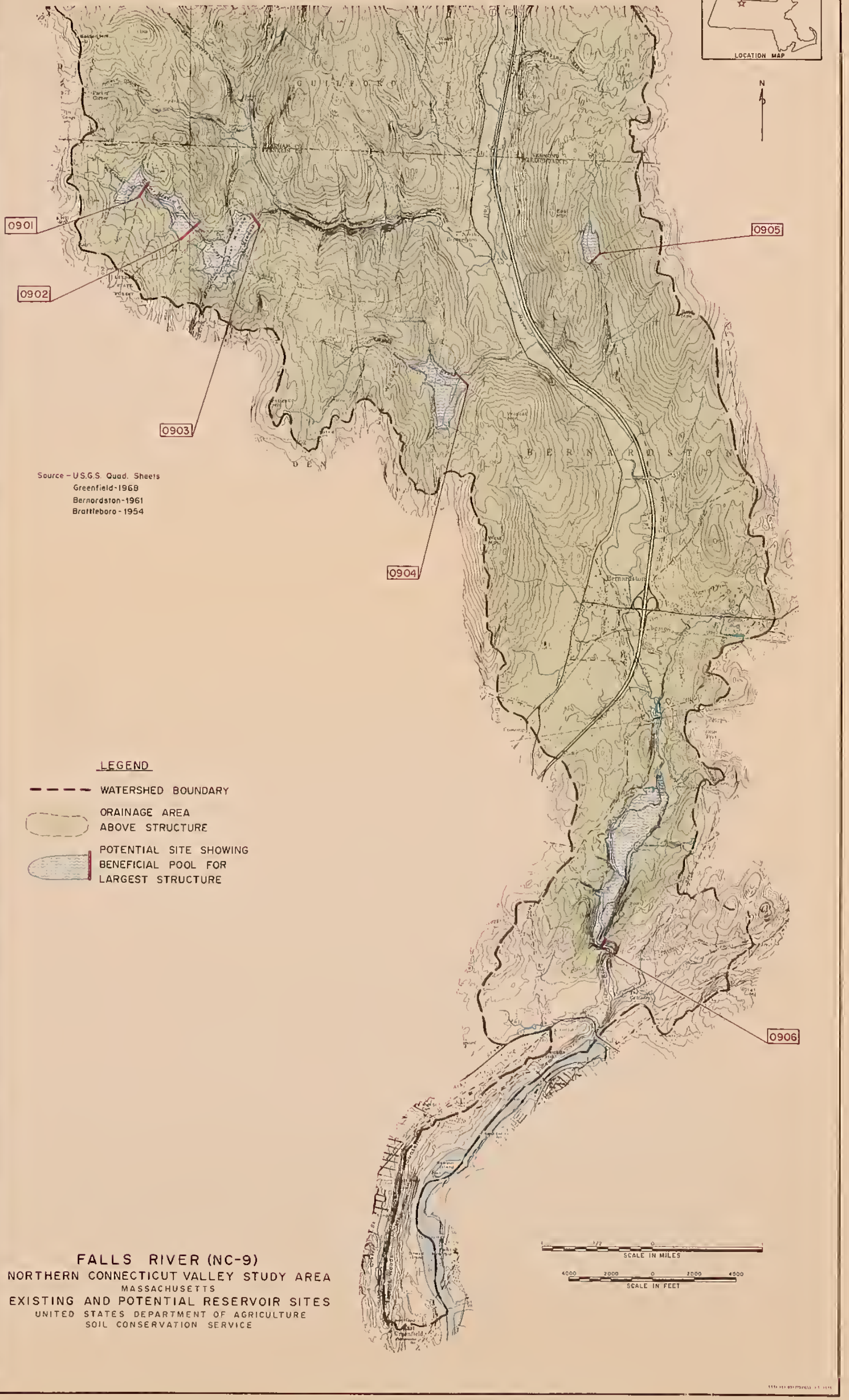
SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-NORTHERN CONNECTICUT VALLEY SUBWATERSHED FALLS RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY					DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	STORAGE IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV (MSL)	TYPE	STORAGE AT CREST AC FT	STORAGE AT CREST IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-NC-0904	DA= 2.30 SQ MI = 1472 AC						USGS QUAD-BERNARDSTON					LATITUDE 72-34-36		LONGITUDE 42-42-03			
SITE RATING (1)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM					RUNOFF = 8.40 IN, PEAK FLOW = 720 CFS					
577.0	0	0.0		3		17.1	613.2	E	509	4.1	1610	618.5	39	625.5	65	206	*****
592.5	100	0.8	5580	10	5380C	32.5	595.0	E	145	1.2	3850	601.7	16	606.3	46	83	0.28
616.5	594	4.8	1670	36	2741C	56.5	619.0	E	709	5.8	1400	625.0	49	629.9	70	245	0.79
635.7	1583	12.8	890	65	2144C	75.6	638.2	E	1759	14.2	800	643.0	76	648.0	88	445	1.42
652.5	2879	23.5	610	90	1950C	92.5	652.5	T	2898	23.6	600	657.7	97	660.0	100	620	1.85
SITE-NC-0905	DA= 0.83 SQ MI = 531 AC						USGS QUAD-BERNARDSTON					LATITUDE 72-33-08		LONGITUDE 42-42-57			
SITE RATING (1)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM					RUNOFF = 8.40 IN, PEAK FLOW = 200 CFS					
704.3	0	0.0		1		8.3	726.8	E	184	4.1	1320	730.0	19	734.2	38	41	*****
721.7	100	2.3	2580	13	1964C	25.7	724.2	E	141	3.2	1830	729.2	19	732.5	37	37	0.18
729.9	231	5.1	1530	19	1843C	33.9	732.4	E	269	6.5	1220	736.9	22	740.4	44	63	0.30
741.8	494	11.2	1090	25	2133C	45.8	744.3	E	566	12.8	950	748.2	30	751.5	56	118	0.47
751.0	757	17.1	880	32	2101C	55.0	753.5	E	845	19.1	790	756.4	35	759.4	63	171	0.59
752.5	806	18.2	840	33	2086C	56.5	755.0	E	895	20.2	760	757.5	35	760.0	64	175	0.61
SITE-NC-0906	DA= 33.10 SQ MI = 21184 AC						USGS QUAD-BERNARDSTON					LATITUDE 72-33-04		LONGITUDE 42-37-35			
SITE RATING (1)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM					RUNOFF = 8.30 IN, PEAK FLOW = 5312 CFS					
220.6	100	0.1	5700	36	1604C	25.6	223.1	E	464	0.3	1230	226.7	48	230.5	35	24	1.29
236.3	984	0.6	780	79	979C	41.4	238.8	E	1454	0.8	530	241.7	101	246.6	52	58	3.23
251.6	2753	1.6	390	161	662C	56.5	254.1	E	3434	1.9	310	257.5	198	262.6	68	112	5.78
256.7	3637	2.0	320	193	601C	61.6	259.2	E	4405	2.5	260	262.6	219	267.7	73	135	6.80

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **



FALLS RIVER (NC-9)

NORTHERN CONNECTICUT VALLEY STUDY AREA

MASSACHUSETTS

EXISTING AND POTENTIAL RESERVOIR SITES

UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

CENTRAL CONNECTICUT VALLEY STUDY AREA
SITE DATA FOR

Subwatershed CV-17, Russellville Brook

The Russellville Brook subwatershed covers about 33,500 acres in Deerfield, Leverett, Montague, Sunderland, and Whately in Franklin County; and Hadley and Hatfield in Hampshire County.

The major stream is the portion of the Connecticut River from the confluence with the Millers River downstream to Hatfield.

Geology of the potential reservoir sites is characterized by outwash sand and gravel underlain by basalt or conglomerate bedrock.

Four potential reservoir sites and four existing reservoirs were studied.

****

POTENTIAL SITE CV-1701

Location: On Pole Swamp Brook about 1,400 feet upstream from River Road in Deerfield, Mass.

Greenfield, Mass. USGS Quadrangle

Latitude: 42°32'22" Longitude: 72°34'26"

Facilities Affected: None below elevation 228.

Geologic Conditions: Both abutments are thin outwash sands or gravel underlain by lacustrine deposits on glacial till at about 20 feet. Surficial deposits are outwash sand and gravel and basalt bedrock. Depth to basalt bedrock in the foundation is estimated to be from 5 to 10 feet. Waterholding capabilities appear to be fair to good. Slight leakage is expected near the top of both abutments. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

****

POTENTIAL SITE CV-1702

Location: On an unnamed tributary to the Connecticut River about 500 feet upstream from Pine Nook Road in Deerfield, Mass.

Greenfield, Mass. USGS quadrangle

Latitude: 42°31'30" Longitude: 72°34'50"

Facilities Affected:

Facility	Elevation
3 silos and 5 dairy farm buildings on centerline of dam	
House	482

POTENTIAL SITE CV-1702 (cont'd.)

Geologic Conditions: The right abutment is outwash sand and gravel. The left abutment is conglomerate or basalt bedrock at the higher elevations and gravel at the lower elevations. Surficial deposits are outwash sand and gravel and bedrock. Depth to basalt bedrock in the foundation is estimated to be from 15 to 20 feet. Waterholding capabilities appear to be fair. Leakage is expected through the right abutment and possibly through the foundation. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location. There is a small dam located at this site.

****

POTENTIAL SITE CV-1703

Location: On Clapp Brook about 3,000 feet upstream from River Road in Deerfield, Mass.
Greenfield, Mass. USGS quadrangle
Latitude: 42°30'12" Longitude: 72°34'45"

Facilities Affected: None below elevation 357.

Geologic Conditions: Both of the abutments are thin silty sand with gravel, cobbles, and boulders (glacial till) and shallow to triassic conglomerate or basalt. Surficial deposits are glacial till and bedrock. Depth to conglomerate or basalt bedrock is estimated to be from 10 to 15 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location. See Existing Site CV-1703 for data on the existing dam and reservoir at this site.

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POTENTIAL SITE CV-1704

Location: On Cranberry Pond Brook about 300 feet upstream from Taylor Hill Road in Montague, Mass.
Greenfield, Mass. USGS quadrangle
Latitude: 42°30'56" Longitude: 72°32'47"

Facilities Affected:

Facility	Elevation
2 barns	278
2 houses	275
Taylor Road and utilities	240

Geologic Conditions: The right abutment is thin outwash sand and gravel; shallow to bedrock. The left abutment is triassic conglomerate bedrock. Surficial deposits are swamp, outwash sand and gravel, and bedrock. Depth to bedrock in the foundation is estimated to be less than 5 feet. Waterholding capabilities appear to be fair. Slight leakage is expected through the right abutment. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

****

SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED RUSSELLVILLE BROOK

BENEFICIAL POOL							EMERGENCY SPILLWAY					DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV ++ TYPE (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)		ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-CV-1701 DA= 0.77 SQ MI = 493 AC USGS QUAD-GREENFIELD LATITUDE 42-32-22 LONGITUDE 72-34-26																	
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.20 IN, PEAK FLOW = 235 CFS																	
161.8	0	0.0		2		7.8	186.8 E	170	4.1	1780		189.2	15	192.8	39	53	*****
181.2	100	2.4	3030	9	33140	27.2	183.7 E	130	3.2	2320		186.1	13	189.1	35	42	0.21
192.7	254	6.1	1760	17	25780	38.7	195.2 E	304	7.3	1470		197.6	20	200.6	47	79	0.37
207.0	563	13.7	1150	26	25110	53.0	209.5 E	636	15.5	1020		211.7	28	214.7	61	144	0.57
218.0	872	21.2	950	30	27840	64.0	220.5 E	955	23.2	870		222.7	34	225.7	72	215	0.67
222.7	1027	25.0	910	34	27230	68.6	225.2 E	1119	27.2	840		227.6	42	230.7	77	257	0.70
SITE-CV-1702 DA= 0.58 SQ MI = 371 AC USGS QUAD-GREENFIELD LATITUDE 42-31-30 LONGITUDE 72-34-50																	
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.20 IN, PEAK FLOW = 177 CFS																	
447.0	0	0.0		1		7.0	473.7 E	128	4.1	3250		476.0	14	480.0	40	62	*****
471.5	100	3.2	4830	9	54840	31.5	476.0 E	155	5.0	3130		478.4	16	481.4	41	68	0.18
475.0	137	4.4	4120	12	45600	35.0	479.5 E	207	6.6	2720		481.7	20	484.9	45	86	0.23
480.0	211	6.8	3050	17	36900	40.0	482.5 E	267	8.6	2410		484.7	26	487.7	48	105	0.29
482.5	263	8.5	2700	22	32600	42.5	485.0 E	326	10.5	2180		487.0	30	490.0	50	123	0.34
SITE-CV-1703 DA= 0.74 SQ MI = 474 AC USGS QUAD-GREENFIELD LATITUDE 42-30-12 LONGITUDE 72-34-45																	
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.20 IN, PEAK FLOW = 226 CFS																	
316.9	0	0.0		2		4.9	334.2 E	164	4.1	1730		336.7	21	340.7	29	41	*****
330.6	100	2.5	3290	14	24180	18.6	333.1 E	144	3.5	2290		336.7	22	340.9	29	42	0.20
337.4	224	5.6	1970	22	19670	25.4	339.9 E	289	7.3	1530		342.9	30	346.7	35	66	0.33
346.1	472	11.8	1290	35	17310	34.0	348.6 E	570	14.5	1070		351.0	43	354.1	42	110	0.50
352.2	719	18.2	1060	44	17150	40.3	354.7 E	838	21.2	910		356.9	50	359.9	48	158	0.61
352.5	729	18.5	1040	45	17080	40.5	355.0 E	849	21.5	900		356.9	50	359.9	48	158	0.62

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED RUSSELLVILLE BROOK

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV ** TYPE (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-CV-1704			CA= 3.39 SQ MI = 2170 AC				USGS QUAD-GREENFIELD				LATITUDE 42-30-56		LONGITUDE 72-32-47			
SITE RATING (1)			STREAM WATER QUALITY (8)				100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.20 IN, PEAK FLOW = 778 CFS					
231.7	0	0.0		4		13.7	261.7 E	750	4.1	1180	266.2	67	272.9	55	190	*****
242.5	100	0.6	4510	15	31070	24.5	245.0 E	165	0.8	2730	248.3	23	253.1	35	58	0.32
258.2	535	3.0	1750	47	20050	40.2	260.7 E	688	3.8	1360	264.7	64	269.5	52	159	1.03
271.7	1406	7.8	1040	81	18090	53.6	274.2 E	1639	9.1	900	278.2	96	283.0	65	308	1.87
282.5	2422	13.3	800	111	17430	64.5	282.5 T	2449	13.5	790	287.2	132	290.2	72	418	2.46

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

EXISTING SITE CV-1703 (Clapp Pond)

Location: On Clapp Brook about 3,000 feet upstream from River Road in Deerfield, Mass.

Greenfield, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
318	2	6	470	0.73

Potential for Expansion: Please refer to Site Data and Design Summary Table for Potential Site CV-1703 for details.

Remarks: The dam is an earthfill structure about 100 feet long. The spillway is a rock masonry weir about 12 feet wide and 1 foot deep. The masonry weir is crumbling in places.

Ownership and Use: The pond is owned by Edward Melnick and has no specific use at the present.

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EXISTING SITE CV-1710 (Whitmore Pond)

Location: On an unnamed tributary to the Connecticut River about 200 feet upstream of Falls Road in Sunderland, Mass.

Greenfield, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
207	4	16	580	0.91

Potential for Expansion: Raising the existing water level about 20 feet would provide about 30 acres of water surface. An unpaved road would be affected.

Remarks: The dam is a rock masonry structure with a 20-foot wide concrete drop spillway in the center. A wooden catwalk crosses the spillway.

Ownership and Use: The pond is owned by Mrs. Phillip F. Whitmore and is used primarily for recreation.

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EXISTING SITE CV-1711 (Chard Pond)

Location: On Gunn Brook at Falls Road in Sunderland, Mass.

Mt. Toby, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
145	4	12	1,350	2.11

Potential for Expansion: Steep topography limits any significant increase in surface area or storage.

Remarks: The dam is part of the Meadow Road highway embankment and is about 300 feet long with a 15-foot top width. The principal spillway is an 18-foot wide stone masonry weir structure having a depth of 1 foot. Adjacent to and about 1 foot above the principal spillway is an 18-foot wide stone masonry emergency spillway. The concrete in the emergency spillway is deteriorated.

Ownership and Use: The pond is owned by the Amherst Angler's Club and is used primarily for recreation.

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EXISTING SITE CV-1712 (Cranberry Pond)

Location: On Cranberry Pond Brook about 7,000 feet upstream from State Route 47 in Sunderland, Mass.

Greenfield, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
352	25	5	1,550	2.42

Potential for Expansion: Steep topography limits any significant increase in surface area or storage.

Remarks: The dam is an earthfill structure about 100 feet long with a 20-foot top width. The principal spillway is a stone drop structure, 20 feet wide with 1 foot of wooden flashboards. The dam slopes are heavily brushed and the spillway weir is clogged with debris.

Ownership and Use: The pond is owned by the Commonwealth of Massachusetts and is used for recreation and as a study area for the University of Massachusetts.

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CV-1703
Clapp Pond

CV-1711
Chard Pond

CV-1710
Whitmore Pond

CV-1712
Cranberry Pond

EXISTING RESERVOIRS
SUBWATERSHED CV-17
RUSSELLVILLE BROOK

LEGEND

SUBWATERSHED BOUNDARY

DRAINAGE AREA ABOVE STRUCTURE

POTENTIAL SITE SHOWING BENEFICIAL POOL FOR LARGEST STRUCTURE

EXISTING RESERVOIR OR POND

1701

1702

1703

1704

1710

1711

1712

RUSSELLVILLE BROOK (CV-17)

CENTRAL CONNECTICUT VALLEY STUDY AREA

MASSACHUSETTS

EXISTING AND POTENTIAL RESERVOIR SITES

UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

CENTRAL CONNECTICUT VALLEY STUDY AREA
SITE DATA FOR

Subwatershed CV-18, Sawmill River

The Sawmill River subwatershed covers about 20,300 acres in Leverett, Montague, Shutesbury, and Wendell; all in Franklin County.

The major stream is the Sawmill River which originates in Leverett and flows northwesterly through Montague to the Connecticut River.

Geology of the potential reservoir sites is characterized by sand and gravel and glacial till underlain by schist bedrock.

Eight potential reservoir sites and seven existing reservoirs were studied.

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POTENTIAL SITE CV-1802

Location: On an unnamed tributary to Plympton Brook about 3,800 feet upstream from Locks Village Road in Wendell, Mass.

Millers Falls, Mass. USGS quadrangle

Latitude: 42°31'46" Longitude: 72°25'26"

Facilities Affected: None below elevation 1015

Geologic Conditions: The right abutment is ice-contact sand and gravel at the toe with glacial till higher on the slope. The left abutment is glacial till. Surficial deposits are glacial till and sand and gravel. Depth to schist bedrock in the foundation is estimated to be from 10 to 15 feet. Waterholding capabilities appear to be fair to good. Slight leakage is expected through the right abutment. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-1803

Location: On Plympton Brook about 100 feet downstream from Locks Village Road in Wendell, Mass.

Millers Falls, Mass. USGS quadrangle

Latitude: 42°31'23" Longitude: 72°25'02"

Facilities Affected:

Facility	Elevation
House and Cottage	930
House and barn	920
Locks Village Road and utilities	910

Geologic Conditions: Both abutments are thin sand and gravel at the toe underlain by schist bedrock or glacial till. Surficial deposits are outwash sand and gravel and schist bedrock. Depth to bedrock in the foundation is estimated to be 5 to 10 feet. Waterholding capabilities appear to be fair. Slight leakage is expected through both abutments. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location. See Existing Site CV-1803 for data on the existing dam and reservoir at this site.

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POTENTIAL SITE CV-1804

Location: On Red Brook about 6,900 feet upstream from Lake View Road in Wendell, Mass.

Millers Falls, Mass. USGS quadrangle

Latitude: 42°31'20" Longitude: 72°26'45"

Facilities Affected: None below elevation 947

Geologic Conditions: Both abutments are thin englacial drift with cobbles and boulders. Surficial deposits are swamp and englacial drift. Depth to schist bedrock in the foundation is estimated to be from 10 to 15 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

This is substantially the same site as Site M5B-4 that was included in the Comprehensive Study of the Connecticut River Basin, U.S. Department of Agriculture, June 1970.

Public Ownership: A small area on the left abutment would be within the Wendell State Forest.

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POTENTIAL SITE CV-1805

Location: On an unnamed tributary to the Sawmill River about 3,000 feet upstream from Chestnut Hill Road in Montague, Mass.

Greenfield, Mass. USGS quadrangle

Latitude: 42°31'22" Longitude: 72°30'15"

Facilities Affected: None below elevation 577

Geologic Conditions: Both abutments are silty sand with gravel, cobbles, and boulders (glacial till). Surficial deposits are glacial till and bedrock. Depth to schist bedrock in the foundation is estimated to be from 5 to 10 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

This is substantially the same site as Site M5B-1 that was included in the Comprehensive Study of the Connecticut River Basin, U.S. Department of Agriculture, June 1970.

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POTENTIAL SITE CV-1806

Location: On Spaulding Brook about 5,000 feet upstream from the confluence with Sawmill River in Montague, Mass.

Millers Falls, Mass. USGS quadrangle

Latitude: 42°43'37" Longitude: 72°28'55"

Facilities Affected:

Facility	Elevation
House and sheds	820
Cemetery	810
House	810
Road and utilities	787
House	787
House	775
House	765
Utility poles	760
Chestnut Hill Road	759
Small building	725

Geologic Conditions: The right abutment is ice contact sand and gravel at the toe of the slope and glacial till high on the abutment. The left abutment is silty sand with gravel, cobbles, and boulders(glacial till). Surficial deposits are sand and gravel and glacial till. Depth to schist bedrock in the foundation is estimated to be from 10 to 15 feet. Waterholding capabilities appear to be fair. Leakage is expected through the right abutment. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location. A breached rock masonry and wood dam is at the site.

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POTENTIAL SITE CV-1807

Location: On Plympton Brook about 300 feet downstream from Locks Village Road in Wendell, Mass.

Millers Falls, Mass. USGS quadrangle

Latitude: 42°43'15" Longitude: 72°25'38"

Facilities Affected:

Facility	Elevation
House	875
2 Houses and 1 shed	870
Cabin	865
Jennison Road	860
House	855
Lock Village Rd. and utilities	850
West Road and utilities	850

Geologic Conditions: Both abutments are outwash sand and gravel with bedrock outcrops on the right abutment. Surficial deposits are outwash sand and gravel and bedrock. Depth to schist bedrock in the foundation is estimated to be between 10 to 15 feet. Waterholding capabilities appear to be fair. Leakage is expected through both abutments. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location. See Existing Site CV-1807 for data on the existing dam and reservoir at this site.

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POTENTIAL SITE CV-1808

Location: On Williams Brook about 3,700 feet upstream from North Leverett Road in Leverett, Mass.

Millers Falls, Mass. USGS quadrangle

Latitude: 42°43'09" Longitude: 72°28'26"

Facilities Affected:

Facility	Elevation
Light duty road	839
Dirt road	829
High tension line	826

Geologic Conditions: Both the abutments are thin discontinuous silty sand shallow to schist bedrock. Surficial deposits are swamp, glacial till, and schist bedrock. Depth to schist bedrock in the foundation is estimated to be less than 5 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location. If the site is developed to elevation 835, an auxilliary dike will be required.

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POTENTIAL SITE CV-1810

Location: On an unnamed tributary to the Sawmill River about 100 feet upstream from Dudleyville Road in Shutesbury, Mass.

Shutesbury, Mass. USGS quadrangle

Latitude: 42°29'06" Longitude: 72°26'42"

Facilities Affected:

Facility	Elevation
Shed	965
Montague Road	960
Small building	960
3 Houses	960

Geologic Conditions: Both abutments are outwash sand and gravel at the toe with glacial till higher on the abutments. Surficial deposits are outwash sand and gravel and glacial till. Depth to bedrock in the foundation is estimated to be from 10 to 15 feet. Waterholding capabilities appear to be fair. Leakage is expected through both abutments. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location. There is a rock-rubble and earth dam at the site.

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED SAWMILL RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV (MSL)	TYPE	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-CV-1802	CA= 0.56 SQ MI = 358 AC						USGS QUAD-MILLERS FALLS					LATITUDE 42-31-46		LONGITUDE 72-25-26			
SITE RATING (1)	STREAM WATER QUALITY (A)						100-YR PRIN SPWY DESIGN STORM					RUNOFF = 8.20 IN, PEAK FLOW = 171 CFS					
956.8	0	0.0		1		6.8	979.5	E	124	4.1	2550	982.1	12	985.9	36	56	*****
977.5	100	3.3	3740	10	38460	27.5	980.0	E	130	4.4	2870	984.1	13	987.1	37	62	0.18
986.5	208	7.0	2530	15	36020	36.5	989.0	E	251	8.3	2100	992.5	18	995.5	46	104	0.29
998.6	423	14.2	1790	21	37000	48.7	1001.1	E	484	16.2	1570	1004.0	26	1007.0	57	188	0.42
1007.4	639	21.4	1540	30	32950	57.4	1009.9	E	721	24.1	1370	1012.0	35	1015.0	65	270	0.49
1010.6	747	25.0	1440	34	31850	60.6	1013.1	E	839	28.0	1280	1015.3	39	1018.3	68	308	0.50
SITE-CV-1803	CA= 1.31 SQ MI = 838 AC						USGS QUAD-MILLERS FALLS					LATITUDE 42-31-23		LONGITUDE 72-25-02			
SITE RATING (2)	STREAM WATER QUALITY (A)						100-YR PRIN SPWY DESIGN STORM					RUNOFF = 8.20 IN, PEAK FLOW = 400 CFS					
921.4	0	0.0		4		11.3	937.5	E	290	4.1	1530	941.0	32	946.0	36	78	*****
930.0	100	1.4	4380	20	21670	20.0	932.5	E	166	2.4	2640	938.5	29	943.0	33	63	0.25
940.0	355	5.1	1720	30	20080	30.0	942.5	E	449	6.4	1360	947.5	42	951.8	42	112	0.55
952.5	864	12.3	1030	50	17590	42.5	955.0	E	1004	14.3	880	958.9	61	962.6	53	199	0.91
961.4	1373	19.7	790	67	16300	51.4	963.9	E	1557	22.2	700	966.5	79	969.5	60	270	1.12
962.5	1453	20.7	850	69	17770	52.5	962.5	T	1463	20.9	840	966.9	80	969.9	60	273	1.14
SITE-CV-1804	CA= 1.17 SQ MI = 749 AC						USGS QUAD-MILLERS FALLS					LATITUDE 42-31-20		LONGITUDE 72-26-45			
SITE RATING (1)	STREAM WATER QUALITY (A)						100-YR PRIN SPWY DESIGN STORM					RUNOFF = 8.20 IN, PEAK FLOW = 358 CFS					
910.0	0	0.0		2		10.0	927.1	E	259	4.1	1200	930.3	42	934.3	34	48	*****
921.1	100	1.6	3370	17	19860	21.2	923.6	E	157	2.5	2140	928.6	38	932.3	32	41	0.24
928.0	281	4.5	1610	36	12530	28.0	930.5	E	389	6.1	1160	934.5	50	938.1	38	64	0.46
936.0	643	10.3	970	53	11820	36.0	938.5	E	789	12.7	790	941.9	64	945.3	45	103	0.75
942.3	1005	16.1	760	65	11760	42.3	944.8	E	1182	18.9	640	947.0	75	950.0	50	138	0.93
942.5	1018	16.2	760	65	11840	42.5	945.0	E	1196	19.2	650	947.3	76	950.3	50	142	0.93

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE CROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.
** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED SAWMILL RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	STORAGE IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV ++ TYPE (MSL)	STORAGE AT CREST AC FT	STORAGE AT CREST IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-CV-1805	DA= 1.36 SQ MI = 870 AC						USGS QUAD-GREENFIELD				LATITUDE 42-31-22		LONGITUDE 72-30-15			
SITE RATING (1)			STREAM WATER QUALITY (A)				100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.20 IN, PEAK FLOW = 416 CFS					
516.0	0	0.0		3		6.0	537.4 E	301	4.1	1040	541.0	32	546.0	36	43	*****
528.0	100	1.4	3010	14	20810	18.1	530.5 E	151	2.0	1990	536.8	27	541.0	31	29	0.25
540.5	386	5.3	1250	32	15150	30.5	543.0 E	481	6.6	1000	548.0	39	552.4	42	67	0.59
555.2	957	13.2	770	45	16370	45.2	557.7 E	1080	14.8	680	562.0	51	566.0	56	143	0.98
566.5	1528	21.1	640	57	17160	56.5	569.0 E	1683	23.2	580	572.5	63	576.3	66	229	1.19
571.3	1813	25.0	600	62	17600	61.3	573.8 E	1982	27.2	550	577.2	65	580.9	71	278	1.24
SITE-CV-1806	DA= 1.60 SQ MI = 1024 AC						USGS QUAD-MILLERS FALLS				LATITUDE 42-43-37		LONGITUDE 72-28-55			
SITE RATING (2)			STREAM WATER QUALITY (A)				100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.20 IN, PEAK FLOW = 489 CFS					
758.2	0	0.0		3		8.2	786.3 E	477	5.6	1510	788.8	40	793.0	43	134	*****
770.5	100	1.2	7550	14	53210	20.5	770.5 T	113	1.2	6690	781.4	26	786.7	37	88	0.26
785.5	439	5.1	2280	34	29620	35.5	794.0 E	812	9.5	1230	796.5	55	799.7	50	196	0.68
799.8	1117	13.1	1290	62	23140	49.8	804.3 E	1425	16.7	1010	806.8	71	809.8	60	318	1.15
814.2	2133	25.0	930	79	25300	64.1	818.7 E	2507	29.4	790	821.0	87	824.5	75	565	1.46
SITE-CV-1807	DA= 2.88 SQ MI = 1843 AC						USGS QUAD-MILLERS FALLS				LATITUDE 42-43-15		LONGITUDE 72-29-38			
SITE RATING (2)			STREAM WATER QUALITY (A)				100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.20 IN, PEAK FLOW = 88[illegible] CFS					
842.9	0	0.0		11		4.9	858.5 E	637	4.1	940	862.9	90	868.5	31	72	*****
847.9	100	0.7	4750	29	16280	9.8	850.4 E	206	1.2	2310	857.9	66	863.3	25	43	0.31
856.5	492	3.2	1530	61	12310	18.6	859.0 E	679	4.4	1110	865.1	102	870.0	32	84	0.92
866.0	1275	8.3	940	108	11130	28.0	868.5 E	1584	10.3	760	873.0	146	877.8	40	165	1.65
872.4	2058	13.3	800	142	11560	34.4	872.4 T	2081	13.5	790	877.4	169	880.4	42	227	2.09
872.5	2076	13.5	790	143	11500	34.5	872.5 T	2099	13.7	780	877.1	168	880.1	42	213	2.10

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED SAWMILL RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV ++ TYPE (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	PERCENT CHANCE (MGD)
SITE-CV-1808 DA= 0.89 SQ MI = 570 AC USGS QUAD-MILLERS FALLS LATITUDE 42-43-09 LONGITUDE 72-28-26																
SITE RATING (1) STREAM WATER QUALITY (A) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.20 IN, PEAK FLOW = 272 CFS																
821.8	0	0.0		6		1.7	831.1 E	197	4.1	1740	833.5	45	836.9	17	14	*****
828.1	100	2.0	4110	26	16000	8.2	832.6 E	258	5.4	1600	835.0	50	838.0	18	16	0.21
832.0	225	4.6	2130	39	12260	12.1	834.5 E	341	7.1	1410	836.9	57	839.9	20	21	0.36
834.9	350	7.3	1610	50	11340	14.8	837.4 E	493	10.3	1140	839.8	68	842.8	23	31	0.47
837.1	475	10.0	1330	58	10820	17.2	839.6 E	638	13.3	990	841.8	73	844.8	25	39	0.56
SITE-CV-1810 DA= 1.43 SQ MI = 915 AC USGS QUAD-SHUTESBURY LATITUDE 42-29-06 LONGITUDE 72-26-42																
SITE RATING (2) STREAM WATER QUALITY (A) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.20 IN, PEAK FLOW = 437 CFS																
956.0	0	0.0		11		1.0	962.9 E	317	4.1	670	965.1	71	968.4	13	7	*****
959.3	100	1.2	2720	47	5770	4.3	963.8 E	375	4.9	730	966.3	75	969.3	14	8	0.25
964.5	423	5.5	820	70	4990	9.6	969.0 E	779	10.2	450	971.3	90	975.0	20	15	0.64
968.9	745	9.8	520	83	4690	13.8	971.4 E	973	12.8	400	973.8	96	976.8	22	18	0.88
972.5	1064	13.8	410	93	4690	17.5	975.0 E	1315	17.2	330	977.1	105	980.1	25	25	1.06

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE CROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

EXISTING SITE CV-1803 (Graham Pond)

Location: On Plympton Brook about 200 feet upstream from Locks Village Road in Wendell, Mass.

Millers Falls, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
929	6	14	850	1.33

Potential for Expansion: Please refer to Site Data and Design Summary Table for Potential Site CV-1803 for details.

Remarks: The dam is an earthfill structure about 500 feet long, with a 20-foot top width. The spillway is a concrete drop-structure having a maximum depth of 2.5 feet with 1.5 feet of flashboards. A pond drain is located near the center of the weir.

Ownership and Use: The pond is owned by Richard C. Wolfe and is used for fish culture.

****

EXISTING SITE CV-1807 (McAvoy Dam)

Location: On Tyler Brook about 25 feet upstream from Locks Village Road in Wendell, Mass.

Millers Falls, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
847	17	9	1,850	2.89

Potential for Expansion: Please refer to Site Data and Design Summary Table for Potential Site CV-1807 for details.

Remarks: The dam is part of the Locks Village Road embankment and is about 150-feet long with a 20-foot top width. The principal spillway is a concrete drop-structure with gate control. The spillway is 23 feet wide has a maximum head of 2.5 feet and a 9-foot drop from the crest to outlet channel. Water passes beneath the road through a concrete box culvert.

Ownership and Use: The site is owned by Herbert McAvoy and is used for recreation and fire protection.

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EXISTING SITE CV-1811 (Lake Pleasant)

Location: On Pond Brook about 3,000 feet upstream from the Boston and Maine Railroad tracks in Montague, Mass.

Greenfield, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
264	50	10	1,400	2.19

Potential for Expansion: Steep topography limits any significant increase in surface area or storage.

Remarks: The dam is an earthfill structure about 150 feet long with a top width of 5 feet. The principal spillway, located near the center of the dam, is a concrete drop-inlet chute structure, 22 feet wide with 1.5 feet of flashboards. Heavy brush is growing on both slopes. Concrete in the spillway is cracked in places.

Ownership and Use: The lake is owned by the Turners Falls Fire District and is used for fire protection and water supply.

****

EXISTING SITE CV-1812 (Fiske Pond)

Location: On Fiske Brook about 2,300 feet upstream from Lake View Road in Wendell, Mass.

Millers Falls, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
849	8	20	550	0.86

Potential for Expansion: Raising the existing water level about 20 feet would provide about 40 acres of water surface. No facilities would be affected.

Remarks: The dam is an earthfill structure about 200 feet long with a 3-foot top width. The spillway is a two-section, 8-foot wide concrete weir. The first section is a drop-structure 1.5 feet deep. The next section is a riprapped channel one-foot deep. Both slopes of the dam are covered with brush.

Ownership and Use: The pond is owned by David Seigel and is used to store water.

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EXISTING SITE CV-1813 (Tyler Pond)

Location: On Tyler Brook about 800 feet downstream from Locks Village Road in Wendell, Mass.

Millers Falls, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
836	2	7	1,850	2.89

Potential for Expansion: Tyler Pond is about 400 feet downstream from Potential Site CV-1807. Please refer to Site Data and Design Summary Table for CV-1807 for details.

Remarks: The dam is an earthfill structure about 100 feet long with an 8-foot top width. The principal spillway, located near the left abutment, is two 18-inch corrugated metal pipes outletting through wood cribbing. The emergency spillway, located on the right abutment, is a rock channel. Both the upstream and downstream slopes are covered with brush. The right abutment is a beach area with recreational facilities.

Ownership and Use: The pond is owned by Calvin Harrington and is used for recreation.

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EXISTING SITE CV-1814 (Lake Wyola)

Location: On the Sawmill River about 150 feet upstream from Locks Pond Road in Shutesbury, Mass.

Millers Falls, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
831	120	8	4,300	6.72

Potential for Expansion: Limited; many houses and cottages line the entire shore.

EXISTING SITE CV-1814 (Lake Wyola) (cont'd.)

Remarks: The dam is an earthfill structure about 300 feet long. The upstream slope is faced with hand-placed stone. The principal spillway is a concrete drop-structure, 24 feet wide and 1.5 feet deep. The water outlets through the weir, down a concrete apron and then onto rock riprap at the outlet channel. A 16-foot wide, 9-inch deep, concrete emergency spillway is located to the right of the principal spillway.

Ownership and Use: The lake is an enlarged Great Pond. The dam and flowage rights are owned by the town of Shutesbury and the lake is used for recreation.

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EXISTING SITE CV-1815 (Ames Pond)

Location: On an unnamed tributary to Lake Wyola about 700 feet upstream from Wendell Road in Shutesbury, Mass.

Shutesbury, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
888	10	7	350	0.55

Potential for Expansion: The small drainage area limits the potential for expansion.

Remarks: The dam is an earthfill structure about 100 feet long with a 2-foot top width. The spillway is a rock drop-structure, 4 feet wide. The drop-structure is in poor condition. Many rocks have fallen into the outlet channel. Both slopes of the dam are covered with brush and trees.

Ownership and Use: The pond is owned by Peter Humphrey and has no specific use at the present time.

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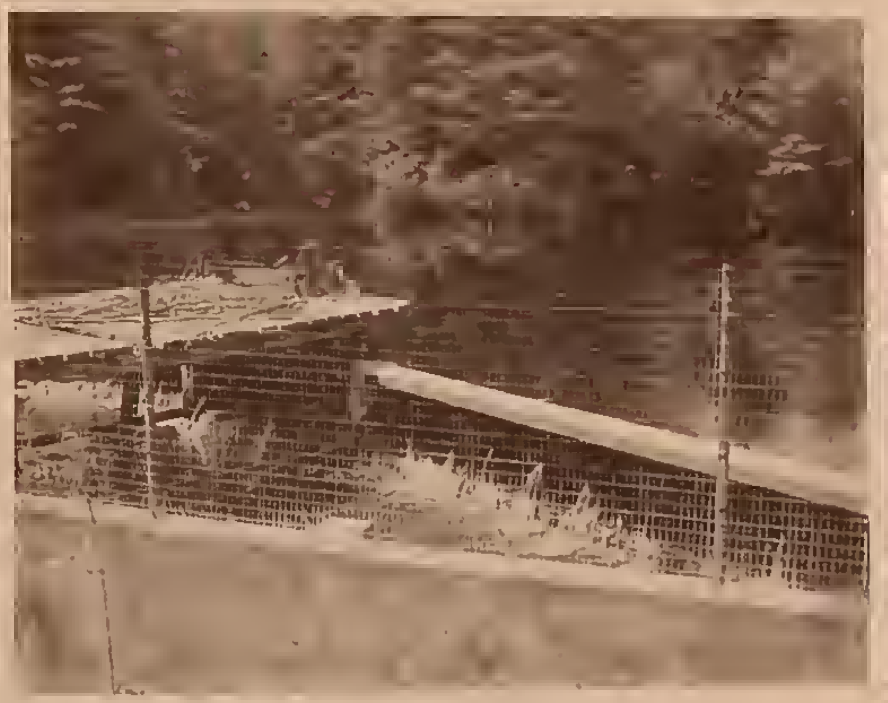
CV-1803
Graham Pond



CV-1807
McAvoy Dam

CV-1811
Lake Pleasant

EXISTING RESERVOIRS
SUBWATERSHED CV-18
SAWMILL RIVER

CV-1812
Fiske Pond

CV-1814
Lake Wyola

CV-1813
Tyler Pond

CV-1815
Ames Pond

EXISTING RESERVOIRS
SUBWATERSHED CV-18
SAWMILL RIVER

1811

1812

1802

1804

1803

1805

1807

1815

1806

1808

1813

1810

1814

LEGEND

SUBWATERSHED BOUNDARY

DRAINAGE AREA ABOVE STRUCTURE

POTENTIAL SITE SHOWING BENEFICIAL POOL FOR LARGEST STRUCTURE

EXISTING RESERVOIR OR POND

Saurce - USGS Quad. Sheets
Mt. Taby - 1955
Greenfield - 1954
Shutesbury - 1964
Millers Falls - 1961

SAWMILL RIVER (CV-18)

CENTRAL CONNECTICUT VALLEY STUDY AREA

MASSACHUSETTS

EXISTING AND POTENTIAL RESERVOIR SITES

UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

CENTRAL CONNECTICUT VALLEY STUDY AREA
SITE DATA FOR

Subwatershed CV-19, Mill River

The Mill River subwatershed covers about 22,400 acres in Leverett, Shutesbury, and Sunderland in Franklin County; and Amherst and Hadley in Hampshire County.

The major stream is the Mill River which flows from Factory Hollow Pond in North Amherst southwesterly to the Connecticut River in in Hadley.

Geology of the potential reservoir sites is characterized by glacial till and outwash sand and gravel underlain by gneiss and triassic sandstone and shale bedrock.

Four potential reservoir sites and four existing reservoirs were studied.

POTENTIAL SITE CV-1901

Location: On Doolittle Brook about 3,200 feet downstream from Rattlesnake Road in Leverett, Mass.

Shutesbury, Mass. USGS quadrangle

Latitude: 42°28'07" Longitude: 72°29'50"

Facilities Affected:

Facility	Elevation
House	440
2 Houses	435
2 Houses	430
3 Houses	425
Radio shop	425
Montague Road and utilities	415
Rattlesnake Road	415

POTENTIAL SITE CV-1901 (cont'd)

Geologic Conditions: The right abutment is silty sand with gravel, cobbles, and boulders (glacial till); shallow to bedrock. The left abutment is valley fill sand and gravel. Surficial deposits are swamp, glacial till, and valley fill sand and gravel. Depth to bedrock in the foundation is estimated to be from 15 to 25 feet. Waterholding capabilities appear to be fair. Leakage is expected through the foundation. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-1902

Location: On Doolittle Brook at the confluence with Roaring Brook in Leverett, Mass.

Shutesbury, Mass. USGS quadrangle

Latitude: 42°26'09" Longitude: 72°29'35"

Facilities Affected:

Facility	Elevation
House	370
House	365
East Leverett Road	360
Shutesbury Road and utilities	355
2 Houses	355
5 Houses	350
High tension lines	340

Geologic Conditions: The right abutment is silty sand with gravel, cobbles, and boulders (glacial till) shallow to bedrock. The left abutment is valley fill sand and gravel. Surficial deposits are valley fill sand and gravel, glacial till, and schist bedrock. Depth to schist bedrock in the foundation is estimated to be from 30 to 40 feet. Water-holding capabilities appear to be poor. Leakage is expected through the left abutment and the foundation. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

This is substantially the same site as Site M6-3 that was included in the Comprehensive Study of the Connecticut River Basin, U.S. Department of Agriculture, June 1970.

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POTENTIAL SITE CV-1903

Location: On an unnamed tributary to the Mill River about 4,300 feet upstream from Route 63 in Amherst, Mass.

Mt. Toby, Mass. USGS quadrangle

Latitude: 42°25'39" Longitude: 72°31'24"

Facilities Affected:

Facility	Elevation
Juggler Meadow Road and utilities	290

Geologic Conditions: Both abutments and surficial deposits are outwash sand and gravel. Depth the gneiss bedrock in the foundation is estimated to be 40 to 50 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and the foundation. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

This is substantially the same site as Site M6-2 that was included in the Comprehensive Study of the Connecticut River Basin, U.S. Department of Agriculture, June 1970.

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POTENTIAL SITE CV-1904

Location: On an unnamed tributary to the Mill River about 500 feet upstream from Route 63, Amherst, Mass.

Mt. Toby, Mass. USGS quadrangle

Latitude: 42°25'07" Longitude: 72°31'34"

Facilities Affected:

Facility	Elevation
House	250
Route 63	245
2 Houses	230
2 Houses and museum	225
Clubhouse	220
High tension line	200
Tobacco barn	198
Telephone cable	188

Geologic Conditions: Both abutments and surficial deposits are outwash sand and gravel. Depth to triassic sandstone, shale bedrock in the foundation is estimated to be 40 to 50 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and the foundation. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED MILL RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-CV-1901 DA= 1.62 SQ MI = 1037 AC USGS QUAD-SHUTESBURY LATITUDE 42-28-07 LONGITUDE 72-29-50																
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.20 IN, PEAK FLOW = 495 CFS																
404.0	0	0.0		6		4.0	419.2 E	359	4.1	870	422.7	60	427.2	27	25	*****
412.0	100	1.2	2540	22	11590	12.1	414.5 E	179	2.0	1410	420.4	50	424.5	25	20	0.26
419.2	341	3.9	1380	46	10240	19.2	421.7 E	483	5.6	970	426.0	73	430.0	30	32	0.60
427.0	823	9.5	840	77	9000	27.0	429.5 E	1040	12.0	670	432.9	97	436.7	37	52	0.99
432.5	1300	15.0	630	96	8620	32.5	435.0 E	1558	18.0	530	437.2	108	440.2	40	68	1.25
SITE-CV-1902 DA= 13.00 SQ MI = 8320 AC USGS QUAD-SHUTESBURY LATITUDE 42-26-09 LONGITUDE 72-29-35																
SITE RATING (3) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.20 IN, PEAK FLOW = 3054 CFS																
341.2	0	0.0		29		6.3	363.5 E	2877	4.1	570	369.9	257	380.2	45	290	*****
343.6	100	0.1	7490	48	15710	8.6	346.1 E	313	0.5	2390	350.5	104	356.0	21	47	0.43
352.0	801	1.2	1580	119	10650	17.0	354.5 E	1244	1.7	1020	359.7	197	365.9	31	117	2.10
357.1	1502	2.2	1030	171	9090	22.1	359.6 E	2063	3.0	750	365.1	229	371.2	36	172	3.26
364.1	2904	4.1	720	223	9350	29.0	364.1 T	3008	4.3	690	370.0	257	373.7	39	201	4.94
SITE-CV-1903 DA= 1.92 SQ MI = 1229 AC USGS QUAD-MT TOBY LATITUDE 42-25-39 LONGITUDE 72-31-24																
SITE RATING (3) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.20 IN, PEAK FLOW = 514 CFS																
263.4	0	0.0		6		6.4	279.1 E	425	4.1	860	281.4	63	284.4	27	44	*****
271.0	100	1.0	2880	22	13300	14.0	273.5 E	182	1.7	1580	276.0	42	279.0	22	22	0.28
278.2	370	3.5	1280	52	9100	21.2	280.7 E	527	5.1	890	283.2	69	286.2	29	53	0.66
286.5	909	8.8	780	80	8870	29.5	289.0 E	1132	11.1	620	291.4	97	294.4	37	111	1.13
292.5	1448	14.1	640	101	9170	35.5	295.0 E	1731	16.9	540	297.2	122	300.2	43	181	1.43
292.5	1450	14.2	640	101	9170	35.5	295.0 E	1733	16.9	540	297.4	122	300.4	43	182	1.43

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED MILL RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV + TYPE (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	PERCENT CHANCE (MGD)
SITE-CV-1904 DA= 2.35 SQ MI = 1504 AC USGS QUAD-MT TOBY LATITUDE 42-25-07 LONGITUDE 72-31-34																
SITE RATING (3) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.20 IN, PEAK FLOW = 590 CFS																
184.8	0	0.0		7		4.8	206.6 E	520	4.1	1350	209.0	47	212.0	32	60	*****
189.6	50	0.4	11560	14	40820	9.6	202.1 E	361	2.9	1600	204.6	37	207.6	28	38	0.18
208.2	564	4.5	1630	45	20560	28.2	210.7 E	701	5.6	1310	213.2	53	216.2	36	86	0.93
225.7	1592	12.7	1030	72	22830	45.7	228.2 E	1791	14.2	920	230.6	80	233.6	54	279	1.66
243.7	3133	25.0	770	97	24750	63.8	246.2 E	3394	27.0	710	248.7	103	251.7	72	651	2.15

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.
** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

EXISTING SITE CV-1910 (Leverett Pond)

Location: On a tributary of Doolittle Brook about 2,000 feet upstream from Montague Street in Leverett, Mass.

Mt. Toby, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
415	74	4	400	0.63

Potential for Expansion: The small drainage area severely limits the potential for expansion.

Remarks: The dam is an earthfill structure about 100 feet long. The spillway is a concrete drop structure, 2.5 feet wide. The upstream slope of the dam is vegetated, the downstream slope is wooded.

Ownership and Use: The pond is owned by Mrs. Lucille Lewis and is used for recreation.

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EXISTING SITE CV-1911 (Atkins Reservoir)

Location: On a tributary of Cushman Brook at Shutesbury Road in Shutesbury, Mass.

Shutesbury, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
435	59	30	* 388	0.60

*Drainage area does not include any diverted streams.

Potential for Expansion: The small drainage area limits the potential for expansion. Flow from outside the watershed is diverted into Atkins Reservoir for water supply use.

Remarks: The dam is part of the January Hills Road embankment. It is 200 feet long with a 15-foot top width. A gate house, located in the center of the dam, controls flow to a pumping station. The downstream slope is wooded.

EXISTING SITE CV-1911 (Atkins Reservoir) (cont'd)

Ownership and Use: The reservoir is owned by the town of Amherst, Water Department, and is used for public water supply.

****

EXISTING SITE CV-1912 (Factory Hollow Pond)

Location: On Cushman Brook about 1,000 feet downstream from State Street in Amherst, Mass.

Mt. Toby, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
223	7	25	9,950	15.55

Potential for Expansion: Steep topography limits any significant increase in surface area or storage.

Remarks: The dam is a rock masonry drop-structure about 40 feet long. Weir depth is about 1.5 feet. A 6-foot wide rock masonry pad is located on the right side and 10 feet beneath it is a 3.5-foot metal pipe drain with no apparent gate control.

Ownership and Use: The pond is owned by the town of Amherst, Conservation Commission, and is used for recreation.

****

EXISTING SITE CV-1913 (Lake Warner)

Location: On the Mill River about 100 feet downstream from Mount Warner Road in Hadley, Mass.

Mt. Toby, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
128	62	20	19,100	29.84

Potential for Expansion: Limited; many residences of North Hadley would be affected. Steep topography along the length of the present lake limits any significant increase in surface area.

Remarks: The dam is a concrete drop-structure about 30 feet long with a gate control on the right abutment. The weir depth is 2 feet. The right abutment is a 3-foot thick concrete retaining wall.

Ownership and Use: The lake is owned by John Boisvert and is used for recreation.

****

CV-1910
Leverett Pond

CV-1911
Atkins Reservoir

CV-1912
Factory Hollow Pond

CV-1912
Factory Hollow Pond

CV-1913
Lake Warner

EXISTING RESERVOIRS
SUBWATERSHED CV-19
MILL RIVER

LEGEND

SUBWATERSHED BOUNDARY

DRAINAGE AREA ABOVE STRUCTURE

POTENTIAL SITE SHOWING BENEFICIAL POOL FOR LARGEST STRUCTURE

EXISTING RESERVOIR OR POND

1901

1910

1902

1911

1905

1903

1904

1912

1913

Source – USGS Quod. Sheets
Easthompton – 1964
Mt. Holyoke – 1964
Mt. Toby – 1971
Shutesbury – 1964

MILL RIVER (CV-19)

CENTRAL CONNECTICUT VALLEY STUDY AREA

MASSACHUSETTS

EXISTING AND POTENTIAL RESERVOIR SITES

UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

CENTRAL CONNECTICUT VALLEY STUDY AREA
SITE DATA FOR

Subwatershed CV-20, Mill River

The Mill River subwatershed covers about 36,400 acres in Conway, Deerfield, and Whately in Franklin County; and Hatfield, Northampton, and Williamsburg in Hampshire County.

The major stream is the Mill River which originates in Conway and flows southeasterly through Deerfield and Whately into the Connecticut River in Hatfield.

Geology of the potential reservoir sites is characterized by glacial outwash, drift, or till underlain by schist bedrock.

Seven potential reservoir sites and two existing reservoirs were studied.

****

POTENTIAL SITE CV-2001

Location: On Mill River about 7,400 feet upstream from North Street in Deerfield, Mass.

Williamsburg, Mass. USGS quadrangle

Latitude: 42°29'06" Longitude: 72°38'06"

Facilities Affected:

Facility	Elevation
House	230
House and barns	225
2 Houses and farm buildings	220
South Mill River Road and utilities	215

Geologic Conditions: Both abutments are outwash sand and gravel. The intermediate terrace is lacustrine deposits of silt and sand. Surficial deposits are swamp, lacustrine silt and sand, and outwash sand and gravel. Depth to bedrock in the foundation is estimated to be from 80 to 100 feet. Waterholding capabilities appear to be fair to poor. Leakage is expected through both abutments. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

****

POTENTIAL SITE CV-2003

Location: On the Mill River about 150 feet upstream from Swamp Road in Whately, Mass.

Williamsburg, Mass. USGS quadrangle

Latitude: 42°26'50" Longitude: 72°38'01"

Facilities Affected: None below elevation 180.

Geologic Conditions: The right abutment is outwash sand and gravel. The left abutment is lacustrine silt and sand. Surficial deposits are swamp, outwash sand and gravel, and lacustrine silt and sand. Depth to bedrock in the foundation is estimated to be from 80 to 100 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

****

POTENTIAL SITE CV-2004

Location: On an unnamed stream about 150 feet upstream from Chestnut Road in Whately, Mass.

Williamsburg, Mass. USGS quadrangle

Latitude: 42°25'52" Longitude: 72°38'02"

Facilities Affected: None below elevation 203.

Geologic Conditions: Both abutments are sand with some gravel. Surficial deposits are lacustrine silts and outwash sand with some gravel. Depth to schist bedrock in the foundation is estimated to be from 30 to 40 feet. Waterholding capabilities appear to be fair to poor. Leakage is expected through both abutments. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

****

POTENTIAL SITE CV-2005

Location: On Jimmy Nolan Brook about 3,000 feet upstream from the confluence with West Brook in Whately, Mass.

Williamsburg, Mass. USGS quadrangle

Latitude: 42°26'29" Longitude: 72°40'24"

Facilities Affected: None below elevation 617.

Geologic Conditions: Both abutments are silty sand with gravel, cobbles, and boulders (glacial till) with outwash sand and gravel higher on the abutments. Surficial deposits are outwash sand and gravel, glacial till, and bedrock. Bedrock outcrops in the foundation. Waterholding capabilities appear to be fair. Slight leakage is expected through both abutments. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2007

Location: On West Brook about 3,700 feet downstream from Haydenville Road in Whately, Mass.

Williamsburg, Mass. USGS quadrangle

Latitude: 42°25'20" Longitude: 72°39'02"

Facilities Affected:

Facility	Elevation
Haydenville Road	375
West Brook Road	355

Geologic Conditions: Both abutments and the valley floor are bedrock. Waterholding capabilities appear to be good. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: Preliminary structure designs indicate that a concrete emergency spillway may be needed at this site.

****

POTENTIAL SITE CV-2008 (Fitzgerald's Pond)

Location: On Broad Brook about 900 feet upstream from the confluence with Running Gutter Brook in Hatfield, Mass.

Williamsburg, Mass. USGS quadrangle

Latitude: 42°22'35" Longitude: 72°38'55"

Facilities Affected:

Facility	Elevation
Barn	195
3 Barns and house	190
Coles Meadow Road and utilities	188
Telephone cable	178

Geologic Conditions: Both abutments are sand and gravel terrace deposits. Nested boulders or bedrock occur high on the left abutment. Surficial deposits are terrace sand and gravel and bedrock. Depth to bedrock in the foundation is estimated to be from 20 to 25 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and possibly through the foundation. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location. If the site is developed to elevation 185 an auxiliary dike will be required.

This is substantially the same site as Site M7-1 that was included in the Comprehensive Study of the Connecticut River Basin, U.S. Department of Agriculture, June 1970.

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POTENTIAL SITE CV-2009

Location: On Broad Brook about 8,500 feet downstream from North Farms Road in Northampton, Mass.

Easthampton, Mass. USGS quadrangle

Latitude: 42°21'50" Longitude: 72°39'24"

Facilities Affected:

Facility	Elevation
Telephone cable (overhead)	178

Geologic Conditions: The left abutment is bedrock. The right abutment is discontinuous deposits of silty sand with many boulders (englacial drift). Surficial deposits are swamp, bedrock, and englacial drift. Depth to bedrock in the foundation is estimated to be from 10 to 20 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED MILL RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV ** TYPE (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	PERCENT CHANCE (MGD)
SITE-CV-2001	DA= 5.10 SQ MI = 3264 AC						USGS QUAD-WILLIAMSBURG				LATITUDE 42-29-06		LONGITUDE 72-38-06			
SITE RATING (2)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.20 IN, PEAK FLOW = 1559 CFS					
199.1	0	0.0		16		5.1	227.6 E	1933	7.1	930	229.8	106	237.2	43	431	*****
203.3	100	0.4	11510	30	38020	9.3	203.3 T	141	0.5	8180	216.2	81	222.2	28	101	0.36
211.1	441	1.6	3660	58	27760	17.1	211.1 T	482	1.7	3350	226.1	103	231.1	37	267	1.06
220.0	1122	4.1	1810	97	20910	26.0	220.0 T	1163	4.3	1750	228.8	106	233.8	40	335	1.92
226.7	1804	6.6	1340	104	23260	32.7	226.7 T	1845	6.8	1310	230.0	107	233.0	39	313	2.53
SITE-CV-2003	DA= 18.18 SQ MI = 11635 AC						USGS QUAD-WILLIAMSBURG				LATITUDE 42-26-50		LONGITUDE 72-38-01			
SITE RATING (1)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.20 IN, PEAK FLOW = 3920 CFS					
173.8	100	0.1	6560	77	8480	8.8	173.8 T	245	0.3	2670	180.0	168	183.0	18	9	0.45
SITE-CV-2004	DA= 0.49 SQ MI = 314 AC						USGS QUAD-WILLIAMSBURG				LATITUDE 42-25-52		LONGITUDE 72-38-02			
SITE RATING (3)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.20 IN, PEAK FLOW = 150 CFS					
179.3	0	0.0		2		4.4	189.2 E	108	4.1	1640	191.5	24	194.5	19	21	*****
189.0	100	3.8	2450	20	12240	14.0	191.5 E	159	6.1	1540	193.8	27	196.8	22	28	0.18
192.5	180	6.8	1670	25	11980	17.5	195.0 E	250	9.6	1200	197.3	31	200.3	25	39	0.25
195.5	260	9.8	1330	29	12120	20.5	198.0 E	338	13.0	1020	200.2	34	203.2	28	50	0.31
198.1	340	13.0	1150	32	12350	23.1	200.6 E	427	16.2	920	202.8	37	205.7	31	62	0.35

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED MILL RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV ++ TYPE (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-CV-2005 DA= 0.85 SQ MI = 544 AC USGS QUAD-WILLIAMSBURG LATITUDE 42-26-29 LONGITUDE 72-40-24																
SITE RATING (1) STREAM WATER QUALITY (8) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.20 IN, PEAK FLOW = 260 CFS																
582.0	0	0.0		1		12.1	607.9 E	188	4.1	1690	611.2	27	615.0	45	52	*****
603.3	100	2.2	3440	14	25050	33.3	605.8 E	146	3.2	2350	610.8	26	614.0	44	49	0.21
606.0	145	3.2	2640	18	20880	36.0	608.5 E	203	4.5	1890	613.2	29	616.5	47	57	0.27
610.3	235	5.1	1860	25	17320	40.3	612.8 E	311	6.8	1400	616.4	34	619.4	49	69	0.36
612.5	296	6.5	1970	28	20530	42.5	612.5 T	303	6.6	1930	617.2	35	620.2	50	73	0.42
SITE-CV-2007 DA= 9.92 SQ MI = 6349 AC USGS QUAD-WILLIAMSBURG LATITUDE 42-25-20 LONGITUDE 72-39-02																
SITE RATING (1) STREAM WATER QUALITY (8) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.20 IN, PEAK FLOW = 2438 CFS																
351.2	100	0.2	4200	24	17720	26.2	351.2 N	179	0.3	2340	361.0	41	366.7	42	30	0.41
357.5	285	0.5	1730	35	14080	32.5	357.5 N	365	0.7	1350	368.2	56	374.7	50	47	0.92
366.1	656	1.2	1690	51	21570	41.0	366.1 C	735	1.4	1500	374.6	76	379.7	55	61	1.69
372.4	1026	1.9	1340	68	20320	47.4	372.4 C	1105	2.0	1240	377.1	85	380.1	55	62	2.33
372.5	1030	1.9	1340	68	20270	47.5	372.5 C	1110	2.0	1240	377.2	85	380.2	55	62	2.34
SITE-CV-2008 DA= 3.60 SQ MI = 2304 AC USGS QUAD-WILLIAMSBURG LATITUDE 42-22-35 LONGITUDE 72-38-55																
SITE RATING (3) STREAM WATER QUALITY (8) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.10 IN, PEAK FLOW = 1087 CFS																
172.1	0	0.0		12		11.1	190.0 E	1358	7.1	500	191.5	173	198.1	37	40	*****
176.6	100	0.5	6900	34	20110	15.6	189.1 E	1208	6.3	570	191.5	173	196.0	35	33	0.33
182.8	453	2.4	1890	85	10090	21.9	191.3 E	1604	8.3	530	193.8	186	199.8	39	47	0.95
188.8	1159	6.0	1000	152	7630	27.9	188.8 T	1188	6.1	980	195.1	192	199.3	38	45	1.69
192.5	1760	9.2	720	178	7160	31.5	192.5 T	1788	9.3	710	197.1	203	200.1	39	48	2.16

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.
** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED MILL RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-CV-2009 DA= 2.91 SQ MI = 1862 AC USGS QUAD-EASTHAMPTON LATITUDE 42-21-50 LONGITUDE 72-39-24																
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.10 IN, PEAK FLOW = 878 CFS																
180.6	0	0.0		16		2.5	193.2 E	644	4.1	800	197.7	119	203.0	25	29	*****
184.3	100	0.6	4670	36	13120	6.4	186.8 E	227	1.5	2050	194.3	96	199.7	22	21	0.31
190.8	440	2.8	1500	71	9320	12.8	193.3 E	663	4.3	990	199.3	131	204.3	26	32	0.86
198.0	1120	7.1	770	121	7080	20.0	200.5 E	1466	9.3	590	205.1	169	209.7	32	50	1.52
202.5	1740	11.2	630	152	7260	24.5	202.5 T	1763	11.3	630	206.8	180	209.8	32	50	1.93

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

EXISTING SITE CV-2010 (Northampton Reservoir-Upper)

Location: On Avery Brook about 1,800 feet upstream from Williamsburg Road in Whately, Mass.

Williamsburg, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
675	82	80	2,650	4.14

Potential for Expansion: It appears that the water level could be raised 50 feet without affecting any facilities.

Remarks: The dam is an earthfill structure about 1,200 feet long. The upstream slope is riprapped; the downstream is vegetated. A 70-foot wide concrete ogee spillway, having a maximum head of 5 feet, is located near the left abutment. Water is carried from the spillway through a 30-foot wide rock channel to the lower reservoir. The normal pool has a capacity of 750 million gallons.

Ownership and Use: The reservoir is owned by the city of Northampton and is used for water supply.

****

EXISTING SITE CV-2011 (Northampton Reservoir-Lower)

Location: On Avery Brook at Williamsburg Road in Whately, Mass.

Williamsburg, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
596	8	15	2,750	4.30

Potential for Expansion: None. The upstream end of the reservoir is at the base of Northampton Reservoir-Upper, Existing Site CV-2010.

Remarks: The dam is part of the Williamsburg Road embankment and is about 200 feet long with a 10-foot top width. Both slopes are vegetated. The principal spillway, located on the right abutment, is a concrete chute weir with a drop of one foot. The exit channel is a rock masonry chute which outlets the water beneath Williamsburg Road.

Ownership and Use: The reservoir is owned by the City of Northampton and is used for water supply.

****

CV-2010

Northampton Reservoir (Upper)

CV-2011

Northampton Reservoir (Lower)

EXISTING RESERVOIRS
SUBWATERSHED CV-20
MILL RIVER

MILL RIVER (CV-20)
CENTRAL CONNECTICUT VALLEY STUDY AREA
MASSACHUSETTS
EXISTING AND POTENTIAL RESERVOIR SITES
UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

2001
2003
2004
2010
2011
2005
2007
2008
2009

LEGEND

- SUBWATERSHED BOUNDARY
- DRAINAGE AREA ABOVE STRUCTURE
- POTENTIAL SITE SHOWING BENEFICIAL POOL FOR LARGEST STRUCTURE
- EXISTING RESERVOIR OR POND

SOURCE: U.S.G.S. Quadrangles

Williamsburg - 1964
Mt. Toby - 1971
Mt. Holyoke - 1964
Easthampton - 1964
Greenfield - 1968
Shelburne Falls - 1961

CENTRAL CONNECTICUT VALLEY STUDY AREA
SITE DATA FOR

Subwatershed CV-21, Fort River

The Fort River subwatershed covers about 37,900 acres in Leverett and Shutebury in Franklin County; and Amherst, Belchertown, Granby, Hadley, and Pelham in Hampshire County.

The major stream is the Fort River which originates in Amherst and flows southwesterly through Hadley to the Connecticut River.

Geology of the potential reservoir sites is characterized as outwash sand and gravel underlain by triassic sandstone and shale.

Six potential reservoir sites and five existing reservoirs were studied.

****

POTENTIAL SITE CV-2101

Location: On an unnamed tributary to the Fort River about 100 feet upstream from the Central Vermont Railroad in Amherst, Mass.

Mt. Toby, Mass. USGS quadrangle

Latitude: 42°23'59" Longitude: 72°30'12"

Facilities Affected: None below elevation 248.

Geologic Conditions: Both of the abutments and the foundation are outwash sand and gravel. Depth to schist bedrock in the foundation is estimated to be from 60 to 70 feet. Waterholding capabilities appear to be fair to poor. Leakage is expected through both abutments and the foundation. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

****

POTENTIAL SITE CV-2102

Location: On Adams Brook about 3,400 feet upstream from its confluence with Amethyst Brook in the town of Amherst, Mass.

Shutebury, Mass. USGS quadrangle

Latitude: 42°23'06" Longitude: 72°29'23"

Facilities Affected:

Facility	Elevation
House, 2 tobacco sheds, barn	245
House and barn	242
House	235
House	230
House and shed	225
House and 2 barns	215
2 Tobacco sheds	210
Northeast St. and utilities	207
House, shed, garage	205
High tension lines	190

Geologic Conditions: The right abutment is silty sand with gravel, cobbles, and boulders (glacial till). The left abutment is outwash sand and gravel. Surficial deposits are swamp, outwash sand and gravel, and glacial till. Depth to schist bedrock in the foundation is estimated to be from 90 to 100 feet. Waterholding capabilities appear to be poor. Leakage is expected through the left abutment and the foundation. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

This is substantially the same site as Site M8-2 that was included in the Comprehensive Study of the Connecticut River Basin, U.S. Department of Agriculture, June 1970.

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POTENTIAL SITE CV-2104

Location: On an unnamed tributary to the Fort River about 200 feet upstream from Moody Bridge Road in Hadley, Mass.

Mt. Holyoke, Mass. USGS quadrangle

Latitude: 42°20'21" Longitude: 72°33'25"

Facilities Affected: None below elevation 157

POTENTIAL SITE CV-2104 (cont'd)

Geologic Conditions: Both abutments are outwash sand and gravel possibly underlain by thinly bedded lacustrine deposits. Surficial deposits are swamp, and outwash sand and gravel. Depth to triassic sandstone and shale bedrock is estimated to be from 80 to 100 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and the foundation. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

****

POTENTIAL SITE CV-2105

Location: On Harts Brook about 600 feet upstream from Bay Road in Hadley, Mass.

Mt. Holyoke, Mass. USGS quadrangle

Latitude: 42°19'14" Longitude: 72°33'48"

Facilities Affected:

Facility	Elevation
2 Houses	175
House	174
Bay Road and utilities	172
2 Houses and dairy buildings	172
2 Houses, garage, and barn	170

Geologic Conditions: Both abutments outwash sand and gravel with possibly some thinly bedded lacustrine sediment in the foundation. Surifical deposits are outwash sand and gravel. Depth to triassic sandstone in the foundation is estimated to be from 80 to 100 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and the foundation. Pervious borrow material for dam construction was located near the site; impervious material may need to be obtained off the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

****

POTENTIAL SITE CV-2106

Location: On Plum Brook about 1,000 feet upstream from Pomeroy Lane in Amherst, Mass.

Mt. Holyoke, Mass. USGS quadrangle

Latitude: 42°20'16" Longitude: 72°30'38"

Facilities Affected:

Facility	Elevation
2 Houses	178
House	174
4 Houses	172
2 Tobacco barns	172
Underground telephone cable	165
Potwine Road	158

Geologic Conditions: Both abutments are outwash sand and gravel underlain by lacustrine deposits. Surficial deposits are lacustrine silts and outwash sand and gravel. Depth to triassic sandstone and shale bedrock is estimated to be from 80 to 100 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2107

Location: On Hop Brook about 100 feet upstream from Warren Wright Street in Pelham, Mass.

Belchertown, Mass. USGS quadrangle

Latitude: 42°19'12" Longitude: 72°27'39"

Facilities Affected:

Facility	Elevation
House	222
Federal St. and utilities	222
6 Houses	220
House	218
House	215
Goodell Road and utilities	212
House and garage	212
Orchard Road and utilities	200

POTENTIAL SITE CV-2107 (cont'd)

Geologic Conditions: Both abutments are fine to coarse sand with some gravel. Surficial deposits are swamp and outwash sand. Depth to triassic conglomerate bedrock is estimated to be from 30 to 40 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and the foundation. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED FORT RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	STORAGE IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV ** TYPE (MSL)	STORAGE AT CREST AC FT	STORAGE AT CREST IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-CV-2101 DA= 0.84 SQ MI = 538 AC USGS QUAD-MT TOBY LATITUDE 42-23-59 LONGITUDE 72-30-12																
SITE RATING (2) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.10 IN, PEAK FLOW = 254 CFS																
226.0	0	0.0		4		3.0	237.8 E	186	4.1	1860	240.2	38	243.2	20	19	*****
235.0	100	2.2	4630	22	20700	12.0	241.5 E	311	7.0	1490	243.8	46	247.0	24	29	0.21
237.2	161	3.5	2990	29	16550	14.2	241.7 E	325	7.3	1480	244.2	47	247.2	24	30	0.29
239.2	221	4.9	2410	34	15450	16.2	243.7 E	409	9.1	1300	246.2	52	249.2	26	36	0.35
242.3	342	7.6	1700	43	13650	19.4	244.8 E	463	10.3	1250	247.2	55	250.2	27	43	0.46
242.5	349	7.8	1690	43	13700	19.5	245.0 E	470	10.5	1250	247.5	55	250.5	27	44	0.46
SITE-CV-2102 DA= 10.70 SQ MI = 6848 AC USGS QUAD-SHUTESBURY LATITUDE 42-23-06 LONGITUDE 72-29-23																
SITE RATING (3) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.10 IN, PEAK FLOW = 2655 CFS																
191.8	0	0.0		27		4.9	218.5 E	3851	6.6	570	221.0	308	227.3	40	487	*****
195.0	100	0.2	19880	47	42100	8.0	195.0 T	186	0.3	10710	210.0	186	216.2	29	227	0.42
213.3	2461	4.3	1170	225	12850	26.4	225.8 E	6181	10.8	470	228.2	370	234.6	48	722	4.13
228.8	7183	12.6	630	375	12070	41.9	237.3 E	10827	19.0	420	239.7	488	247.7	61	1332	7.52
242.5	13232	23.2	430	506	11170	55.5	242.5 T	13317	23.2	420	247.2	537	250.2	63	1490	9.57
SITE-CV-2104 DA= 0.88 SQ MI = 563 AC USGS QUAD-MT HOLYOKE LATITUDE 42-20-21 LONGITUDE 72-33-25																
SITE RATING (3) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.10 IN, PEAK FLOW = 266 CFS																
131.7	0	0.0		4		3.6	146.3 E	195	4.1	1590	148.7	33	151.7	24	51	*****
142.3	100	2.0	4230	18	23760	14.3	148.8 E	275	5.9	1540	151.3	44	154.3	26	70	0.21
145.2	162	3.4	2880	25	18670	17.2	149.7 E	305	6.5	1530	152.0	48	155.0	27	78	0.29
149.3	285	6.1	2060	35	16710	21.2	151.8 E	394	8.3	1490	154.3	60	157.3	29	107	0.41
152.3	408	8.7	2000	49	16580	24.2	154.8 E	554	11.8	1470	157.2	76	160.2	32	178	0.50
152.5	420	8.8	2030	51	16870	24.5	155.0 E	569	12.1	1500	157.3	77	160.3	32	194	0.52

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED FORT RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY					DESIGN HIGH WATER		DAM			SAFE YIELD AT 95
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV (MSL)	TYPE	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	PERCENT CHANCE (MGD)
SITE-CV-2105 DA= 2.61 SQ MI = 1670 AC USGS QUAD-MT HOLYOKE LATITUDE 42-19-14 LONGITUDE 72-33-48																	
SITE RATING (3) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.10 IN, PEAK FLOW = 789 CFS																	
141.5	0	0.0		9		4.5	162.1	E	866	6.1	560	164.5	93	168.8	32	66	*****
147.5	100	0.7	5580	25	22160	10.5	147.5	T	121	0.8	4620	159.8	69	166.8	30	58	0.30
156.8	482	3.5	1370	58	11370	19.7	167.3	E	1354	9.7	490	169.7	119	175.0	38	104	0.87
166.5	1245	8.8	900	103	10900	29.5	173.0	E	2075	14.8	540	174.8	179	179.3	42	159	1.55
172.5	1973	14.2	770	150	10060	35.5	172.5	T	1994	14.2	760	177.3	209	180.3	43	192	1.95
SITE-CV-2106 DA= 2.74 SQ MI = 1754 AC USGS QUAD-MT HOLYOKE LATITUDE 42-20-16 LONGITUDE 72-30-38																	
SITE RATING (3) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.10 IN, PEAK FLOW = 827 CFS																	
155.0	0	0.0		8		5.0	174.6	T	606	4.1	1830	177.0	141	180.0	30	125	*****
162.2	100	0.7	9750	19	51510	12.2	162.2	T	122	0.8	8000	175.1	110	179.3	29	109	0.31
166.3	188	1.2	5290	24	42320	16.2	166.3	T	210	1.4	4730	175.2	112	178.7	29	97	0.48
169.8	276	1.9	4120	27	41670	19.7	169.8	T	298	2.0	3820	176.5	132	179.7	30	117	0.62
172.5	407	2.8	3320	68	19870	22.5	172.5	T	428	2.9	3150	177.3	147	180.3	30	154	0.80
SITE-CV-2107 DA= 5.86 SQ MI = 3750 AC USGS QUAD-BELCHERTOWN LATITUDE 42-19-12 LONGITUDE 72-27-39																	
SITE RATING (3) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.10 IN, PEAK FLOW = 1769 CFS																	
189.0	0	0.0		18		5.0	214.7	E	2136	6.8	470	217.2	184	223.2	39	162	*****
192.8	100	0.3	8580	34	25290	8.8	192.8	T	147	0.5	5840	207.7	111	213.2	29	66	0.37
204.2	778	2.5	2000	90	17290	20.2	204.2	T	825	2.5	1880	218.7	197	229.0	45	247	1.60
215.0	2135	6.8	920	166	11850	31.0	215.0	T	2182	7.0	900	224.7	237	229.8	46	263	2.97
222.5	3593	11.5	640	223	10280	38.5	222.5	T	3640	11.6	630	227.1	252	230.1	46	269	3.93

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

EXISTING SITE CV-2110 (Baker Reservoir)

Location: On Deane Brook about 25 feet upstream from Baker Road in Shutesbury, Mass.

Shutesbury, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
975 est.	5	4	325	0.51

Potential for Expansion: The small drainage area limits expansion potential.

Remarks: The dam is an earthfill structure about 50 feet long with a 2-foot top width. The principal spillway is a concrete weir, 4 feet wide and 1-foot deep with provisions for stop-logs.

Ownership and Use: The reservoir is owned by George Plaza and Alfred Moulton and is used for recreation.

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EXISTING SITE CV-2111 (Hill Reservoir)

Location: On Amethyst Brook about 2,400 feet upstream from Gates Road in Pelham, Mass.

Shutesbury, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
605	8	8	2,600	4.06

Potential for Expansion: Steep topography limits any significant increase in surface area and storage.

Remarks: The dam is an earthfill structure about 500 feet long with an 8-foot top width. The principal spillway is a 32-foot wide concrete step weir having a maximum head of 4 feet and provisions for 1 foot of flashboards. Water outlets through a gravel chute with stone masonry sidewalls and then through a 7-step concrete channel. Concrete in the spillway is cracked in places.

EXISTING SITE CV-2111 (Hill Reservoir) (cont'd)

Ownership and Use: The reservoir is owned by the Town of Amherst and is used for water supply.

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EXISTING SITE CV-2112 (Hawley Reservoir)

Location: On Harris Brook about 50 feet upstream from Amherst Road in Pelham, Mass.

Belchertown and Shutesbury, Mass. USGS quadrangles

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
608 est.	5	14	800	1.25

Potential for Expansion: Limited due to excessive diking necessary on the right abutment. Raising the existing water level by about 40 feet would provide about 80 acres of water surface. Amherst Road would be affected.

Remarks: The dam is a stone masonry and concrete structure about 150 feet long. The upstream face is concrete and slightly sloped, while the downstream face is vertical rock masonry. The top of the dam is concrete and 8 feet wide. The spillway is a concrete drop-structure, 16 feet wide and one foot deep. Masonry in the dam is cracked and the concrete is beginning to spall.

Ownership and Use: The reservoir is owned by the town of Amherst and is used for water supply.

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EXISTING SITE CV-2113 (Scarboro Pond)

Location: On Scarboro Brook about 25 feet upstream from Gulf Road in Belchertown, Mass.

Belchertown, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
733 est.	1	15	950	1.48

Potential for Expansion: Steep topography limits any significant increase in surface area or storage.

Remarks: The dam is a rock masonry structure about 150 feet long with a 7-foot top width. The principal spillway is a 13-foot wide rock masonry drop-structure, 1.5 feet deep.

Ownership and Use: The pond is owned by the Pelham Country Club and is used for recreation.

****

EXISTING SITE CV-2114 (Hadley Reservoir)

Location: On Harts Brook about 8,000 feet upstream from Bay Road in Hadley, Mass.

Mt. Holyoke, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
255 est.	3	10	300	0.47

Potential for Expansion: The small drainage area limits the potential for expansion.

Remarks: The dam is an earthfill structure about 500 feet long with a 20-foot top width. The spillway is a concrete weir, 12 feet wide and 1.5 feet deep. Concrete in the spillway is spalling.

Ownership and Use: The reservoir is owned by the town of Hadley and is used for water supply.

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CV-2110
Baker Reservoir

CV-2113
Scarboro Pond

CV-2111
Hill Reservoir

CV-2114
Hadley Reservoir

CV-2112
Hawley Reservoir

EXISTING RESERVOIRS
SUBWATERSHED CV-21
FORT RIVER

LEGEND

SUBWATERSHED BOUNDARY

DRAINAGE AREA ABOVE STRUCTURE

POTENTIAL SITE SHOWING BENEFICIAL POOL FOR LARGEST STRUCTURE

EXISTING RESERVOIR OR POND

Source - USGS Quad. Sheets
Belchertown - 1964
Mt Holyoke - 1964
Mt Toby - 1971
Shutesbury - 1964

2101
2102
2104
2105
2106
2107
2110
2111
2112
2113
2114

FORT RIVER (CV-21)

CENTRAL CONNECTICUT VALLEY STUDY AREA
MASSACHUSETTS
EXISTING AND POTENTIAL RESERVOIR SITES
UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

CENTRAL CONNECTICUT VALLEY STUDY AREA
SITE DATA FOR

Subwatershed CV-22, Mill River

The Mill River subwatershed covers about 38,200 acres in Ashfield, Conway, and Whately in Franklin County; and Chesterfield, Easthampton, Goshen, Hatfield, Northampton, Westhampton, and Williamsburg in Hampshire County.

The major stream is the Mill River which originates in Goshen and flows southeasterly through Williamsburg and Northampton to the Connecticut River.

Geology of the potential reservoir sites is characterized by glacial till underlain by schist or gneiss bedrock.

The Mill River watershed was identified in the 1970 Comprehensive Study of the Connecticut River Basin as having potential for a possible PL-566 flood control project. A preliminary investigation report indicated that a feasible project could be developed to provide flood control, recreation, and fish and wildlife benefits. Further planning efforts were suspended because of a lack of local interest.

The Mill River was selected as one of three watersheds to be re-studied in the Supplemental Study of the Connecticut River Basin.

Fifteen potential reservoir sites and eleven existing reservoirs were studied in this inventory.

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POTENTIAL SITE CV-2201

Location: On the East Branch of the Mill River about 3,000 feet upstream from the confluence of Bradford Brook in Williamsburg, Mass.

Williamsburg, Mass. USGS quadrangle

Latitude: 42°26'03" Longitude: 72°43'57"

Facilities Affected: None below elevation 875.

Geologic Conditions: Both abutments are silty sand with gravel, cobbles, and boulders (glacial till). Surficial deposits are glacial till and poorly graded gravel with cobbles and boulders. Bedrock outcrops in the brook and is shallow elsewhere. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2202

Location: On the East Branch of the Mill River about 1,900 feet downstream from Valley Road in Williamsburg, Mass.

Williamsburg, Mass. USGS quadrangle

Latitude: 42°25'26" Longitude: 72°44'15"

Facilities Affected:

Facility	Elevation
Ashfield Rd., & utilities	785
Conway Rd. & utilities	785
House	785
House	782
Hemenway Rd. & utilities	718
3 Camps, 2 houses, 1 garage	710
Williamsburg Valley Rd. and utilities	705
House	700

Geologic Conditions: Both abutments and surficial deposits are silty sand with gravel, cobbles, and boulders (glacial till). Depth to schist bedrock in the foundation is estimated to be from 15 to 20 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

This is substantially the same site as Site M9-2 that was included in the Comprehensive Study of the Connecticut River Basin, U.S. Department of Agriculture, June 1970, and Site 2 that was included in the Preliminary Investigation of the Mill River Watershed, U.S. Department of Agriculture, November 1971.

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POTENTIAL SITE CV-2203

Location: On Mill River about 2,500 feet upstream from Old Goshen Road in Williamsburg, Mass.

Goshen, Mass. USGS quadrangle

Latitude: 42°25'33" Longitude: 72°46'17"

Facilities Affected: None below elevation 1,077

Geologic Conditions: The left abutment is glacial outwash poorly graded sand or gravel. The right abutment is glacial drift, sand and gravel with many boulders, and is shallow to bedrock. Rock outcrops high on the right abutment. Surficial deposits are glacial outwash and englacial drift. Depth to bedrock in the foundation is estimated to be from 10 to 15 feet. Waterholding capabilities appear to be fair. Leakage is expected through the left abutment. Pervious borrow material for dam construction was located near the site; impervious material was not located.

POTENTIAL SITE CV-2203 (cont'd)

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2204

Location: On an unnamed tributary to Joe Wright Brook about 2,300 feet southeast of the intersection of Depot and Adams Roads in Williamsburg, Mass.

Williamsburg, Mass. USGS quadrangle

Latitude: 42°23'55" Longitude: 72°42'26"

Facilities Affected: None below elevation 607.

Geologic Conditions: Both abutments are silty sand with gravel, cobbles and boulders (glacial till). Bedrock outcrops high on the right abutment. Surficial deposits are glacial till. Depth to schist bedrock in the foundation is estimated to be from 20 to 30 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2205

Location: On an unnamed tributary to the West Branch of the Mill River about 1,500 feet downstream from Hyde Hill Road in Goshen, Mass.

Goshen, Mass. USGS quadrangle

Latitude: 42°24'43" Longitude: 72°46'30"

Facilities Affected:

Facility	Elevation
Hyde Hill Road	1,178

Geologic Conditions: Both abutments are schist bedrock. Surficial deposits are englacial drift and schist bedrock. Depth to schist bedrock in the foundation is estimated to be from 5 to 10 feet. Waterholding capabilities appear to be good. Pervious borrow material for dam construction was located near the site: impervious material was not located.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2206

Location: On the Mill River about 900 feet upstream from Village Hill Road in Williamsburg, Mass.

Goshen, Mass. USGS quadrangle
Latitude: 42°24'24" Longitude: 72°45'05"

Facilities Affected:

Facility	Elevation
House	825
House and barn	822
House	818
House and barn	810
Camp	805
Route 9	795
Goshen Rd. and utilities	795

Geologic Conditions: Both abutments are silty sand with gravel, cobbles, and boulders (glacial till). Surficial deposits are glacial till. Depth to schist bedrock in the foundation is estimated to be about 10 feet. Waterholding capability appears to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location. See Existing Site CV-2206 for data on the existing dam and reservoir at this site.

This is substantially the same site as Site M9-3 that was included in the Comprehensive Study of the Connecticut River Basin, U.S. Department of Agriculture, June 1970; and site 3 that was included in the Preliminary Investigation of the Mill River Watershed, U. S. Department of Agriculture, November 1971.

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POTENTIAL SITE CV-2207

Location: On Beaver Brook about 1,500 feet downstream from Mountain Street in Williamsburg, Mass.

Williamsburg, Mass. USGS quadrangle
Latitude: 42°22'48" Longitude: 72°41'13"

Facilities Affected:

Facility	Elevation
2 Houses and barn	435
Cemetery	432
House, chicken houses	432
3 Houses and buildings	430
North Farms Road	428
House and garage	420
Mountain Street	410

Geologic Conditions: Both abutments and the foundation are silty sand with gravel, cobbles, and boulders. Depth to schist bedrock in the foundation is estimated to be from 20 to 30 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2208

Location: On Unquomonk Brook about 1800 feet upstream from the confluence with the Mill River in Williamsburg, Mass.

Williamsburg, Mass. USGS quadrangle

Latitude: 42°23'08" Longitude: 72°43'18"

Facilities Affected:

Facility	Elevation
House	552
House	550
South St. and utilities	548
Buildings	536

Geologic Conditions: The left abutment is poorly graded sand and gravel (glacial outwash). The right abutment is poorly graded sand with gravel, cobbles, and boulders. Some outwash sand and gravel may occur high on the right abutment. Surficial deposits are glacial outwash and englacial drift. Depth to schist bedrock is estimated to be from 20 to 30 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and possibly through the foundation. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2209

Location: On Meekin Brook about 4,600 feet upstream from Route 143 in Williamsburg, Mass.

Goshen, Mass. USGS quadrangle

Latitude: 42°23'24" Longitude: 72°45'20"

Facilities Affected:

Facility	Elevation
Barn	910
2 Houses	905

Geologic Conditions: Both abutments and surficial deposits are silty sand with gravel, cobbles, and boulders (glacial till). Depth to schist bedrock in the foundation is estimated to be from 10 to 15 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

POTENTIAL SITE CV-2209 (cont'd)

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location. If the site is developed to the elevation 935, an auxiliary dike will be required.

This is substantially the same site as Site M9-6 that was included in the Comprehensive Study of the Connecticut River Basin, U.S. Department of Agriculture, June 1970.

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POTENTIAL SITE CV-2210

Location: On Roberts Meadow Brook at Roberts Meadow Reservoir in Northampton, Mass.

Easthampton, Mass. USGS quadrangle

Latitude: 42°21'06" Longitude: 72°42'37"

Facilities Affected:

Facility	Elevation
Upper Reservoir	450
House, garage, barn	445
House	440
Kennedy Rd. & utilities	428
Chesterfield Rd. & utilities	418
Sylvester Rd. & utilities	415
Utility Lines	410
Reservoir Rd. & utilities	405

Geologic Conditions: The right abutment is gneiss bedrock. The left abutment is thin englacial drift underlain by gneiss bedrock. Surficial deposits are englacial drift and gneiss bedrock. Depth to gneiss bedrock in the foundation is estimated to be from 10 to 20 feet. Water-holding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: Preliminary designs indicate that a concrete emergency spillway may be needed at this site. Auxiliary dikes would be required at elevation 415, 435, and 455.

This is substantially the same site as Site M9-7 that was included in the Comprehensive Study of the Connecticut River Basin, U.S. Department of Agriculture, June 1970; and Site 7 that was included in the Preliminary Investigation of the Mill River Watershed, U.S. Department of Agriculture, November 1971.

Public Ownership: Roberts Meadow Reservoir and the adjacent area is owned by the City of Northampton.

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POTENTIAL SITE CV-2211

Location: On Brewer Brook about 7,900 feet upstream from its confluence with Roberts Meadow Brook in Westhampton, Mass.

Westhampton, Mass. USGS quadrangle

Latitude: 42°21'44" Longitude: 72°45'46"

Facilities Affected: None below elevation 1,070.

Geologic Conditions: Both abutments are silty sand with gravel, cobbles and boulders (glacial till). Surficial deposits are glacial till, englacial drift, and granulite and pegmatite bedrock. Depth to pegmatite bedrock in the foundation is estimated to be less than 10 feet. Waterholding capabilities appear to be fair to good. Leakage is expected through the foundation. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2212

Location: On Marble Brook about 6,100 feet upstream from its confluence with Roberts Meadow Brook in Northampton, Mass.

Easthampton, Mass. USGS quadrangle

Latitude: 42°21'12" Longitude: 72°44'06"

Facilities Affected: None below elevation 547.

Geologic Conditions: Both abutments are silty sand, gravel, cobbles and boulders, shallow to bedrock. Surficial deposits are englacial drift and bedrock. Depth to granite gneiss bedrock in the foundation is estimated to be from 5 to 10 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2213

Location: On Marble Brook about 2,700 feet upstream from the confluence with Roberts Meadow Brook in Northampton, Mass.

Easthampton, Mass. USGS quadrangle

Latitude: 42°20'32" Longitude: 72°44'07"

Facilities Affected: None below elevation 537

Geologic Conditions: Both abutments are silty sand with gravel, cobbles, and boulders (englacial drift). Surficial deposits are englacial drift and terrace sand and gravel. Depth to gneiss bedrock in the foundation is estimated to be from 20 to 25 feet. Waterholding capabilities appear to be fair. Leakage is expected through the foundation. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

This is substantially the same site as Site M9-5 that was included in the Comprehensive Study of the Connecticut River Basin, U.S. Department of Agriculture, June 1970.

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POTENTIAL SITE CV-2214

Location: On Roberts Meadow Brook about 300 feet upstream from Kennedy Road in Northampton, Mass.

Easthampton, Mass. USGS quadrangle

Latitude: 42°20'08" Longitude: 72°44'15"

Facilities Affected:

Facility	Elevation
2 Houses and barn	538
Chesterfield Rd. & utilities	518
Montague Rd. & utilities	510
Overhead telephone lines	502
Garage	502

Geologic Conditions: Both abutments are granite gneiss with a thin soil mantle. There is rock outcropping in the brook. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

POTENTIAL SITE CV-2214 (cont'd)

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location. If the site is developed to elevation 540, an auxilliary dike will be required.

Public Ownership: Upper Reservoir and the adjacent area is owned by the City of Northampton.

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POTENTIAL SITE CV-2215

Location: On an unnamed tributary to the Mill River about 500 feet upstream from Rocky Hill Road in Northampton, Mass.

Easthampton, Mass. USGS quadrangle

Latitude: 42°18'27" Longitude: 72°39'42"

Facilities Affected:

Facility	Elevation
High tension lines	235
High tension lines	230
High tension line	220

Geologic Conditions: Both abutments are silty sand with gravel, cobbles and boulders. Surficial deposits are englacial drift. Depth to gneiss bedrock in the foundation is estimated to be from 20 to 30 feet. Water-holding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED MILL RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	STORAGE IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV (MSL)	TYPE	STORAGE AT CREST AC FT	STORAGE AT CREST IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-CV-2201 DA= 3.11 SQ MI = 1990 AC USGS QUAD-WILLIAMSBURG LATITUDE 42-26-03 LONGITUDE 72-43-57																	
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.20 IN, PEAK FLOW = 950 CFS																	
816.0	0	0.0		5		16.1	836.1	E	688	4.1	650	842.0	90	848.9	49	77	*****
824.0	100	0.6	4170	23	17810	24.1	826.5	E	183	1.1	2280	833.1	59	837.9	38	39	0.31
837.6	774	4.6	880	76	9030	37.7	840.1	E	993	6.0	690	847.4	104	853.5	53	98	1.25
851.6	2123	12.8	430	114	8040	51.6	854.1	E	2442	14.7	380	859.5	129	864.8	65	165	2.20
862.5	3472	20.9	330	135	8540	62.5	865.0	E	3834	23.1	300	869.9	147	875.0	75	248	2.71
867.4	4147	25.0	310	143	9000	67.4	869.9	E	4529	27.2	280	875.0	158	880.4	80	303	2.84
SITE-CV-2202 DA= 7.35 SQ MI = 4704 AC USGS QUAD-WILLIAMSBURG LATITUDE 42-25-26 LONGITUDE 72-44-15																	
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.20 IN, PEAK FLOW = 2246 CFS																	
707.5	0	0.0		11		12.6	740.0	E	1627	4.1	530	750.3	117	760.5	66	243	*****
713.2	100	0.3	4460	22	20480	18.2	715.7	E	218	0.6	2050	722.5	45	727.8	33	46	0.39
741.5	1717	4.4	600	94	11010	46.5	744.0	E	2018	5.1	510	752.0	124	758.2	63	218	2.86
765.8	4950	12.6	410	178	11520	70.8	768.3	E	5443	13.8	380	775.0	209	781.5	87	535	5.17
787.5	9724	24.7	360	286	12310	92.5	787.5	T	9783	25.0	360	791.9	319	795.0	100	815	6.70
SITE-CV-2203 DA= 5.29 SQ MI = 3386 AC USGS QUAD-GOSHEN LATITUDE 42-25-33 LONGITUDE 72-46-17																	
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.20 IN, PEAK FLOW = 1387 CFS																	
1011.3	0	0.0		6		31.2	1050.6	T	1171	4.1	1100	1060.6	65	1068.0	88	196	*****
1020.1	100	0.4	9790	17	58460	40.2	1020.1	T	142	0.5	6880	1035.1	33	1041.5	61	67	0.36
1037.4	544	1.9	2270	35	34800	57.4	1037.4	T	586	2.0	2110	1051.5	53	1058.0	78	133	1.24
1056.1	1431	5.1	1080	59	26190	76.1	1056.1	T	1474	5.1	1050	1068.9	74	1075.1	95	267	2.23
1069.4	2319	8.2	730	75	22710	89.4	1069.4	T	2361	8.3	720	1076.1	85	1079.8	100	320	3.01
1072.5	2563	9.1	680	79	22000	92.5	1072.5	T	2605	9.2	670	1077.3	87	1080.3	100	332	3.16

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED MILL RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95
ELEV (MSL)	STORAGE AC FT	STORAGE IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV (MSL)	TYPE	STORAGE AT CREST AC FT	STORAGE AT CREST IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	PERCENT CHANCE (MGD)
SITE-CV-2204 DA= 0.64 SQ MI = 410 AC USGS QUAD-WILLIAMSBURG LATITUDE 42-23-55 LONGITUDE 72-42-26																	
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.20 IN, PEAK FLOW = 196 CFS																	
573.4	0	0.0		3		3.4	587.9	E	142	4.1	1170	591.0	20	595.4	25	18	*****
585.5	100	2.9	2090	14	14490	15.6	588.0	E	145	4.3	1440	592.5	22	596.0	26	20	0.18
590.0	174	5.1	1580	19	14290	20.0	592.5	E	231	6.8	1190	596.5	25	600.0	30	31	0.27
596.7	323	9.5	1200	25	15230	26.7	599.2	E	395	11.6	980	602.4	37	605.5	36	52	0.39
601.7	472	13.7	1060	34	14570	31.7	604.2	E	572	16.7	880	606.8	52	609.8	40	75	0.47
602.5	499	14.6	1050	37	14110	32.5	605.0	E	606	17.7	870	607.2	54	610.2	40	80	0.49
SITE-CV-2205 DA= 0.73 SQ MI = 467 AC USGS QUAD-GOSHEN LATITUDE 42-24-43 LONGITUDE 72-46-30																	
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.20 IN, PEAK FLOW = 223 CFS																	
1172.1	0	0.0		4		2.0	1182.6	E	162	4.1	930	1185.9	28	1189.5	19	16	*****
1180.1	100	2.5	1930	20	9430	10.2	1182.6	E	162	4.1	1200	1186.8	29	1189.9	20	16	0.20
1185.8	235	6.0	1110	28	9410	15.7	1188.3	E	314	8.1	830	1191.8	40	1194.8	25	26	0.34
1190.1	371	9.5	880	34	9640	20.2	1192.6	E	474	12.2	690	1195.6	54	1198.6	29	36	0.45
1192.5	457	11.7	810	42	8760	22.5	1195.0	E	582	14.8	640	1197.3	61	1200.3	30	44	0.50
SITE-CV-2206 DA= 8.84 SQ MI = 5658 AC USGS QUAD-GOSHEN LATITUDE 42-24-24 LONGITUDE 72-45-05																	
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.20 IN, PEAK FLOW = 2173 CFS																	
737.2	0	0.0		18		7.1	766.8	T	1957	4.1	800	777.5	142	787.7	58	223	*****
741.3	100	0.2	8220	29	28400	11.3	741.3	T	171	0.4	4820	756.2	76	761.2	31	46	0.40
768.2	2048	4.3	820	122	13770	38.2	768.2	T	2118	4.5	800	783.0	155	788.5	59	236	3.43
793.8	5943	12.6	460	183	15020	63.8	793.8	T	6014	12.8	460	806.8	219	811.9	82	724	6.21
820.8	11787	25.0	390	245	18960	90.8	820.8	T	11857	25.2	390	826.5	274	829.9	100	1390	8.07

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
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(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED MILL RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV ++ (MSL)	TYPE	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	PERCENT CHANCE (MGD)
SITE-CV-2207	DA= 4.85 SQ MI = 3104 AC						USGS QUAD-WILLIAMSBURG					LATITUDE 42-22-48		LONGITUDE 72-41-13			
SITE RATING (1)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM					RUNOFF = 8.10 IN, PEAK FLOW = 1464 CFS					
415.0	0	0.0		15		5.0	430.2	E	1073	4.1	760	435.0	263	440.0	30	27	*****
419.5	100	0.4	6030	29	20870	9.5	422.0	E	241	0.8	2500	431.7	185	437.4	27	22	0.35
425.0	416	1.6	2110	87	10090	15.1	427.5	E	708	2.7	1240	434.5	249	439.2	29	26	1.00
430.4	1048	4.0	1200	152	8250	20.4	430.4	T	1086	4.1	1160	436.5	298	440.0	30	27	1.81
432.5	1414	5.5	1020	201	7180	22.5	432.5	T	1453	5.6	990	437.0	311	440.0	30	28	2.14
SITE-CV-2208	DA= 2.07 SQ MI = 1325 AC						USGS QUAD-WILLIAMSBURG					LATITUDE 42-23-08		LONGITUDE 72-43-18			
SITE RATING (3)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM					RUNOFF = 8.20 IN, PEAK FLOW = 633 CFS					
515.3	0	0.0		3		25.2	544.5	E	719	6.5	730	546.9	84	550.9	61	70	*****
530.3	100	0.8	7180	10	68570	40.3	530.3	T	117	1.1	6160	542.5	65	547.9	58	59	0.28
538.0	316	2.9	2230	45	15640	48.0	548.5	E	1047	9.5	670	550.9	104	555.8	66	94	0.61
545.0	747	6.8	1190	77	11600	55.0	545.0	T	763	6.8	1160	551.5	108	555.4	65	91	1.04
549.5	1126	10.2	1050	96	12260	59.5	549.5	T	1143	10.3	1030	552.0	111	555.0	65	89	1.31
SITE-CV-2209	DA= 1.81 SQ MI = 1158 AC						USGS QUAD-GOSHEN					LATITUDE 42-23-24		LONGITUDE 72-45-20			
SITE RATING (1)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM					RUNOFF = 8.20 IN, PEAK FLOW = 553 CFS					
893.9	0	0.0		6		3.9	923.5	E	731	7.6	730	925.9	41	932.0	42	99	*****
901.5	100	1.0	5750	18	31750	11.6	901.5	T	114	1.2	5020	915.3	31	924.5	35	61	0.27
916.9	486	5.0	1770	32	27160	26.9	916.9	T	500	5.1	1720	928.4	43	937.9	48	137	0.75
935.6	1257	13.0	960	50	23970	45.7	948.1	E	1995	20.7	600	950.0	72	955.8	66	328	1.29
948.8	2028	21.0	760	70	22120	58.8	957.3	E	2697	27.9	570	959.5	87	964.5	75	474	1.58
954.0	2413	25.0	680	78	20900	64.0	960.5	E	2969	30.7	550	963.0	91	966.9	77	516	1.65

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
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(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED MILL RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV ++ TYPE (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-CV-2210 DA= 10.70 SQ MI = 6848 AC USGS QUAD-EASTHAMPTON LATITUDE 42-21-06 LONGITUDE 72-42-37																
SITE RATING (1) STREAM WATER QUALITY (A) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.10 IN, PEAK FLOW = 2828 CFS																
403.1	0	0.0		46		3.0	426.5 E	4451	7.8	280	429.0	296	439.7	40	189	*****
404.7	100	0.2	13870	71	19480	4.8	404.7 T	186	0.3	7480	415.7	205	421.0	21	41	0.42
419.2	2461	4.3	890	240	9070	19.2	419.2 T	2547	4.5	860	432.2	311	441.9	42	218	4.13
435.7	7183	12.6	360	326	7940	35.8	448.2 E	11721	20.5	220	450.0	398	459.7	60	616	7.52
449.0	11905	20.9	270	392	8310	49.0	449.0 T	11991	21.0	270	455.7	438	460.0	60	620	9.32
452.5	13335	23.4	270	415	8540	52.5	452.5 T	13420	23.5	260	457.0	446	460.0	60	620	9.59
SITE-CV-2211 DA= 1.24 SQ MI = 794 AC USGS QUAD-WESTHAMPTON LATITUDE 42-21-44 LONGITUDE 72-45-46																
SITE RATING (1) STREAM WATER QUALITY (A) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.10 IN, PEAK FLOW = 374 CFS																
1008.3	0	0.0		2		8.3	1033.5 E	274	4.1	1670	1037.8	33	1043.3	43	92	*****
1025.4	100	1.5	4500	14	32320	25.4	1027.9 E	148	2.2	3050	1034.6	28	1039.1	39	71	0.25
1036.6	359	5.4	1800	32	20370	36.7	1039.1 E	451	6.8	1430	1044.6	41	1049.4	49	128	0.54
1050.0	877	13.2	1080	45	21060	50.0	1052.5 E	1001	15.1	950	1057.1	51	1061.6	62	231	0.88
1060.5	1394	21.1	850	54	21910	60.5	1063.0 E	1554	23.5	760	1066.6	67	1070.6	71	332	1.08
1064.8	1653	25.0	800	63	20840	64.8	1067.3 E	1825	27.5	720	1070.8	76	1074.5	74	384	1.13
SITE-CV-2212 DA= 1.36 SQ MI = 870 AC USGS QUAD-EASTHAMPTON LATITUDE 42-21-12 LONGITUDE 72-44-06																
SITE RATING (1) STREAM WATER QUALITY (A) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.10 IN, PEAK FLOW = 411 CFS																
523.2	0	0.0		4		5.1	542.4 E	402	5.5	910	544.8	73	548.0	30	47	*****
534.3	100	1.4	4440	21	21000	16.2	544.8 E	555	7.6	800	546.7	87	549.8	32	53	0.25
537.3	177	2.4	3090	31	17770	19.2	537.3 T	188	2.5	2910	545.4	77	549.5	32	53	0.37
539.5	253	3.5	2280	38	15230	21.5	539.5 T	264	3.5	2190	545.4	77	550.0	32	54	0.46
542.5	396	5.5	1630	57	11270	24.5	542.5 T	407	5.6	1580	547.4	92	550.4	32	58	0.60

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
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(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED MILL RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV + TYPE (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	PERCENT CHANCE (MGD)
SITE-CV-2213	DA= 2.29 SQ MI = 1466 AC						USGS QUAD-EASTHAMPTON				LATITUDE 42-20-32		LONGITUDE 72-44-07			
SITE RATING (2)	STREAM WATER QUALITY (A)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.10 IN, PEAK FLOW = 691 CFS					
501.7	0	0.0		12		2.8	513.0 E	507	4.1	1000	517.9	82	523.7	25	77	*****
506.0	100	0.8	5150	37	13790	7.1	508.5 E	232	1.9	2210	515.5	76	521.3	22	61	0.29
513.7	534	4.4	1410	71	10680	14.7	516.2 E	738	6.0	1020	522.0	94	527.5	29	108	0.88
523.9	1402	11.5	760	99	10700	24.9	526.4 E	1678	13.7	630	531.3	123	536.0	37	194	1.54
531.7	2270	18.6	620	125	11230	32.7	531.7 T	2289	18.7	620	537.2	155	540.2	41	251	1.91
532.5	2365	19.4	620	129	11290	33.5	532.5 T	2383	19.5	610	537.0	154	540.0	41	247	1.95
SITE-CV-2214	DA= 6.11 SQ MI = 3910 AC						USGS QUAD-EASTHAMPTON				LATITUDE 42-20-08		LONGITUDE 72-44-15			
SITE RATING (3)	STREAM WATER QUALITY (A)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.10 IN, PEAK FLOW = 1845 CFS					
510.2	0	0.0		10		10.2	529.0 E	1352	4.1	870	534.2	206	539.5	39	140	*****
514.8	100	0.3	10710	33	32610	14.7	517.3 E	246	0.8	4350	528.0	141	534.7	35	89	0.37
522.0	482	1.5	2550	79	15550	22.0	524.5 E	755	2.3	1630	531.3	176	536.7	37	108	1.19
528.7	1246	3.8	1210	149	10100	28.7	531.2 E	1699	5.1	890	536.0	225	539.9	40	146	2.20
532.5	1890	5.8	1060	188	10670	32.5	532.5 T	1939	6.0	1040	537.0	236	540.0	40	151	2.78
SITE-CV-2215	DA= 0.59 SQ MI = 378 AC						USGS QUAD-EASTHAMPTON				LATITUDE 42-18-27		LONGITUDE 72-39-42			
SITE RATING (1)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.10 IN, PEAK FLOW = 178 CFS					
220.6	0	0.0		4		1.6	228.6 E	131	4.1	1090	230.7	34	233.7	15	12	*****
227.6	100	3.2	1890	25	7590	8.6	230.1 E	175	5.6	1080	232.5	39	235.5	17	15	0.18
229.3	151	4.8	1450	30	7190	10.3	231.8 E	240	7.6	910	234.2	43	237.2	18	18	0.24
231.0	201	6.4	1230	35	7120	12.0	233.5 E	301	9.6	820	235.8	48	238.8	20	22	0.29
232.3	252	8.0	1090	38	7120	13.3	234.8 E	361	11.5	760	237.1	51	240.1	21	26	0.33

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

EXISTING SITE CV-2206 (Graham Pond)

Location: On the Mill River about 800 feet upstream from Village Hill Road in Williamsburg, Mass.

Goshen, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
732	74	18	5,650	8.83

Potential for Expansion: Please refer to Site Data and Design Summary Table for Potential Site CV-2206 for details.

Remarks: The dam is a rock masonry structure about 40 feet long with a concrete weir located in the center. The concrete in the weir and sidewalls is cracked and ravelling.

Ownership and Use: The pond is owned by Margaret, Thomas and Robert Hodgkins and is used for recreation.

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EXISTING SITE CV-2210

Location: On Roberts Meadow Brook about 1,600 feet upstream from Reservoir Road in Northampton, Mass.

Easthampton, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
402	25	27	6,800	10.63

Potential for Expansion: Please refer to Site Data and Design Summary Table for Potential Site CV-2210 for details.

Remarks: The dam is a rock masonry structure about 200 feet long with a 40-foot wide ogee weir section. A gate house is located near the right abutment.

Ownership and Use: The reservoir is owned by the city of Northampton and is used for a water supply.

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EXISTING SITE CV-2220 (Highland Lakes-Upper)

Location: On the West Branch of the Mill River about 300 feet upstream from Moore Hill Road in Goshen, Mass.

Goshen, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
1,442	61	15	600	0.94

Potential for Expansion: The relatively small drainage area limits expansion potential.

Remarks: The dam is an earthfill structure about 500 feet long with a 10-foot top width. Both the upstream and downstream slopes are vegetated and appear well maintained. The outlet is a rock channel on the right abutment.

Ownership and Use: The lake is owned by the Commonwealth of Massachusetts, Department of Natural Resources and is used for recreation.

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EXISTING SITE CV-2221 (Highland Lakes-Lower)

Location: On the West Branch of the Mill River about 150 feet upstream from East Street in Goshen, Mass.

Goshen, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
1,401	94	18	1,100	1.72

Potential for Expansion: The relatively small drainage area limits expansion potential. Many cottages surround the lake.

Remarks: The dam is an earthfill structure about 550 feet long with an 8-foot top width. The upstream and downstream slopes are vegetated. The principal spillway is a concrete drop-structure, 40 feet wide and 3 feet deep with provisions for stoplogs.

Ownership and Use: The lake is owned by the Commonwealth of Massachusetts, Department of Natural Resources and is used for recreation.

****

EXISTING SITE CV-2222 (Mountain Street Reservoir)

Location: On Beaver Brook about 100 feet upstream from Rocks Road in Williamsburg, Mass.

Williamsburg, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
459	67	12	500	0.78

Potential for Expansion: The small drainage area limits expansion potential. Steep topography limits any significant increase in surface area or storage.

Remarks: The dam is an earthfill structure about 2,000 feet long with a 6-foot top width. The upstream slope is vegetated above the water line and riprapped below. The downstream slope is vegetated. The principal spillway is gated. The emergency spillway is a 12-foot wide concrete d op-structure with provisions for flashboards. Depth of the weir is 1 foot 4 inches.

Ownership and Use: The reservoir is owned by the city of Northampton and is used for water supply.

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EXISTING SITE CV-2223 (Fuller Pond)

Location: On an unnamed tributary to Beaver Brook about 700 feet upstream from Mountain Street in Williamsburg, Mass.

Williamsburg, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
433	3	5	100	0.16

Potential for Expansion: The small drainage area limits the potential for expansion.

Remarks: The dam is an earthfill structure about 150 feet long with a 6-foot top width. The principal spillway is a 6-foot wide rock weir structure having a maximum depth of 2 feet.

Ownership and Use: The pond is privately owned and is used for recreation.

****

EXISTING SITE CV-2224 (Unquomonk Reservoir)

Location: On Unquomonk Brook about 3,300 feet upstream from South Street in Williamsburg, Mass.

Williamsburg, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
822	5	20	650	1.02

Potential for Expansion: Steep topography limits any significant increase in surface area and storage.

Remarks: The dam is a concrete structure about 75 feet long with a 20-foot wide drop-structure in the center. A gate house is located to the left of the spillway.

Ownership and Use: The reservoir is owned by the town of Williamsburg and is used for water supply.

****

EXISTING SITE CV-2225 (Brass Mill Pond)

Location: On the Mill River near the intersection of Mountain Street and Route 9 in Williamsburg, Mass.

Williamsburg, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
439	10	20	48,850	

Potential for Expansion: Limited; an urban area and Route 9 are adjacent to the pond.

Remarks: The dam is a rock masonry drop-structure about 125 feet long. The right abutment is wooded while the left abutment is tied into an abandoned factory.

Ownership and Use: The pond is owned by Augie Woicekowski and has no specific use at the present time.

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EXISTING SITE CV-2226 (Upper Reservoir)

Location: On Roberts Meadow Brook about 2,600 feet downstream from Chesterfield Road in Northampton, Mass.

Easthampton, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
451	6	35	5,600	8.75

Potential for Expansion: Raising the existing water level by 50 feet would provide about 70 acres of water surface. Chesterfield Road would be affected.

Remarks: The dam is an earthfill structure about 125 feet long with a 10-foot top width. The principal spillway is a 40-foot wide weir with a depth of 4.5 feet.

Ownership and Use: The reservoir is owned by the city of Northampton and is used for a water supply.

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EXISTING SITE CV-2227 (Florence Pond)

Location: On an unnamed tributary to the Mill River about 2,500 feet upstream from Spring Street in Northampton, Mass.

Easthampton, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
265	5	4	300	0.47

Potential for Expansion: The relatively small drainage area limits the potential for expansion. Steep topography limits any significant increase in surface area.

Remarks: The dam is an earthfill structure about 125 feet long with a 3-foot top width. The upstream face is a vertical concrete wall and the downstream slope is wooded. The spillway is a 9-foot wide concrete chute structure with an inlet depth of 1 foot. The concrete in the spillway is cracked and spalling.

Ownership and Use: The pond is owned by Pauline A. Misterka and has no specific use at the present time.

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EXISTING SITE CV-2228 (Paradise Pond)

Location: On the Mill River about 1,300 feet upstream from Route 66 in Northampton, Mass.

Easthampton, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
135	16	16	35,350	55.23

Potential for Expansion: Limited; the Smith College Campus surrounds the pond.

Remarks: The dam is a rock masonry weir structure about 150 feet long with provisions for 2 feet of flashboards. The concrete in the sidewall of the left abutment is cracking.

Ownership and Use: The pond is owned by Smith College and is used for recreation.

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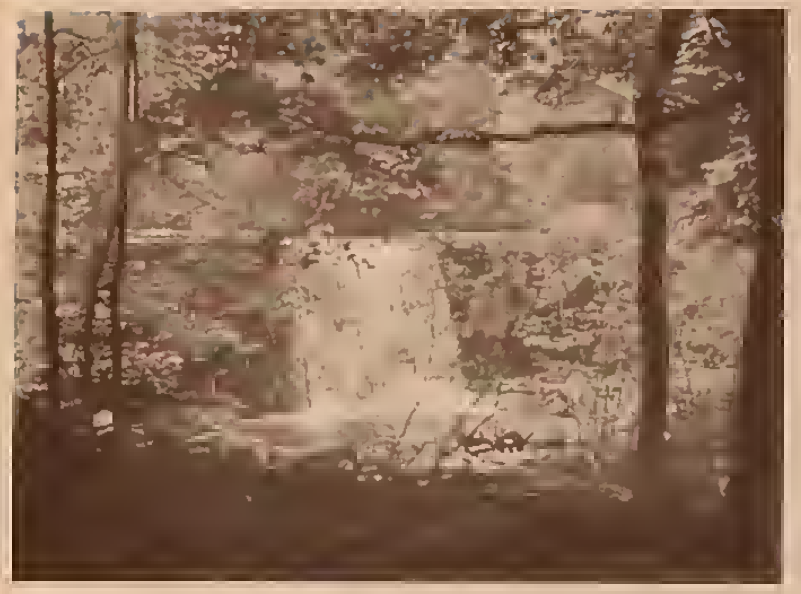

CV-2206
Graham Pond

CV-2222
Mountain St. Reservoir

CV-2210
Roberts Meadow
Reservoir

CV-2223
Fuller Pond

CV-2221
Highland Lakes - Lower

EXISTING RESERVOIRS
SUBWATERSHED CV-22
MILL RIVER

CV-2224
Unquomonk Reservoir

CV-2227
Florence Pond

CV-2225
Brass Mill Pond

CV-2228
Paradise Pond

CV-2226
Upper Reservoir

EXISTING RESERVOIRS
SUBWATERSHED CV-22
MILL RIVER

MILL RIVER (CV-22)

CENTRAL CONNECTICUT VALLEY STUDY AREA
MASSACHUSETTS
EXISTING AND POTENTIAL RESERVOIR SITES
UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

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LEGEND

- WATERSHED BOUNDARY
- DRAINAGE AREA ABOVE STRUCTURE
- POTENTIAL SITE SHOWING BENEFICIAL POOL FOR LARGEST STRUCTURE
- EXISTING POND OR RESERVOIR

SOURCE: USGS Quadrangles

Easthampton - 1964
Williamsburg - 1964
Goshen - 1972
Westhampton - 1972
Mt. Holyoke - 1964

CENTRAL CONNECTICUT VALLEY STUDY AREA
SITE DATA FOR

Subwatershed CV-23, Broad Brook

The Broad Brook subwatershed covers about 7,500 acres in Holyoke in Hampden County; and Easthampton and Southampton in Hampshire County.

The major stream is Broad Brook which originates in Holyoke and flows through Easthampton to its confluence with the Manhan River.

Geology of the potential reservoir sites is characterized by outwash sand and gravel underlain by triassic sandstone or basalt bedrock.

A PL-566 Watershed Work Plan has been developed and approved for the Broad Brook Watershed. Inability of local sponsors to obtain the necessary land rights for two reservoir sites has resulted in suspension of all activities under PL-566.

Three potential reservoir sites and three existing reservoirs were studied in the inventory.

POTENTIAL SITE CV-2303

Location: On Broad Brook about 300 feet upstream from Pomeroy Street in Eastampton, Mass.

Mt. Tom, Mass. USGS quadrangle

Latitude: 42°13'29" Longitude: 72°40'17"

Facilities Affected:

Facility	Elevation
3 Houses	245
East St. & utilities	242
4 Houses	240
High tension lines	238
House and garage	238
Dairy barn and house	234
Southampton Rd. & utilities	233
House	233
Cook Rd. & utilities	232
House	230
High pressure gas line	228

Geologic Conditions: Both abutments outwash sand or gravel. Surficial deposits are swamp and outwash sand and gravel. Depth to triassic sandstone bedrock in the foundation is estimated to be from 30 to 40 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and the foundation. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2304

Location: On Broad Brook approximately 100 feet upstream from Cherry Street in Holyoke, Mass.

Mt. Tom, Mass. USGS quadrangle

Latitude: 42°12'40" Longitude: 72°39'40"

Facilities Affected:

Facility	Elevation
YMCA Camp	510

POTENTIAL SITE CV-2304 (cont'd)

Geologic Conditions: Both abutments are outwash sand and gravel. Surficial deposits are outwash sand and gravel and basalt bedrock outcrops. Depth to triassic basalt bedrock in the foundation is estimated to be from 20 to 25 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2305

Location: On Broad Brook approximately 1,600 feet upstream from Southampton Road in Holyoke, Mass.

Mt. Tom, Mass. USGS quadrangle

Latitude: 42°12'22" Longitude: 72°40'57"

Facilities Affected:

Facility	Elevation
County Rd. & utilities	275
Rock Valley Road	275
Cemetery	275
3 Houses	275
House	273
House	272
3 Houses	270
2 Houses and a barn	260
House	250
House	245
Keyes Rd., & utilities	238

Geologic Conditions: Both abutments outwash sand and gravel. Surficial deposits are swamp and outwash sand and gravel. Depth to triassic sandstone bedrock in the foundation is estimated to be from 30 to 40 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and possibly through the foundation. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED BROAD BROOK

BENEFICIAL POOL							EMERGENCY SPILLWAY					DESIGN HIGH WATER		DAM			SAFE YIELD AT 95
ELEV (MSL)	STORAGE AC FT	STORAGE IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV (MSL)	STORAGE AT CREST AC FT	STORAGE AT CREST IN	COST PER AC FT ($)	TYPE	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	PERCENT CHANCE (MGD)
SITE-CV-2303 DA= 4.43 SQ MI = 2835 AC USGS QUAD-MT TOM LATITUDE 42-13-29 LONGITUDE 72-40-17																	
SITE RATING (3) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.00 IN, PEAK FLOW = 920 CFS																	
217.6	0	0.0		14		4.6	234.8	1265	5.4	530	E	237.3	185	240.5	27	24	*****
221.7	100	0.4	7260	34	21130	8.7	221.7	135	0.6	5360	T	234.2	147	240.7	28	24	0.35
230.2	649	2.7	1430	96	9610	17.2	238.7	1961	8.3	470	E	241.2	231	245.2	32	35	1.28
237.8	1748	7.3	660	192	5980	24.9	242.3	2759	11.7	420	E	244.7	266	247.7	35	42	2.36
242.5	2755	11.7	520	243	5880	29.5	242.5	2790	11.8	510	T	247.5	292	250.5	37	53	2.99
SITE-CV-2304 DA= 0.87 SQ MI = 557 AC USGS QUAD-MT TOM LATITUDE 42-12-40 LONGITUDE 72-39-40																	
SITE RATING (3) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.00 IN, PEAK FLOW = 218 CFS																	
465.4	0	0.0		4		2.4	477.7	193	4.1	990	E	480.0	31	483.0	20	11	*****
474.0	100	2.2	2320	20	11850	11.0	480.5	274	5.9	850	E	482.9	35	485.9	23	14	0.21
485.7	453	9.8	790	38	9410	22.7	488.2	560	12.1	640	E	490.7	44	493.7	31	31	0.54
494.0	807	17.4	610	47	10590	31.0	496.5	933	20.1	530	E	498.9	51	501.9	39	55	0.71
501.2	1160	25.0	550	53	12160	38.2	503.7	1300	28.0	490	E	506.0	57	509.0	46	87	0.79
SITE-CV-2305 DA= 2.63 SQ MI = 1683 AC USGS QUAD-MT TOM LATITUDE 42-12-22 LONGITUDE 72-40-57																	
SITE RATING (3) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.00 IN, PEAK FLOW = 553 CFS																	
235.1	0	0.0		9		4.1	257.1	824	5.9	550	E	259.5	73	262.5	31	28	*****
241.2	100	0.7	4070	23	17550	10.2	241.2	121	0.8	3360	T	250.1	46	253.1	22	13	0.30
252.0	501	3.5	1270	52	12350	21.0	262.5	1224	8.7	520	E	265.0	90	268.0	37	40	0.90
263.7	1302	9.3	770	86	11630	32.7	270.2	1950	13.8	510	E	272.6	119	275.6	45	67	1.59
271.7	2104	15.0	670	115	12310	40.7	271.7	2125	15.2	670	T	276.7	139	279.7	49	95	2.03
272.5	2197	15.7	680	119	12640	41.5	272.5	2218	15.7	680	T	277.4	143	280.4	49	112	2.06

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

EXISTING SITE CV-2310 (Lower Mill Pond)

Location: On Broad Brook at Ferry Street in Easthampton, Mass.

Easthampton, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
129	35	10	7,450	11.64

Potential for Expansion: Limited; the pond is located in an industrial area.

Remarks: The dam is part of the Ferry Street highway embankment. The spillway is a combination concrete drop and chute structure with a weir depth of 5 feet. The spillway has 3 gates for control. The concrete in the spillway and in the control gates is cracking.

Ownership and Use: The pond is owned by Industrial Properties of Easthampton, Inc., and is used for industrial purposes.

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EXISTING SITE CV-2311 (Nashawannuck Pond)

Location: On Broad Brook at State Route 141 in Easthampton, Mass.

Easthampton, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
150	37	20	6,300	9.84

Potential for Expansion: Limited; the dam is located in an industrial-residential area.

Remarks: The dam is part of the State Route 141 highway embankment. The principal spillway is a 40-foot wide bascule gate with a minimum depth of 8 feet.

Ownership and Use: The pond is owned by the town of Easthampton. The water rights are owned by the Easthampton Rubber Thread Co., and the water is used for industrial purposes.

****

EXISTING SITE CV-2312 (Rubber Thread Pond)

Location: On Wilton Brook at Williston Avenue in Easthampton, Mass.

Easthampton, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
150	8	10	800	1.25

Potential for Expansion: Limited; the pond is located in an industrial area.

Remarks: The dam is an earthfill structure about 300 feet long formed by the embankment of Williston Avenue. The principal spillway inlet was not visible. The outlet is a 12-inch corrugated metal pipe with a concrete headwall and wingwalls. The spillway outlets into Nashawannuck Pond.

Ownership and Use: The pond is owned by the Easthampton Rubber Thread Co. and is used for industrial purposes.

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BROAD BROOK (CV-23)

CENTRAL CONNECTICUT VALLEY STUDY AREA

MASSACHUSETTS

EXISTING AND POTENTIAL RESERVOIR SITES

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

LEGEND

- SUBWATERSHED BOUNDARY
- DRAINAGE AREA ABOVE STRUCTURE
- POTENTIAL SITE SHOWING BENEFICIAL POOL FOR LARGEST STRUCTURE
- EXISTING RESERVOIR OR POND

Source – USGS Quad. Sheets
Mt. Tom – 1958
Easthampton – 1948

USDA SCS HYATTSVILLE, MD 1978

CENTRAL CONNECTICUT VALLEY STUDY AREA
SITE DATA FOR

Subwatershed CV-24, Manhan River

The Manhan River Subwatershed covers about 47,700 acres in Holyoke, Montgomery, and Westfield in Hampden County; and Chesterfield, Easthampton, Huntington, Northampton, Southampton, and Westhampton in Hampshire County.

The major stream is the Manhan River which originates in Westhampton and flows southerly through Southampton to the Westfield city line where it turns and flows northeasterly to the Connecticut River in Easthampton.

Geology of the potential reservoir sites is characterized by glacial outwash and till underlain by triassic conglomerate and schist bedrock.

Nineteen potential reservoir sites and six existing reservoirs were studied.

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POTENTIAL SITE CV-2401

Location: On North Branch of Manhan River about 600 feet downstream from Northwest Road in Westhampton, Mass.

Westhampton, Mass. USGS quadrangle

Latitude: 42°20'12" Longitude: 72°47'25"

Facilities Affected:

Facility	Elevation
House and barn	1100
Northwest Road & utilities	1096
Kings Road and utilities	1015

Geologic Conditions: Both abutments and surficial deposits are silty sand with gravel, cobbles, and boulders (glacial till). Depth to schist bedrock in the foundation is estimated to be from 10 to 20 feet. Water-holding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2402

Location: On an unnamed tributary to the North Branch of the Manhan River about 5,400 feet upstream from Kings Highway in Westhampton, Mass.

Westhampton, Mass. USGS quadrangle

Latitude: 42°19'24" Longitude: 72°47'46"

Facilities Affected:

Facility	Elevation
Cabin, surrounding buildings and swimming pool	1190
Unimproved road and utilities	1140

Geologic Conditions: Both abutments are silty sand with gravel, cobbles, and boulders (glacial till). Surficial deposits are glacial till and sand and gravel with some cobbles and boulders (englacial drift or morraine). Depth to schist bedrock in the foundation is estimated to be from 10 to 15 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2404

Location: On the Manhan River about 3,600 feet upstream from Main Road in Westhampton, Mass.

Westhampton, Mass. USGS quadrangle

Latitude: 42°17'45" Longitude: 72°48'50"

Facilities Affected: None below elevation 1191

Geologic Conditions: The left abutment is sand and gravel with cobbles and boulders (englacial drift). The right abutment is cobbles and boulders with subsurface streams. Both abutments are shallow to schist bedrock. Surficial deposits are englacial drift, boulder deposits, and schist bedrock. Depth to schist bedrock in the foundation is estimated to be from 5 to 10 feet. Waterholding capabilities appear to be good. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2405

Location: On Manhan River about 75 feet upstream from Main Road in Westhampton, Mass.

Westhampton, Mass. USGS quadrangle

Latitude: 42°17'13" Longitude: 72°48'26"

Facilities Affected:

Facility	Elevation
Rhodes Rd.	990

Geologic Conditions: Both abutments are schist bedrock, moderately to highly fractured, with quartz and pegmatite veins and some open fractures or solution channels in highly weathered friable zones. Surficial deposits are schist bedrock, glacial till, and glacial outwash. Depth to bedrock in the foundation is estimated to be less than 10 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2406

Location: On Sodom Brook about 2,600 feet upstream from Southampton Road in Westhampton, Mass.

Westhampton, Mass. USGS quadrangle

Latitude: 42°17'49" Longitude: 72°46'10"

Facilities Affected:

Facility	Elevation
Sugar House	595
House	595
3 Houses	590
2 Houses and dairy barn	585
2 Houses	580
House	578
2 Houses and barn	575
4 Houses, dairy barn, camping area	570
South Road and utilities	560
State Route 66 and utilities	555
Cemetery Rd. and utilities	550

POTENTIAL SITE CV-2406 (cont'd)

Geologic Conditions: The left abutment is sand and gravel (glacial outwash). The right abutment is cobbles and boulders (glacial drift). Surficial deposits are glacial outwash and englacial drift. Depth to schist bedrock in the foundation is estimated to be from 15 to 20 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and possibly through the foundation. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2407

Location: On the Manhan River about 6,100 feet downstream from Main Road in Westhampton, Mass.

Westhampton, Mass. USGS quadrangle

Latitude: 42°16'21" Longitude: 72°47'49"

Facilities Affected: None below elevation 908

Geologic Conditions: Both abutments are schist and granite bedrock. Granite outcrops in the streambed. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2408

Location: On an unnamed tributary to Parsons Brook about 1,500 feet upstream from Sylvester Road in Northampton, Mass.

Easthampton, Mass. USGS quadrangle

Latitude: 42°19'25" Longitude: 72°43'16"

Facilities Affected:

Facility	Elevation
2 Houses	380
House and barn	375
3 Houses and sheds	370
Sylvester Road	365
House	360
House	350

Geologic Conditions: Both abutments and the foundation are granite gneiss with soil and boulder cover. Waterholding capabilities appear to be good. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2409

Location: On Parsons Brook about 600 feet upstream from Ryan Road in Northampton, Mass.

Easthampton, Mass. USGS quadrangle

Latitude: 42°18'37" Longitude: 72°42'55"

Facilities Affected:

Facility	Elevation
2 Houses and barn	355
3 Houses and barn	350
House	348
House	345
House	342
House	340
8 Houses, barn, swimming pool	335
2 Houses	330
House	325
House	320
Sylvester Road and utilities	315

POTENTIAL SITE CV-2409 (cont'd)

Geologic Conditions: Both abutments are silty sand with gravel, cobbles, and boulders (englacial drift) and shallow to bedrock. Surficial deposits are outwash sand and gravel and englacial drift. Depth to gneiss bedrock in the foundation is estimated to be from 15 to 20 feet. Waterholding capabilities appear to be fair. Leakage is expected through the foundation. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2410

Location: On Hannum Brook about 3,300 feet upstream from Clark Lane in Northampton, Mass.

Easthampton, Mass. USGS quadrangle

Latitude: 42°17'31" Longitude: 72°42'30"

Facilities Affected: None below elevation 257

Geologic Conditions: Both abutments are outwash sand and gravel possibly underlain by lacustrine silt at brook elevation. Surficial deposits are swamp and outwash sand and gravel. Depth to triassic sandstone conglomerate bedrock in the foundation is estimated to be from 30 to 40 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2411

Location: On Blue Meadow Brook about 400 feet upstream from Delisle Road in Southampton, Mass.

Woronoco, Mass. USGS quadrangle

Latitude: 42°14'20" Longitude: 72°46'27"

Facilities Affected: None below elevation 637

Geologic Conditions: Both abutments and survicial deposits are silty sand with gravel, cobbles, and boulders (glacial till). Depth to granite or schist bedrock in the foundation is estimated to be from 10 to 15 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2412

Location: On the North Branch of the Manhan River about 1,350 feet upstream of Torrey Street in Easthampton, Mass.

Easthampton, Mass. USGS quadrangle

Latitude: 42°16'35" Longitude: 72°43'19"

Facilities Affected:

Facility	Elevation
House	285
Loudville Rd. and utilities	282

Geologic Conditions: Both abutments and surficial deposits are outwash sand and gravel underlain by thinly bedded lacustrine sediments. Depth to triassic sandstone or conglomerate bedrock in the foundation is estimated to be from 30 to 40 feet. Waterholding capabilities appear to be fair. Leakage is expected through both abutments and the foundation. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2413

Location: On Sacket Brook about 400 feet upstream from Southampton Road in Montgomery, Mass.

Woronoco, Mass. USGS quadrangle

Latitude: 42°12'40" Longitude: 72°47'35"

Facilities Affected:

Facility	Elevation
Southampton Road	710

Geologic Conditions: The left abutment is schist bedrock. The right abutment is silty sand with gravel, cobbles, and boulders (glacial till); shallow to bedrock. Surficial deposits are glacial till and bedrock. Depth to schist bedrock in the foundation is estimated to be less than 10 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2414

Location: On an unnamed tributary to the North Branch of the Manhan River about 400 feet downstream from Miller Ave. in Southampton.

Easthampton, Mass. USGS quadrangle

Latitude: 42°15'39" Longitude: 72°42'40"

Facilities Affected:

Facility	Elevation
Glendale Road	250
Miller Avenue	225

Geologic Conditions: Both abutments are outwash sand and gravel. Surficial deposits are swamp and outwash sand and gravel. Depth to triassic sandstone and shale bedrock in the foundation is estimated to be from 30 to 40 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and the foundation. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2415

Location: On the North Branch of the Manhan River about 1,200 feet upstream of Pomeroy Meadow Road in Easthampton, Mass.

Easthampton, Mass. USGS quadrangle

Latitude: 42°16'09" Longitude: 72°41'59"

Facilities Affected:

Facility	Elevation
2 Tobacco sheds	195
House	193
House	192
3 Houses, barn & industrial building	190
2 Houses, 2 farm buildings	185
Torrey Rd. & utilities	182
House	182
Pavilion and buildings	180
Miller Avenue	168

Geologic Conditions: Both abutments are outwash sand and gravel underlain by thinly bedded lacustrine deposits. Depth to triassic, sandstone, and shale bedrock in the foundation is estimated to be 60 to 80 feet. Waterholding capabilities appear to be fair to poor. Leakage is expected through both abutments and possibly through the foundation. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2416

Location: On Alder Meadow Brook about 3,500 feet downstream from Fomer Road in Southampton, Mass.

Woronoco, Mass. USGS quadrangle

Latitude: 42°12'57" Longitude: 72°45'38"

Facilities Affected:

Facility	Elevation
Fomer Road	345

POTENTIAL SITE CV-2416 (cont'd)

Geologic Conditions: Both abutments and surficial deposits are silty sand with gravel, cobbles and boulders (glacial till). Depth to schist bedrock in the foundation is estimated to be less than 10 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location. See existing Site CV-2416 for data on the existing dam and reservoir at this site.

This is substantially the same site as Site M10A-3 that was included in the Comprehensive Study of the Connecticut River Basin, U.S. Department of Agriculture, June 1970.

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POTENTIAL SITE CV-2417

Location: On the Manhan River about 1,100 feet upstream from it's confluence with the North Branch on the border of the towns of Easthampton and Southampton, Mass.

Easthampton, Mass. USGS quadrangle

Latitude: 42°15'45" Longitude: 72°41'54"

Facilities Affected:

Facility	Elevation
House	152
2 Houses	155
Riverdale Rd. & utilities	145
State Route 10 & utilities	145

Geologic Conditions: Both abutments are outwash sand and gravel, possibly underlain by thinly bedded lacustrine deposits. Surficial deposits are swamp, lacustrine deposits and outwash sand and gravel. Depth to triassic sandstone and shale conglomerate bedrock is estimated to be from 30 to 40 feet. Waterholding capabilities appear to be fair to poor. Leakage is expected through both abutments and possibly through the foundation. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2418

Location: On an unnamed tributary to the Manhan River about 100 feet upstream from Easthampton Road in Northampton, Mass.

Easthampton, Mass. USGS quadrangle

Latitude: 42°17'25" Longitude: 72°39'37"

Facilities Affected: None below elevation 175

Geologic Conditions: Both abutments are outwash sand and gravel possibly underlain by thinly bedded lacustrine deposits. Depth to triassic sandstone and shale bedrock in the foundation is estimated to be from 40 to 50 feet. Waterholding capabilities appear to be fair. Leakage is expected through both abutments and possibly through the foundation. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2419

Location: On Moose Brook approximately 1,200 feet upstream from the confluence with the Manhan River in Southampton, Mass.

Mt. Tom, Mass. USGS quadrangle

Latitude: 42°13'07" Longitude: 72°43'28"

Facilities Affected:

Facility	Elevation
House	212
House	210
Valley Road	207
House	200
2 Houses	190
Relocated Route 10	188
Golf Course	185
Moose Brook Rd., & utilities	170
Brickyard Rd., & utilities	167

POTENTIAL SITE CV-2419 (cont'd)

Geologic Conditions: Both abutments are outwash sand or gravel possibly underlain by bedded lacustrine deposits. Depth to triassic sandstone and shale bedrock in the foundation is estimated to be from 40 to 50 feet. Waterholding capabilities appear to be fair. Leakage is expected through both abutments and possibly through the foundation. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location. An auxiliary dike is required to the southwest of the left abutment.

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POTENTIAL SITE CV-2420

Location: On Moose Brook about 1,400 feet upstream from Moose Brook Road in Southampton, Mass.

Mt. Tom, Mass. USGS quadrangle

Latitude: 42°12'40" Longitude: 72°43'25"

Facilities Affected:

Facility	Elevation
Whiteloaf Road	228
Strong Road and utilities	228
3 Houses, barn and garage	228
Cottage	215
Valley Road and utilities	207
Golf Course	185

Geologic Conditions: Both abutments are outwash sand and gravel, possibly underlain by thinly bedded lacustrine deposits. Depth to triassic sandstone or shale bedrock in the foundation is estimated to be from 40 to 50 feet. Waterholding capabilities appear to be fair. Leakage is expected through both abutments and possibly through the foundation. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED MANHAN RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	PERCENT CHANCE (MGD)
SITE-CV-2401	DA= 0.87 SQ MI = 557 AC						USGS QUAD-WESTHAMPTON				LATITUDE 42-20-12		LONGITUDE 72-47-25			
SITE RATING (1)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.10 IN, PEAK FLOW = 263 CFS					
1078.6	0	0.0		2		8.6	1100.9 E	280	6.0	1450	1103.1	26	1106.6	37	47	*****
1091.9	100	2.2	4880	14	33920	21.9	1104.4 E	368	7.8	1330	1106.6	29	1110.0	40	59	0.21
1101.1	277	6.0	2200	24	25390	31.0	1109.6 E	519	11.2	1170	1111.9	34	1115.0	45	84	0.40
1113.1	630	13.6	1390	35	25000	43.0	1119.6 E	883	19.0	990	1121.8	43	1125.3	55	161	0.64
1122.1	983	21.2	1070	43	24330	52.0	1126.6 E	1193	25.7	880	1129.0	50	1132.1	62	230	0.75
1126.0	1160	25.0	1000	47	24660	56.0	1130.5 E	1387	29.9	830	1132.8	53	1135.9	66	275	0.79
SITE-CV-2402	DA= 1.01 SQ MI = 646 AC						USGS QUAD-WESTHAMPTON				LATITUDE 42-19-24		LONGITUDE 72-47-46			
SITE RATING (1)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.10 IN, PEAK FLOW = 305 CFS					
1133.6	0	0.0		4		3.6	1155.4 E	311	5.8	1250	1157.9	26	1161.8	32	63	*****
1144.6	100	1.9	5190	14	36710	14.6	1144.6 T	108	2.0	4800	1154.1	23	1161.0	31	59	0.23
1155.6	308	5.6	2170	24	28130	25.6	1166.1 E	622	11.5	1070	1168.3	39	1172.0	42	127	0.46
1169.0	723	13.3	1340	40	24500	39.0	1175.5 E	1016	18.9	950	1177.9	51	1181.5	51	220	0.73
1181.9	1347	25.0	1000	57	23560	51.9	1186.4 E	1624	30.0	830	1188.6	67	1191.8	62	354	0.92
SITE-CV-2404	DA= 0.77 SQ MI = 493 AC						USGS QUAD-WESTHAMPTON				LATITUDE 42-17-45		LONGITUDE 72-48-50			
SITE RATING (1)	STREAM WATER QUALITY (A)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.10 IN, PEAK FLOW = 232 CFS					
1128.0	0	0.0		1		8.0	1159.6 E	170	4.1	2090	1163.3	14	1167.9	48	61	*****
1152.1	100	2.4	3520	8	46300	32.2	1154.6 E	126	3.0	2800	1160.9	11	1164.4	44	50	0.21
1164.4	227	5.5	2310	15	34170	44.4	1166.9 E	275	6.6	1910	1171.6	24	1175.3	55	90	0.34
1175.9	481	11.7	1440	29	23840	55.9	1178.4 E	565	13.7	1230	1181.6	38	1184.9	65	141	0.52
1186.1	862	21.0	1080	48	19190	66.1	1188.6 E	1000	24.2	930	1191.1	60	1194.1	74	205	0.67

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED MANHAN RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV ++ TYPE (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	PERCENT CHANCE (MGD)
SITE-CV-2405	DA= 2.12 SQ MI = 1357 AC						USGS QUAD-WESTHAMPTON				LATITUDE 42-17-13		LONGITUDE 72-48-26			
SITE RATING (1)	STREAM WATER QUALITY (A)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.10 IN, PEAK FLOW = 640 CFS					
1001.3	0	0.0		3		9.3	1034.9 E	469	4.1	1900	1040.8	30	1046.9	55	273	*****
1015.1	100	0.8	6070	11	54540	23.2	1017.6 E	147	1.2	4110	1026.1	19	1031.3	39	117	0.28
1038.6	554	4.9	2060	28	40250	46.7	1041.1 E	648	5.6	1760	1047.0	36	1051.1	59	329	0.87
1061.8	1463	12.8	1250	50	36390	69.8	1064.3 E	1610	14.2	1140	1069.6	57	1073.8	82	760	1.50
1084.1	2827	25.0	1080	72	42630	92.1	1086.6 E	3025	26.7	1010	1092.0	81	1096.6	105	1417	1.94
SITE-CV-2406	DA= 4.77 SQ MI = 3053 AC						USGS QUAD-WESTHAMPTON				LATITUDE 42-17-49		LONGITUDE 72-46-10			
SITE RATING (3)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.10 IN, PEAK FLOW = 1440 CFS					
528.0	0	0.0		9		8.1	563.9 E	1807	7.1	740	566.4	103	572.9	53	130	*****
535.7	100	0.4	11430	17	65960	15.7	535.7 T	138	0.5	8270	550.5	62	555.0	35	44	0.35
557.4	1143	4.5	1800	88	23530	37.4	557.4 T	1181	4.6	1750	572.0	108	580.4	60	186	1.88
577.5	3230	12.7	790	113	22560	57.5	588.0 E	4842	19.0	530	590.5	228	597.0	77	357	3.37
592.5	5795	22.7	560	248	13060	72.5	592.5 T	5833	22.9	560	597.4	300	600.4	80	404	4.25
SITE-CV-2407	DA= 3.06 SQ MI = 1958 AC						USGS QUAD-WESTHAMPTON				LATITUDE 42-16-21		LONGITUDE 72-47-49			
SITE RATING (1)	STREAM WATER QUALITY (A)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.10 IN, PEAK FLOW = 907 CFS					
818.9	0	0.0		3		13.8	863.8 T	677	4.1	2480	874.0	35	878.9	74	496	*****
833.5	100	0.6	8720	10	83200	28.5	833.5 T	124	0.8	7000	848.4	18	851.8	47	157	0.31
853.4	410	2.5	3860	21	76850	48.4	853.4 T	434	2.7	3640	868.3	30	872.5	68	396	0.84
875.8	1029	6.3	2060	36	58540	70.8	875.8 T	1054	6.5	2010	888.6	44	892.5	87	760	1.47
897.4	1958	12.0	1510	49	60160	92.4	897.4 T	1983	12.2	1490	908.3	65	911.3	106	1254	2.10

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED MANHAN RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	STORAGE IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV + TYPE (MSL)	STORAGE AT CREST AC FT	STORAGE AT CREST IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-CV-2408 DA= 1.04 SQ MI = 666 AC USGS QUAD-EASTHAMPTON LATITUDE 42-19-25 LONGITUDE 72-43-16																
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.10 IN, PEAK FLOW = 314 CFS																
349.0	0	0.0		4		4.0	365.0 E	294	5.3	1270	367.4	39	370.6	26	39	*****
358.0	100	1.7	4140	19	21570	13.0	366.5 E	345	6.1	1200	368.7	42	371.7	27	43	0.23
365.4	301	5.4	1880	35	16170	20.4	371.9 E	580	10.5	970	374.4	51	377.7	33	68	0.46
374.6	703	12.7	1070	51	14720	29.5	379.1 E	954	17.2	790	381.6	60	384.7	40	106	0.73
381.7	1105	19.9	770	61	14050	36.8	384.2 E	1271	22.9	670	386.7	69	389.7	45	141	0.88
382.5	1146	20.7	760	62	14130	37.5	385.0 E	1315	23.7	670	387.2	70	390.2	45	149	0.90
SITE-CV-2409 DA= 2.66 SQ MI = 1702 AC USGS QUAD-EASTHAMPTON LATITUDE 42-18-37 LONGITUDE 72-42-55																
SITE RATING (2) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.10 IN, PEAK FLOW = 803 CFS																
306.0	0	0.0		7		6.0	332.2 E	589	4.1	1710	337.0	67	342.0	42	154	*****
314.9	100	0.7	7200	16	46330	14.8	317.4 E	163	1.1	4420	325.6	29	330.5	31	72	0.30
332.1	562	4.0	2220	45	27750	32.0	334.6 E	704	5.0	1770	340.7	84	345.0	45	182	0.98
344.7	1485	10.5	1170	106	16450	44.7	347.2 E	1788	12.6	970	351.4	142	355.2	55	295	1.71
352.5	2495	17.6	870	149	14640	52.5	352.5 T	2516	17.7	870	357.4	176	360.4	60	366	2.18
SITE-CV-2410 DA= 0.52 SQ MI = 333 AC USGS QUAD-EASTHAMPTON LATITUDE 42-17-31 LONGITUDE 72-42-30																
SITE RATING (3) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.10 IN, PEAK FLOW = 157 CFS																
233.1	0	0.0		2		5.1	247.6 E	115	4.1	1440	250.0	26	253.0	25	18	*****
247.1	100	3.5	2320	19	12030	19.1	249.6 E	159	5.6	1460	252.0	32	255.0	27	22	0.18
249.3	150	5.4	1810	24	11150	21.4	251.8 E	224	8.1	1210	254.2	39	257.2	29	28	0.23
251.2	200	7.1	1540	29	10430	23.2	253.7 E	287	10.3	1070	255.8	44	258.9	31	33	0.27
252.5	241	8.7	1380	33	10000	24.5	255.0 E	337	12.1	990	257.0	47	260.0	32	37	0.30

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED MANHAN RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	STORAGE IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV + TYPE (MSL)	STORAGE AT CREST AC FT	STORAGE AT CREST IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-CV-2411	DA= 1.08 SQ MI = 691 AC						USGS QUAD-WORONOCO				LATITUDE 42-14-20		LONGITUDE 72-46-27			
SITE RATING (1)	STREAM WATER QUALITY (A)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.10 IN, PEAK FLOW = 326 CFS					
621.3	0	0.0		8		1.2	628.5 E	239	4.1	610	631.0	68	634.0	14	11	*****
625.7	100	1.7	1890	36	5200	5.6	630.2 E	333	5.8	570	632.5	74	635.5	16	13	0.24
628.3	211	3.6	1070	52	4300	8.3	630.8 E	368	6.4	610	633.2	76	636.2	16	13	0.37
630.2	321	5.6	830	64	4160	10.2	632.7 E	504	8.8	530	635.0	83	638.0	18	17	0.48
631.8	432	7.5	700	71	4300	11.8	634.3 E	629	10.8	480	636.7	90	639.7	20	22	0.58
SITE-CV-2412	DA= 18.01 SQ MI = 11526 AC						USGS QUAD-EASTHAMPTON				LATITUDE 42-16-35		LONGITUDE 72-43-19			
SITE RATING (1)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.10 IN, PEAK FLOW = 3911 CFS					
232.7	100	0.1	10850	19	57710	26.7	232.7 T	244	0.3	4450	247.6	38	252.7	47	94	0.45
251.0	658	0.7	2380	43	36540	45.0	251.0 T	802	0.8	1950	266.0	60	271.7	66	206	2.01
271.2	1773	1.7	1820	63	51200	65.3	271.2 T	1917	2.0	1690	286.2	71	292.4	86	391	4.09
287.7	2888	3.0	870	72	34620	81.8	287.7 T	3032	3.2	820	295.9	85	300.0	94	490	5.52
SITE-CV-2413	DA= 0.80 SQ MI = 512 AC						USGS QUAD-WORONOCO				LATITUDE 42-12-40		LONGITUDE 72-47-35			
SITE RATING (1)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.00 IN, PEAK FLOW = 239 CFS					
678.2	0	0.0		2		8.2	703.9 E	177	4.1	2050	707.7	15	711.7	42	69	*****
697.8	100	2.3	3590	10	36660	27.7	700.3 E	132	3.0	2720	705.5	14	708.8	39	57	0.21
710.0	261	6.1	2100	17	33110	40.0	712.5 E	313	7.3	1750	717.4	20	720.5	51	114	0.37
725.7	583	13.7	1460	25	33630	55.6	728.2 E	655	15.2	1300	732.0	30	735.0	65	226	0.59
736.8	906	21.2	1230	33	33830	66.8	739.3 E	995	23.2	1120	742.5	36	745.7	76	343	0.70
741.5	1067	25.0	1160	36	34680	71.5	744.0 E	1165	27.2	1060	747.2	38	750.3	80	406	0.73

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED MANHAN RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-CV-2414 DA= 2.47 SQ MI = 1581 AC USGS QUAD-EASTHAMPTON LATITUDE 42-15-39 LONGITUDE 72-42-40																
SITE RATING (3) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.10 IN, PEAK FLOW = 746 CFS																
174.3	0	0.0		5		8.3	212.2 E	939	7.1	700	214.5	48	220.5	55	140	*****
184.8	100	0.8	6780	15	45020	18.9	184.8 T	120	0.8	5660	197.8	30	203.0	37	52	0.30
191.5	223	1.7	3730	22	37920	25.5	191.5 T	243	1.7	3430	203.7	36	210.0	44	78	0.53
196.3	346	2.5	2650	28	32820	30.4	196.3 T	366	2.8	2500	211.3	43	220.8	55	144	0.70
200.5	469	3.5	2340	33	33610	34.5	200.5 T	489	3.6	2240	214.6	48	222.2	56	158	0.85
SITE-CV-2415 DA= 21.99 SQ MI = 14074 AC USGS QUAD-EASTHAMPTON LATITUDE 42-16-09 LONGITUDE 72-41-59																
SITE RATING (3) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.10 IN, PEAK FLOW = 4561 CFS																
147.8	0	0.0		38		8.8	183.7 T	4867	4.1	580	192.0	334	199.8	61	460	*****
150.3	100	0.1	12490	48	25950	11.3	150.3 T	276	0.2	4530	165.2	109	171.7	33	100	0.53
166.3	1455	1.2	1270	112	16470	27.4	166.3 T	1631	1.4	1130	181.3	256	187.3	48	235	3.75
181.7	4164	3.5	760	258	12240	42.7	181.7 T	4340	3.6	730	193.8	358	200.0	61	461	7.52
191.1	6874	5.9	550	323	11780	52.0	191.1 T	7050	6.0	540	196.8	396	200.0	61	461	10.12

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED MANHAN RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95
ELEV (MSL)	STORAGE AC FT	STORAGE IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV ++ TYPE (MSL)	STORAGE AT CREST AC FT	STORAGE AT CREST IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	PERCENT CHANCE (MGD)
SITE-CV-2416 DA= 1.05 SQ MI = 672 AC USGS QUAD-WORONOCO LATITUDE 42-12-57 LONGITUDE 72-45-38																
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.00 IN, PEAK FLOW = 313 CFS																
331.6	0	0.0		7		1.6	340.1 E	232	4.1	830	343.1	52	346.6	17	12	*****
336.7	100	1.7	2300	31	7360	6.8	339.2 E	201	3.5	1140	343.2	52	346.6	17	12	0.23
342.9	365	6.5	880	51	6260	12.8	345.4 E	508	9.1	630	348.7	62	352.0	22	24	0.52
347.7	631	11.3	630	60	6620	17.7	350.2 E	794	14.2	500	353.2	71	356.2	26	36	0.70
351.9	896	16.0	520	68	6910	21.9	354.4 E	1080	19.2	430	356.9	78	359.9	30	49	0.83
SITE-CV-2417 DA= 36.27 SQ MI = 23213 AC USGS QUAD-EASTHAMPTON LATITUDE 42-15-45 LONGITUDE 72-41-54																
SITE RATING (3) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.10 IN, PEAK FLOW = 3616 CFS																
144.8	100	0.1	9550	108	8870	11.8	144.8 T	390	0.2	2450	155.8	290	159.3	26	30	0.87
147.3	432	0.2	2390	154	6740	14.3	147.3 T	723	0.4	1430	156.3	299	159.8	27	31	1.72
149.3	765	0.4	1410	189	5700	16.2	149.3 T	1055	0.5	1020	156.3	298	159.3	26	30	2.70
152.3	1430	0.7	870	239	5230	19.4	152.3 T	1720	0.8	720	157.3	315	160.3	27	35	4.28
152.5	1448	0.7	870	240	5230	19.5	152.5 T	1738	0.8	720	157.5	316	160.5	27	35	4.34
SITE-CV-2418 DA= 0.58 SQ MI = 371 AC USGS QUAD-EASTHAMPTON LATITUDE 42-17-25 LONGITUDE 72-39-37																
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.10 IN, PEAK FLOW = 175 CFS																
150.3	0	0.0		2		3.4	163.0 E	128	4.1	1470	165.3	26	168.3	21	25	*****
161.7	100	3.2	2480	17	14560	14.7	166.2 E	205	6.6	1210	168.3	34	171.3	24	33	0.18
165.3	177	5.6	1600	26	10830	18.2	167.8 E	255	8.3	1110	170.2	38	173.2	26	39	0.26
167.8	254	8.2	1280	33	9970	20.9	170.3 E	347	11.2	940	172.8	43	175.8	29	48	0.33
170.2	331	10.7	1090	38	9510	23.2	172.7 E	437	14.1	830	174.8	46	177.8	31	56	0.37

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED MANHAN RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV ** TYPE (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-CV-2419 DA= 2.83 SQ MI = 1811 AC USGS QUAD-MT TOM LATITUDE 42-13-07 LONGITUDE 72-43-28																
SITE RATING (1) STREAM WATER QUALITY (8) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.00 IN, PEAK FLOW = 844 CFS																
167.7	0	0.0		12		2.7	188.8 E	1023	6.8	690	191.2	78	196.3	31	77	*****
172.0	100	0.7	6680	30	22370	7.0	172.0 T	123	0.8	5450	184.8	65	190.8	26	49	0.31
184.5	712	4.6	1420	64	15650	19.5	197.0 E	1714	11.3	590	199.3	105	204.5	39	140	1.15
199.5	1937	12.8	690	106	12630	34.5	206.0 E	2733	18.1	490	208.3	143	211.7	47	228	2.01
212.5	3688	24.4	560	172	11970	47.5	212.5 T	3710	24.6	550	217.3	215	220.3	55	417	2.57
SITE-CV-2420 DA= 2.31 SQ MI = 1478 AC USGS QUAD-MT TOM LATITUDE 42-12-40 LONGITUDE 72-43-25																
SITE RATING (1) STREAM WATER QUALITY (8) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.00 IN, PEAK FLOW = 689 CFS																
185.2	0	0.0		7		5.1	211.3 E	721	5.9	840	213.7	76	217.0	37	42	*****
193.5	100	0.8	6190	17	36210	13.5	193.5 T	118	1.0	5220	206.3	43	210.8	31	27	0.29
206.1	436	3.5	1680	42	17670	26.0	216.6 E	1125	9.1	650	219.0	110	222.6	43	60	0.79
216.6	1108	9.0	800	94	9410	36.5	221.1 E	1618	13.1	550	223.6	137	226.6	47	76	1.37
222.5	1776	14.3	650	130	8890	42.5	222.5 T	1795	14.6	650	227.5	160	230.5	50	100	1.74

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EXISTING SITE CV-2416 (Alder Pond)

Location: On Alder Meadow Brook about 3,500 feet downstream from Fomer Road in Southampton, Mass.

Woronoco, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
--	10	--	700	1.09

Potential for Expansion: Please refer to Site Data and Design Summary Table for Potential Site CV-2416 for details.

Remarks: The dam is an earthfill structure with a corrugated metal pipe principal spillway and a vegetated emergency spillway.

Ownership and Use: The pond is owned by Edward C. Searle, and is used as a farm pond.

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EXISTING SITE CV-2425 (Pine Island Lake)

Location: On a tributary of the North Branch of the Manhan River about 50 feet upstream from Reservoir Road in Westhampton, Mass.

Westhampton, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
998	60	15 est.	450	0.70

Potential for Expansion: The small drainage area limits expansion potential. Many cottages line the shore.

Remarks: The dam is an earthfill structure about 75 feet long. Both the downstream and upstream slopes are vegetated with some rock riprap on the downstream slope. The spillway is two 36-inch corrugated metal pipes. To the left of these pipes is a 34-inch pipe, 5.5 feet below water level and a 10-inch pipe at the base of the dam that are probably used to drain the lake.

Ownership and Use: The lake is owned by the Pine Island Lake Association and is used for recreation.

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EXISTING SITE CV-2426 (Clear Falls Pond)

Location: On the North Branch of the Manhan River about 200 feet downstream from Drury Lane in Northampton, Mass.

Easthampton, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
358 est.	1	8 est.	9,550	14.92

Potential for Expansion: Expansion is possible, however, the existing recreation area and facilities would be inundated with other roads and buildings. Raising the existing water level by about 30 feet would provide about 30 acres of water surface. Five houses, Easthampton Road, and Drury Lane would be affected.

Remarks: The dam is an irregular shaped concrete drop-structure about 300 feet long, that outlets on a bedrock channel. There are cracks in the concrete in the dam.

Ownership and Use: The pond is owned by Samuel Crescione and Alfred Dufour and is used for recreation.

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EXISTING SITE CV- 2427 (White Reservoir)

Location: On the Manhan River about 100 feet upstream from Manhan Road in Southampton, Mass.

Westhampton, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
708	116	15	2,950	4.61

Potential for Expansion: Raising the existing water level by about 20 feet would provide about 250 acres of water surface. Fomer Road would be affected.

Remarks: The dam is an earthfill structure about 400 feet long with a 9-foot top width. The upstream face of the dam is a 1-foot thick vertical, concrete wall, while the downstream is sloped and vegetated. The spillway is a concrete drop chute. The water elevation can be raised by inserting stoplogs in the weir. Concrete in the spillway weir is spalling. A gate house is located in the center of the dam.

Ownership and Use: The reservoir is owned by the Board of Commissioners, Holyoke Water Works and used for municipal water supply.

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EXISTING SITE CV-2428 (New Intake Reservoir)

Location: On the Manhan River about 1,200 feet upstream from Fomer Road in Southampton, Mass.

Woronoco, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
505 est.	2	14	3,464	5.41

Potential for Expansion: Expansion is possible, but the narrow steep valley limits significant increase in storage.

Remarks: The dam is a concrete gravity structure about 65 feet long. There is a gate house on the right abutment that is not in use. The concrete side walls of the dam are spalling.

Ownership and Use: The reservoir is owned by the Board of Water Commissioners, Holyoke Water Works, and is used for municipal water supply.

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EXISTING SITE CV-2429 (Tighe Carmody Reservoir)

Location: On the Manhan River at Manhan Road in Southampton, Mass.

Woronoco, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
478	358	100 est.	9,200	14.38

Potential for Expansion: It appears that the water level could be raised at least 100 feet without affecting facilities other than New Intake Reservoir and Fomer Road. Steep topography limits the increase in storage volume.

Remarks: The dam is an earthfill structure with a 20-foot paved road across the top. The spillway is a concrete ogee section at the left of the dam. The upstream slope of the dam is riprapped while the downstream slope is vegetated.

Ownership and Use: The reservoir is owned by the Board of Commissioners, Holyoke Water Works, and is used for municipal water.

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CV-2425
Pine Island Lake

CV-2428
New Intake Reservoir

CV-2426
Clear Falls Pool

CV-2429
Tighe Carmody
Reservoir

CV-2427
White Reservoir

EXISTING RESERVOIRS
SUBWATERSHED CV-24
MANHAN RIVER

LEGEND

- SUBWATERSHED BOUNDARY
- DRAINAGE AREA ABOVE STRUCTURE
- POTENTIAL SITE SHOWING BENEFICIAL POOL FOR LARGEST STRUCTURE
- EXISTING POND OR RESERVOIR

2401 2402 2404 2405 2406 2407 2408 2409 2410 2411 2412 2413 2414 2415 2416 2417 2418 2419 2420 2425 2426 2427 2428 2429

WESTHAMPTON EASTHAMPTON SOUTHAMPTON

SOURCE : U.S.G.S. QUAD.
EASTHAMPTON - 1964
MT TOM - 1972
WESTHAMPTON - 1972
WORONCO - 1967

MANHAN RIVER (CV-24)

CENTRAL CONNECTICUT VALLEY STUDY AREA
MASSACHUSETTS

EXISTING AND POTENTIAL RESERVOIR SITES
UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

CENTRAL CONNECTICUT VALLEY STUDY AREA
SITE DATA FOR

Subwatershed CV-25, Bachelor Brook

The Bachelor Brook subwatershed covers about 21,100 acres in Belchertown, Granby, and South Hadley in Hampshire County.

The major stream is Bachelor Brook which originates in Belchertown and flows westerly through Granby and South Hadley to the Connecticut River.

Geology of the potential reservoir sites is characterized by outwash sand and gravel underlain by triassic conglomerate bedrock.

Seven potential reservoir sites and four existing reservoirs were studied.

POTENTIAL SITE CV-2501

Location: On an unnamed tributary to Bachelor Brook about 4,300 feet upstream from Bachelor Street in Granby, Mass.

Mt. Holyoke, Mass. USGS quadrangle

Latitude: 42°17'32" Longitude: 72°31'06"

Facilities Affected: None below elevation 390

Geologic Conditions: Both abutments are silty sand with gravel, cobbles and boulders (englacial drift). Surficial deposits are englacial drift and gneiss bedrock. Depth to triassic sandstone or conglomerate bedrock is estimated to be less than 10 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2502

Location: On an unnamed tributary to Bachelor Brook about 700 feet upstream from Stebbins Street in Belchertown, Mass.

Belchertown, Mass. USGS quadrangle

Latitude: 42°17'32" Longitude: 72°26'56"

Facilities Affected: None below elevation 326

Geologic Conditions: Both abutments are thin discontinuous deposits of outwash sand or gravel with outcrops of triassic conglomerate. Most of the foundation is on bedrock except for the brook where estimated depth to triassic conglomerate is estimated to be from 10 to 15 feet. Waterholding capabilities appear to be fair to good. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

This is substantially the same site as Site M11-2 that was included in the Comprehensive Study of the Connecticut River Basin, U.S. Department of Agriculture, June 1970.

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POTENTIAL SITE CV-2503

Location: On Bachelor Brook approximately 6,100 feet downstream from Bay Road in Belchertown, Mass.

Belchertown, Mass. USGS quadrangle

Latitude: 42°17'31" Longitude: 72°26'35"

Facilities Affected: None below elevation 306

Geologic Conditions: Both abutments are thin outwash sand or gravel and are shallow to bedrock. Surficial deposits are swamp, outwash sand and gravel, and conglomerate bedrock. Depth to conglomerate bedrock in the foundation is estimated to be from 30 to 40 feet. Waterholding capabilities appear to be poor. Leakage is expected through the foundation. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2504

Location: On an unnamed tributary to Bachelor Brook about 500 feet upstream from Harris Road in Belchertown, Mass.

Belchertown, Mass. USGS quadrangle

Latitude: 42°17'12" Longitude: 72°29'03"

Facilities Affected:

Facility	Elevation
Harris Road and utilities	322
2 Houses	318
House	312
2 Houses	310
House, swimming pool	295

Geologic Conditions: Both abutments are thin outwash sand and gravel with numerous outcrops of triassic bedrock. Surficial deposits are swamp, outwash sand and gravel, and bedrock. Depth to granite bedrock in the foundation is estimated to be from 20 to 30 feet. Waterholding capabilities appear to be good. Pervious borrow material for dam construction was located near the site; impervious material was not located.

POTENTIAL SITE CV-2504 (cont'd)

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2506

Location: On Bachelor Brook about 2,700 feet upstream from George Hannum Road in South Hadley, Mass.

Belchertown, Mass. USGS quadrangle

Latitude: 42°17'02" Longitude: 72°26'57"

Facilities Affected:

Facility	Elevation
House	302
Stebbins St. & utilities	301
13 Houses	301
7 Houses & woodworking shop	300
2 Houses	295

Geologic Conditions: Both abutments are outwash sand or gravel. Surficial deposits are swamp and outwash sand and gravel. Depth to triassic conglomerate bedrock in the foundation is estimated to be from 30 to 40 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and the foundation. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2507

Location: On Bachelor Brook about 1,500 feet upstream from Barnett Street in Granby, Mass.

Mt. Holyoke, Mass. USGS quadrangle

Latitude: 42°16'39" Longitude: 72°33'03"

Facilities Affected: None below elevation 215

Geologic Conditions: Both abutments are outwash sand or gravel with possible thinly bedded lacustrine deposits in the foundation. Depth to triassic sandstone or shale bedrock in the foundation is estimated to be from 30 to 40 feet. Waterholding capabilities appear to be fair to poor. Leakage is expected through both abutments and the foundation. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2508

Location: On Weston Brook about 3,300 feet downstream from George Hannum Street in Belchertown, Mass.

Belchertown, Mass. USGS quadrangle

Latitude: 42°16'20" Longitude: 72°26'25"

Facilities Affected:

Facility	Elevation
House	332
Boardman St. & utilities	325
Telephone cables	325

Geologic Conditions: Both abutments are sand and gravel and are shallow to bedrock. Depth to conglomerate bedrock in the foundation is estimated to be from 30 to 40 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and the foundation. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED BACHELOR BROOK

BENEFICIAL POOL							EMERGENCY SPILLWAY					DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV (MSL)	TYPE	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-CV-2501	DA= 0.60 SQ MI = 384 AC		USGS QUAD-MT HOLYOKE				LATITUDE 42-17-32		LONGITUDE 72-31-06								
SITE RATING (1)	STREAM WATER QUALITY (B)		100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.10 IN, PEAK FLOW = 181 CFS										
340.7	0	0.0		1		8.8	363.6	E	133	4.1	2080	366.2	16	370.2	38	43	*****
361.2	100	3.0	3180	10	30600	29.2	363.7	E	134	4.1	2380	368.0	17	371.2	39	46	0.18
369.2	217	6.8	1990	19	23120	37.3	371.7	E	270	8.3	1590	375.2	22	378.7	47	73	0.30
380.2	450	14.1	1320	24	24690	48.2	382.7	E	521	16.2	1140	385.5	29	388.5	57	124	0.45
388.5	683	21.4	1100	32	23250	56.5	391.0	E	774	24.2	970	393.2	39	396.2	64	176	0.53
391.7	800	25.0	1030	36	22580	59.8	394.2	E	898	28.0	920	396.4	43	399.4	67	201	0.55
SITE-CV-2502	DA= 1.52 SQ MI = 973 AC		USGS QUAD-BELCHERTOWN				LATITUDE 42-17-32		LONGITUDE 72-26-56								
SITE RATING (1)	STREAM WATER QUALITY (B)		100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.10 IN, PEAK FLOW = 434 CFS										
306.6	0	0.0		8		2.5	316.5	E	336	4.1	1070	319.0	84	322.5	18	45	*****
312.0	100	1.2	3870	34	11500	8.0	314.5	E	220	2.7	1760	318.2	78	321.2	17	39	0.26
314.5	205	2.5	2230	51	8930	10.5	317.0	E	368	4.5	1240	320.2	92	323.2	19	49	0.42
317.7	415	5.1	1340	75	7420	13.7	320.2	E	635	7.8	880	323.0	109	326.1	22	66	0.65
320.2	625	7.6	1020	93	6860	16.2	322.7	E	888	11.0	720	325.1	121	328.2	24	81	0.83
321.4	730	9.0	920	99	6760	17.4	323.9	E	1008	12.3	660	326.0	127	329.1	25	88	0.90
SITE-CV-2503	DA= 3.78 SQ MI = 2419 AC		USGS QUAD-BELCHERTOWN				LATITUDE 42-17-31		LONGITUDE 72-26-35								
SITE RATING (3)	STREAM WATER QUALITY (B)		100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.10 IN, PEAK FLOW = 1121 CFS										
293.9	0	0.0		26		1.9	302.7	E	837	4.1	410	305.2	261	309.2	17	39	*****
296.2	100	0.5	3540	58	6120	4.3	298.7	E	318	1.6	1110	302.9	191	306.1	14	21	0.33
299.0	301	1.5	1560	93	5050	7.0	301.5	E	629	3.0	750	305.5	265	309.0	17	37	0.74
300.7	502	2.5	1230	129	4790	8.8	300.7	T	533	2.5	1160	306.0	281	309.0	17	37	1.03
302.5	764	3.8	980	179	4190	10.5	302.5	T	794	3.9	950	306.0	281	309.0	17	37	1.35

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED BACHELOR BROOK

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	PERCENT CHANCE (MGD)
SITE-CV-2504 DA= 1.00 SQ MI = 640 AC USGS QUAD-BELCHERTOWN LATITUDE 42-17-12 LONGITUDE 72-29-03																
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.10 IN, PEAK FLOW = 302 CFS																
302.7	0	0.0		5		2.8	314.6 E	221	4.1	2120	317.2	47	320.7	21	56	*****
310.7	100	1.9	5170	21	24340	10.7	313.2 E	174	3.3	2970	317.1	46	320.4	20	54	0.23
314.0	190	3.5	3310	34	18480	14.0	316.5 E	296	5.5	2130	319.7	57	322.9	23	70	0.34
318.2	370	6.8	2110	51	15330	18.2	320.7 E	518	9.7	1510	323.4	66	326.5	27	98	0.50
321.4	550	10.3	1620	61	14520	21.4	323.9 E	719	13.5	1240	326.2	74	329.2	29	125	0.64
322.5	618	11.6	1510	64	14570	22.5	325.0 E	794	14.8	1170	327.1	76	330.1	30	136	0.67
SITE-CV-2506 DA= 5.70 SQ MI = 3648 AC USGS QUAD-BELCHERTOWN LATITUDE 42-17-02 LONGITUDE 72-26-57																
SITE RATING (3) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.10 IN, PEAK FLOW = 1254 CFS																
287.5	0	0.0		24		3.5	301.6 E	1726	5.6	730	303.4	337	308.1	24	79	*****
290.4	100	0.3	12610	47	26650	6.4	300.9 E	1540	5.1	820	303.2	331	307.2	23	72	0.37
293.2	306	1.0	4740	93	15610	9.3	301.7 E	1756	5.8	830	304.1	366	308.5	25	83	0.83
296.1	719	2.4	2330	147	11370	12.7	303.2 E	2193	7.1	760	305.2	411	309.5	25	92	1.50
299.2	1131	3.6	1610	186	9750	15.2	303.7 E	2355	7.6	770	306.0	440	309.7	26	95	2.01
300.2	1338	4.4	1410	209	9010	16.2	304.7 E	2738	9.0	690	306.5	462	309.9	26	96	2.23
SITE-CV-2507 DA= 26.13 SQ MI = 16723 AC USGS QUAD-MT HOLYOKE LATITUDE 42-16-39 LONGITUDE 72-33-03																
SITE RATING (3) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.10 IN, PEAK FLOW = 2650 CFS																
202.0	100	0.1	7130	42	16800	13.0	204.5 E	422	0.3	1690	206.8	54	210.7	22	64	0.62
206.0	288	0.2	2860	52	15840	17.0	208.5 E	634	0.5	1300	210.8	63	214.7	26	89	1.17
209.3	477	0.3	1910	60	15160	20.4	211.8 E	842	0.6	1080	214.2	70	218.2	29	114	1.73
215.1	853	0.6	1250	72	14830	26.0	217.6 E	1248	0.8	850	220.0	82	223.7	35	163	2.67

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED BACHELOR BROOK

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	STORAGE IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV (MSL)	TYPE **	STORAGE AT CREST AC FT	STORAGE AT CREST IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SI-TF-CV-2506 DA= 2.90 SQ MI = 1856 AC USGS QUAD-BELCHERTOWN LATITUDE 42-16-20 LONGITUDE 72-26-25																	
SITE RATING (3) STREAM WATER QUALITY (8) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 8.10 IN, PEAK FLOW = 875 CFS																	
317.9	0	0.0		6		7.8	331.2	E	909	5.9	360	332.9	159	337.5	27	24	*****
323.1	100	0.6	3900	45	8620	13.1	331.6	E	951	6.1	410	333.5	164	337.9	28	25	0.31
326.5	331	2.0	1390	88	5240	16.5	333.0	E	1173	7.6	390	334.7	177	339.1	29	31	0.72
330.6	794	5.1	790	137	4580	20.6	330.6	T	817	5.3	770	335.5	184	338.7	29	29	1.23
332.5	1069	6.8	670	155	4590	22.5	332.5	T	1092	7.1	650	337.2	200	340.2	30	42	1.48

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.
** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

EXISTING SITE CV-2509 (Pearl City Pond)

Location: On Bachelor Brook about 1,200 feet upstream from Woodbridge Street in South Hadley, Mass.

Mt. Holyoke, Mass. USGS quadrangle

Syrface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	(Sq. Mi.)
172		11	17,650	27.58

Potential for Expansion: It appears that the surface area could be increased to about 125 acres without affecting facilities other than Route 116 and Barnett Street.

Remarks: The dam is a rock masonry drop-structure with concrete side walls. The structure is in poor condition.

Ownership and Use: The pond is owned by Samuel Salem and Emile and Basil Ferris and has no specific use at the present time.

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EXISTING SITE CV-2510 (Aldrich Lake)

Location: On Bachelor Brook just upstream of Aldrich Street at Aldrich Mills in Granby, Mass.

Mt. Holyoke, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	(Sq. Mi.)
243	36	20	16,200	25.31

Potential for Expansion: Raising the existing water level by 10 feet would provide about 110 acres of water surface. A Boy Scout Camp and 4 local streets would be affected.

Remarks: The dam is a concrete structure about 75 feet long with a 25-foot wide weir in the center. There is a corrugated metal drain pipe to the right of the weir. In the right abutment is a canal that carries water to an old mill.

Ownership and Use: The site is owned by Merrill C. Aldrich and has no specific use at the present time.

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EXISTING SITE CV-2511 (Forge Pond)

Location: On Bachelor Brook about 25 feet upstream from School Street in Granby, Mass.

Belchertown, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
271	72	11	9,750	15.23

Potential for Expansion: Significant expansion does not appear practical. At least 20 houses, Route 202 and several local streets would be affected.

Remarks: The dam is a rock masonry structure about 60 feet long with a wood plank weir crest. Depth of weir is 3.5 feet. To the left of the spillway there is a gated metal pipe outlet.

Ownership and Use: The pond is owned by Sam Salem and Emile Ferris and is used for recreation.

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EXISTING SITE CV-2512 (Lithia Springs Reservoir)

Location: On an unnamed tributary of Elmer Brook about 5,700 feet northwest of Moody Corner in South Hadley, Mass.

Mt. Holyoke, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
232	20	30	600	0.94

Potential for Expansion: Raising the existing water level by 30 feet would provide about 60 acres of water surface. A dirt road would be affected. Length of the dam would be more than tripled.

Remarks: The dam is a 300-foot long earthfill structure with a concrete cutoff wall and a rock-fill toe. The principal spillway is a 36-inch concrete pipe with gate control. The emergency spillway, located on the right abutment, is a 25-foot wide channel with a concrete headwall on the left side. The dam is maintained.

Ownership and Use: The reservoir is owned by the town of South Hadley and is used for water supply.

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CV-2509
PEARL CITY POND

CV-2512
LITHIA SPRINGS RESERVOIR

CV-2510
ALDRICH LAKE

CV-2512
LITHIA SPRINGS RESERVOIR

EXISTING RESERVOIRS
SUBWATERSHED CV-25
BACHELOR BROOK

2503

2502

2506

2504

2501

2507

2512

2508

2509

2510

2511

LEGEND

WATERSHED BOUNDARY

DRAINAGE AREA ABOVE STRUCTURE

POTENTIAL SITE SHOWING BENEFICIAL POOL FOR LARGEST STRUCTURE

EXISTING POND OR RESERVOIR

Source – U.S.G.S. Quad Sheets
Mt Holyoke – 1947
Belchertown – 1964

4000 2000 0 4000

SCALE IN FEET

BACHELOR BROOK (CV-25)

CENTRAL CONNECTICUT VALLEY STUDY AREA
MASSACHUSETTS
EXISTING AND POTENTIAL RESERVOIR SITES
UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

CENTRAL CONNECTICUT VALLEY STUDY AREA
SITE DATA FOR

Subwatershed CV-26, Stony Brook

The Stony Brook subwatershed covers about 34,300 acres in Chicopee, Holyoke, Ludlow, and West Springfield in Hampden County; and Easthampton, Granby, and South Hadley in Hampshire County.

The watershed is divided by the portion of the Connecticut River between the Hampshire-Hampden County line and the South End Bridge in Springfield.

Geology of the potential reservoir sites is characterized by outwash sand and gravel underlain by triassic sandstone and shale bedrock.

Six potential reservoir sites and seven existing reservoirs were studied.

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POTENTIAL SITE CV-2601

Location: On Stony Brook about 1,500 feet upstream from Ferry Street in South Hadley, Mass.

Mt. Holyoke, Mass. USGS quadrangle

Latitude: 42°15'35" Longitude: 72°35'54"

Facilities Affected:

Facility	Elevation
High tension line	110

Geologic Conditions: Both abutments are outwash sand and gravel. There may be thinly bedded lacustrine deposits near the surface. Surficial deposits are swamp, outwash sand and gravel, and possibly thinly bedded silt and clay. Depth to triassic sandstone and shale bedrock in the foundation is estimated to be from 90 to 100 feet. Water-holding capabilities appear to be fair. Leakage is expected through both abutments. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: Preliminary designs indicate that the spillway should be a reinforced concrete drop structure.

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POTENTIAL SITE CV-2602

Location: On White Brook about 1,100 feet upstream from it's confluence with the Connecticut River in South Hadley, Mass.

Springfield North, Mass. USGS quadrangle

Latitude: 42°14'01" Longitude: 72°35'50"

Facilities Affected: None below elevation 137

Geologic Conditions: Both abutments are outwash sand or gravel. Depth to triassic sandstone or shale bedrock is estimated to be from 50 to 60 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and possibly through the foundation Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2604

Location: On Stony Brook about 1,900 feet downstream from Kendall Street in Granby, Mass.

Ludlow, Mass. USGS quadrangle

Latitude: 42°14'33" Longitude: 72°29'18"

Facilities Affected:

Facility	Elevation
Gravel Pit	268
Kendall Road & utilities	266

Geologic Conditions: Both abutments are outwash sand or gravel with schist bedrock outcrops on the left abutment and triassic bedrock outcrops on the right abutment. Surficial deposits are swamp and outwash sand and gravel. Depth to triassic sandstone or shale bedrock in the foundation is estimated to be from 40 to 50 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and the foundation. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2605

Location: On Stony Brook about 4,000 feet upstream from Taylor Street in Granby, Mass.

Ludlow, Mass. USGS quadrangle

Latitude: 42°14'04" Longitude: 72°29'24"

Facilities Affected:

Facility	Elevation
Gravel Pit	268
Kendall St. & utilities	266
Chicopee St. & utilities	260

Geologic Conditions: Both abutments are outwash sand or gravel. Surficial deposits are swamp and outwash sand and gravel. Depth to triassic sandstone or shale bedrock in the foundation is estimated to be 40 to 50 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and the foundation. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2606

Location: On Muddy Brook approximately 250 feet upstream from East Street in Granby, Mass.

Springfield North, Mass. USGS quadrangle

Latitude: 42°13'28" Longitude: 72°30'46"

Facilities Affected:

Facility	Elevation
Truby St. & utilities	238

Geologic Conditions: Both abutments are outwash fine sand and gravel. Surficial deposits are swamp and outwash sand and gravel. Depth to triassic sandstone and shale bedrock is estimated to be from 60 to 80 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and the foundation. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE CV-2607

Location: On Goldine Brook about 1,500 feet upstream from Hill Avenue in West Springfield, Mass.

Mt. Tom, Mass. USGS quadrangle

Latitude: 42°08'27" Longitude: 72°38'26"

Facilities Affected:

Facility	Elevation
House and barn	195
Falvy Street	190
3 Houses	190
2 Houses	180
Piper Road and utilities	176

Geologic Conditions: Both abutments are outwash sand and gravel with possibly some lacustrine beds at the toe. Surficial deposits are outwash sand and gravel and some swamp. Depth to triassic sandstone and shale bedrock is estimated to be from 60 to 80 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and the foundation.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED STONY BROOK

BENEFICIAL POOL							EMERGENCY SPILLWAY					DESIGN HIGH WATER		DAM			SAFE YIELD AT 95
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV (MSL)	++ TYPE	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	PERCENT CHANCE (MGD)
SITE-CV-2601	DA= 21.33 SQ MI = 13651 AC						USGS QUAD-MT HOLYOKE					LATITUDE 42-15-35		LONGITUDE 72-35-54			
SITE RATING (1)			STREAM WATER QUALITY (B)				100-YR PRIN SPWY DESIGN STORM					RUNOFF = 8.10 IN, PEAK FLOW = 2249 CFS					
112.3	152	0.1	4160	61	10450	10.3	112.3	D	323	0.3	1960	115.8	79	118.8	17	14	0.66
SITE-CV-2602	DA= 0.75 SQ MI = 480 AC						USGS QUAD-SPRINGFIELD NORTH					LATITUDE 42-14-01		LONGITUDE 72-35-50			
SITE RATING (3)			STREAM WATER QUALITY (B)				100-YR PRIN SPWY DESIGN STORM					RUNOFF = 8.00 IN, PEAK FLOW = 224 CFS					
116.5	0	0.0		2		6.5	129.2	E	166	4.1	1470	131.7	38	134.7	25	31	*****
127.0	100	2.5	3270	23	14050	17.0	131.5	E	241	6.0	1350	133.7	44	136.7	27	39	0.20
128.8	147	3.6	2580	29	13280	18.7	133.3	E	314	7.8	1210	135.8	51	138.8	29	49	0.26
130.3	195	4.9	1950	33	11450	20.4	132.8	E	295	7.3	1290	135.3	49	138.3	28	47	0.31
132.5	274	6.8	1680	40	11490	22.5	135.0	E	391	9.8	1180	137.3	56	140.3	30	65	0.37
SITE-CV-2604	DA= 1.03 SQ MI = 659 AC						USGS QUAD-LUDLOW					LATITUDE 42-14-33		LONGITUDE 72-29-18			
SITE RATING (3)			STREAM WATER QUALITY (B)				100-YR PRIN SPWY DESIGN STORM					RUNOFF = 8.00 IN, PEAK FLOW = 296 CFS					
260.9	0	0.0		7		1.9	269.1	E	228	4.1	930	271.4	72	274.4	15	14	*****
266.1	100	1.7	2410	33	7400	7.1	268.6	E	206	3.6	1170	270.9	65	273.9	15	13	0.23
268.2	180	3.3	1610	43	6710	9.2	270.7	E	320	5.8	910	273.2	96	276.2	17	17	0.33
269.9	260	4.6	1280	52	6430	10.8	272.4	E	445	8.1	750	274.5	114	277.5	18	19	0.42
271.2	341	6.1	1100	68	5510	12.2	273.7	E	560	10.2	670	275.4	126	278.4	19	21	0.49

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.
** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-CENTRAL CONNECTICUT VALLEY SUBWATERSHED STONY BROOK

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV ++ TYPE (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	PERCENT CHANCE (MGD)
SITE-CV-2605	DA= 1.99 SQ MI = 1274 AC						USGS QUAD-LUDLOW				LATITUDE 42-14-04		LONGITUDE 72-29-24			
SITE RATING (3)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.00 IN, PEAK FLOW = 572 CFS					
256.5	0	0.0		12		1.5	264.4 E	440	4.1	730	266.7	147	269.7	15	26	*****
260.1	100	0.8	3610	44	8280	5.1	264.6 E	474	4.5	760	267.1	152	270.1	15	29	0.28
261.2	167	1.6	2560	62	6890	6.3	265.5 E	576	5.4	740	267.7	161	270.7	16	39	0.41
262.5	249	2.3	1750	80	5450	7.5	265.0 E	516	4.9	850	267.5	157	270.5	15	35	0.52
SITE-CV-2606	DA= 2.54 SQ MI = 1626 AC						USGS QUAD-SPRINGFIELD NORTH				LATITUDE 42-13-28		LONGITUDE 72-30-46			
SITE RATING (3)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.00 IN, PEAK FLOW = 569 CFS					
232.5	0	0.0		20		0.5	237.0 E	562	4.1	980	239.0	300	242.0	10	9	*****
234.2	100	0.7	6670	95	7000	2.2	236.7 E	498	3.6	1340	239.1	304	242.1	10	9	0.30
235.3	250	1.7	3080	147	5230	3.4	237.8 E	771	5.6	1000	239.7	336	242.7	11	10	0.58
236.0	325	2.4	2480	171	4730	4.0	238.5 E	916	6.8	880	240.2	346	243.2	11	10	0.68
SITE-CV-2607	DA= 0.76 SQ MI = 486 AC						USGS QUAD-MT TOM				LATITUDE 42-08-27		LONGITUDE 72-38-26			
SITE RATING (3)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 8.00 IN, PEAK FLOW = 227 CFS					
168.8	0	0.0		3		3.8	186.0 E	168	4.1	2370	188.5	20	191.5	26	28	*****
181.8	100	2.5	4970	13	38600	16.7	190.3 E	252	6.1	1980	192.8	25	195.8	31	40	0.21
188.2	201	5.0	2950	19	30780	23.2	194.7 E	357	8.8	1660	197.1	30	200.1	35	54	0.32
196.5	404	10.0	1710	30	23370	31.5	199.0 E	488	12.0	1410	201.5	37	204.5	39	72	0.48
202.5	605	14.8	1300	39	20330	37.5	205.0 E	714	17.6	1100	207.3	48	210.3	45	103	0.58

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

EXISTING SITE CV-2608 (Lake Bray)

Location: On an unnamed tributary to Connecticut River at Ferry Road in Holyoke, Mass.

Mt. Holyoke, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
162	13	15	1,000	1.56

Potential for Expansion: Raising the existing water level by 40 feet would provide about 50 acres of water surface, steep topography limits the increase in surface area.

Remarks: The dam is formed by the Ferry Road highway embankment. The spillway is a concrete drop inlet with an 8-foot corrugated metal pipe conduit. The drop inlet is gated to enable draining the reservoir. To the left of the spillway there are two corrugated metal pipes. The inlets to these pipes are partly closed with concrete and the pipes do not function except during times of high water.

Ownership and Use: The lake is owned by Mt. Tom Reservation Commission, Hampshire County Commissioners, and is used for recreation.

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EXISTING SITE CV-2609 (Prospect Hill Upper Pond)

Location: On Stony Brook about 2,200 feet upstream from Morgan Street in South Hadley, Mass.

Mt. Holyoke, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
149	10	18	11,600	18.13

Potential for Expansion: Poor. Expansion would affect the Mount Holyoke College Campus.

Remarks: The dam is a concrete structure about 100 feet long with a 35-foot wide drop spillway. The weir is about 4 feet. To the right of the spillway is a section of stoplogs that regulate water to a canal.

Ownership and Use: The pond is owned by the Mt. Holyoke College and is used for recreation.

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EXISTING SITE CV-2610 (Prospect Hill Lower Pond)

Location: On Stony Brook about 600 feet upstream from Morgan Street, in South Hadley, Mass.

Mt. Holyoke, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
175	8	16	11,750	18.36

Potential for Expansion: Poor. Expansion would affect the Mt. Holyoke College campus.

Remarks: The dam is a concrete gravity structure about 80 feet long.

Ownership and Use: The pond is owned by Mt. Holyoke College and is used for recreation.

****

EXISTING SITE CV-2611 (Mountain Park Reservoir)

Location: On an unnamed tributary to the Connecticut River about 8,700 feet upstream from Ferry Road in Holyoke, Mass.

Easthampton, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
706 est.	1	3	50	0.08

Potential for Expansion: The very small drainage area and steep topography limit expansion potential.

Remarks: The dam is an earthfill structure about 100 feet long. The 20-foot wide spillway was dammed with sandbags and water was outletting from the reservoir through culverts beneath the access road at the time of the inspection.

Ownership and Use: The reservoir is owned by Mt. Tom Reservation Commission, Hampshire County Commissioners, Springfield, Mass., and used to store water to make snow.

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EXISTING SITE CV-2612 (Whiting Street Reservoir)

Location: On an unnamed tributary to the Connecticut River about 3,000 feet upstream from Route 5 in Holyoke, Mass.

Mt. Tom, Mass. USGS quadrangle

Surface Elevation	Surface Area (Arces)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
387	110	15	900	1.41

Potential for Expansion: The relatively small drainage area and steep topography limit expansion potential.

Remarks: The dam is an earthfill structure about 1,900 feet long with a 15-foot top width. The upstream slope is a vertical concrete wall. A brick gate house is located at the center of the dam.

Ownership and Use: The reservoir is owned by the City of Holyoke, Holyoke Water Works, and is used for municipal water supply.

****

EXISTING SITE CV-2613 (Leaping Well Reservoir)

Location: On Leaping Well Brook about 25 feet upstream from Granby Road in South Hadley, Mass.

Springfield North, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
218 est.	11	4	200	0.31

Potential for Expansion: Limited. A residential area abutting the reservoir would be affected.

Remarks: The dam is an earthfill structure about 250 feet long with a 6-foot top width. The downstream slope is forested with 18-inch diameter pine trees. A gate house with a catwalk access extends into the reservoir.

Ownership and Use: The reservoir is owned by the town of South Hadley, Water Department, and is used for municipal water supply.

****

EXISTING SITE CV-2614 (Mountain Lake)

Location: On an unnamed tributary to the Connecticut River about 25 feet downstream from Irene Street at Smith Highlands in Chicopee, Mass.

Springfield North, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
164 (est.)	15	23	1,450	2.26

Potential for Expansion: Steep topography limits any significant increase in surface area. A residential area is located on the northeast shore.

Remarks: The dam is an earthfill structure about 150 feet long. Brush is growing on the upstream slope. The downstream slope has many trees growing on it. The spillway, located on the left abutment, is a 100-foot long channel leading to a concrete drop and chute structure. There is also a corrugated metal pipe pond drain.

Ownership and Use: The lake is owned by Chester A. Nowak and is used for recreation.

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CV-2601
Lake Bray

CV-2601
Lake Bray

CV-2602
Prospect Hill
Upper Pond

CV-2604
Mountain Park
Reservoir

CV-2603
Prospect Hill Lower Pond

EXISTING RESERVOIRS
SUBWATERSHED CV-26
STONY BROOK

CV-2605
Whiting St. Reservoir

CV-2606
Leaping Well Reservoir

CV-2605
Whiting St. Reservoir

CV-2607
Mountain Lake

EXISTING RESERVOIRS
SUBWATERSHED CV-26
STONY BROOK

STONY BROOK (CV-26)

CENTRAL CONNECTICUT VALLEY STUDY AREA
MASSACHUSETTS
EXISTING AND POTENTIAL RESERVOIR SITES
UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

LEGEND

- SUBWATERSHED BOUNDARY
- DRAINAGE AREA ABOVE STRUCTURE
- POTENTIAL SITE SHOWING BENEFICIAL POOL FOR LARGEST STRUCTURE
- EXISTING RESERVOIR OR POND

LOCATION MAP

2611
2608
2601
2610
2609
2613
2612
2602
2605
2604
2614
2606
2607

Source - USGS Quod. Sheets
Palmer - 1954
Ludlow - 1954
Mount Tom - 1958
Easthompton - 1948
Mt. Holyoke - 1947
Springfield North - 1958

SOUTHERN CONNECTICUT VALLEY STUDY AREA
SITE DATA FOR

Subwatershed SC-47, Mill River

The Mill River subwatershed covers about 21,900 acres in East Longmeadow, Hampden, Springfield, and Wilbraham; all in Hampden County.

The major stream is the Mill River which originates in Wilbraham and flows westerly through Springfield to the Connecticut River.

Geology of the potential reservoir sites is characterized by outwash sand and gravel and lacustrine sand and silt underlain by triassic sandstone and shale bedrock.

Two potential reservoir sites and four existing reservoirs were studied.

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POTENTIAL SITE SC-4702

Location: On the North Branch of the Mill River about 1,000 feet upstream from Stoney Hill Road in Springfield, Mass.

Hampden, Mass.-Conn. USGS quadrangle

Latitude: 42°06'24" Longitude: 72°27'22"

Facilities Affected:

Facility	Elevation
Springfield St. & utilities	242
Mobil Pipe Line	242

Geologic Conditions: Both abutments are outwash sand and gravel. Surficial deposits are swamp and outwash sand and gravel. Depth to triassic sandstone bedrock in the foundation is estimated to be 30 to 40 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and the foundation. Pervious material for dam construction was located near the site; impervious material was not located.

Engineering Notes: Either abutment is recommended for the excavated emergency spillway location. If the site is developed to elevation 245, two auxiliary dikes will be required.

****

POTENTIAL SITE SC-4703

Location: On the South Branch of the Mill River about 500 feet upstream from its confluence with Schneelock Brook in Springfield, Mass.

Springfield South, Mass.-Conn. USGS quadrangle

Latitude: 42°06'02" Longitude: 72°31'02"

Facilities Affected:

Facility	Elevation
Golf Course	185
2 Houses	185
4 Houses	184
Pool	182
Ice Skating Rink	177
South Branch Rd. & utilities	175

Geologic Conditions: Both abutments are bedded lacustrine sands and silt. Surficial deposits are lacustrine sand and silt. Depth to triassic sandstone-shale bedrock is estimated to be from 60 to 70 feet. Waterholding capabilities appear to be fair to good. Leakage is expected through both abutments and the foundation. Borrow material for dam construction was located near the site.

Engineering Notes: Preliminary designs indicate that the spillway should be a reinforced concrete chute or drop structure.

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-SOUTHERN CONNECTICUT VALLEY SUBWATERSHED MILL NO 4

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV +TYPE (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-SC-4702 DA= 5.37 SQ MI = 3437 AC USGS QUAD-HAMPDEN LATITUDE 42-06-24 LONGITUDE 72-27-22																
SITE RATING (2) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 7.90 IN, PEAK FLOW = 970 CFS																
234.7	0	0.0		30		1.7	243.2 E	1189	4.1	770	245.3	481	248.3	15	56	*****
****THIS SITE LACKS SUFFICIENT STORAGE FOR BENEFICIAL WATER.****																
SITE-SC 4703 DA= 11.92 SQ MI = 7629 AC USGS QUAD-SPRINGFIELD SOUTH LATITUDE 42-06-02 LONGITUDE 72-31-02																
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 7.90 IN, PEAK FLOW = 1910 CFS																
170.8	100	0.2	10180	43	23690	8.8	170.8 N	195	0.3	5210	177.7	71	184.1	22	26	0.42
174.3	272	0.4	4930	57	23560	12.3	174.3 N	368	0.6	3650	181.3	88	187.8	26	38	0.94
177.1	445	0.7	3970	68	25970	15.1	177.1 D	540	0.8	3270	183.3	99	189.3	27	43	1.35
181.5	789	1.2	2570	89	22930	19.5	181.5 D	885	1.4	2300	184.8	108	188.1	26	39	2.03

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

EXISTING SITE SC-4704 (Watershops Pond)

Location: On the Mill River about 200 feet upstream from Walnut Street in Springfield, Mass.

Springfield South, Mass.-Conn. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
157	169	30	21,050	32.89

Potential for Expansion: None: Industrial and residential areas surround the pool area.

Remarks: The dam is a rockfill structure about 75 feet long with a maximum head of 2 feet and a total fall of 30 feet. The structure has a gate control but no outlet was visible. Both abutments are part of the former Springfield Armory. The main stream outlets under a stone arch in the Armory and then under Walnut Street.

Ownership and Use: The reservoir is owned by the City of Springfield and was formerly used as a power dam for the Springfield Armory.

****

EXISTING SITE SC-4705 (Breckwood Lake)

Location: On the North Branch of the Mill River at Breckwood Boulevard in Springfield, Mass.

Springfield South, Mass.-Conn. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
168	7	15	8,100	12.66

Potential for Expansion: Limited. A residential area surrounds the pool.

Remarks: The dam is about 200 feet long and is formed by the embankment of Breckwood Boulevard. Trees and brush are growing on both slopes of the dam. The spillway is an ogee structure which outlets beneath Breckwood Boulevard in a 15-foot wide concrete channel. The spillway concrete is in good condition.

Ownership and Use: The lake is owned by the city of Springfield Park Commission, and is used for recreation.

****

EXISTING SITE SC-4706 (North Branch Tributary Park Dam)

Location: On an unnamed tributary of the North Branch of the Mill River about 2,500 feet downstream from Lumae Street in Springfield, Mass.

Springfield South, Mass. - Conn. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
188	6	10	400	0.63

Potential for Expansion: Severely limited due to steep terrain and residential area surrounding the pool area.

Remarks: The dam is a concrete drop structure having a weir length of 12 feet and a maximum head of 1 foot. The weir has two 1-foot x 1-foot notches and a total fall of 10 feet. Reinforcing bars are visible in the wingwalls and the concrete is crumbling in places.

Ownership and Use: The site is owned by the City of Springfield and is used for recreation.

****

EXISTING SITE SC-4707 (Mill Pond (16 Acres Pond))

Location: On the South Branch of the Mill River at Parker Street (State Route 21) in Springfield, Mass.

Hampden, Mass. - Conn. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
208	15	12	6,450	10.08

Potential for Expansion: Dam could be raised only a few feet before excessive facilities in a residential area are inundated.

Remarks: The main dam is formed by the embankment of Parker Street while the main control structure is a 30-foot wide rock weir located about 100 feet downstream. The weir has a maximum head of 1 foot and a vertical fall of 25 feet. Trees and brush are growing on the embankment.

Ownership and Use: The reservoir is owned by the City of Springfield, Park Commission, and is used for recreation.

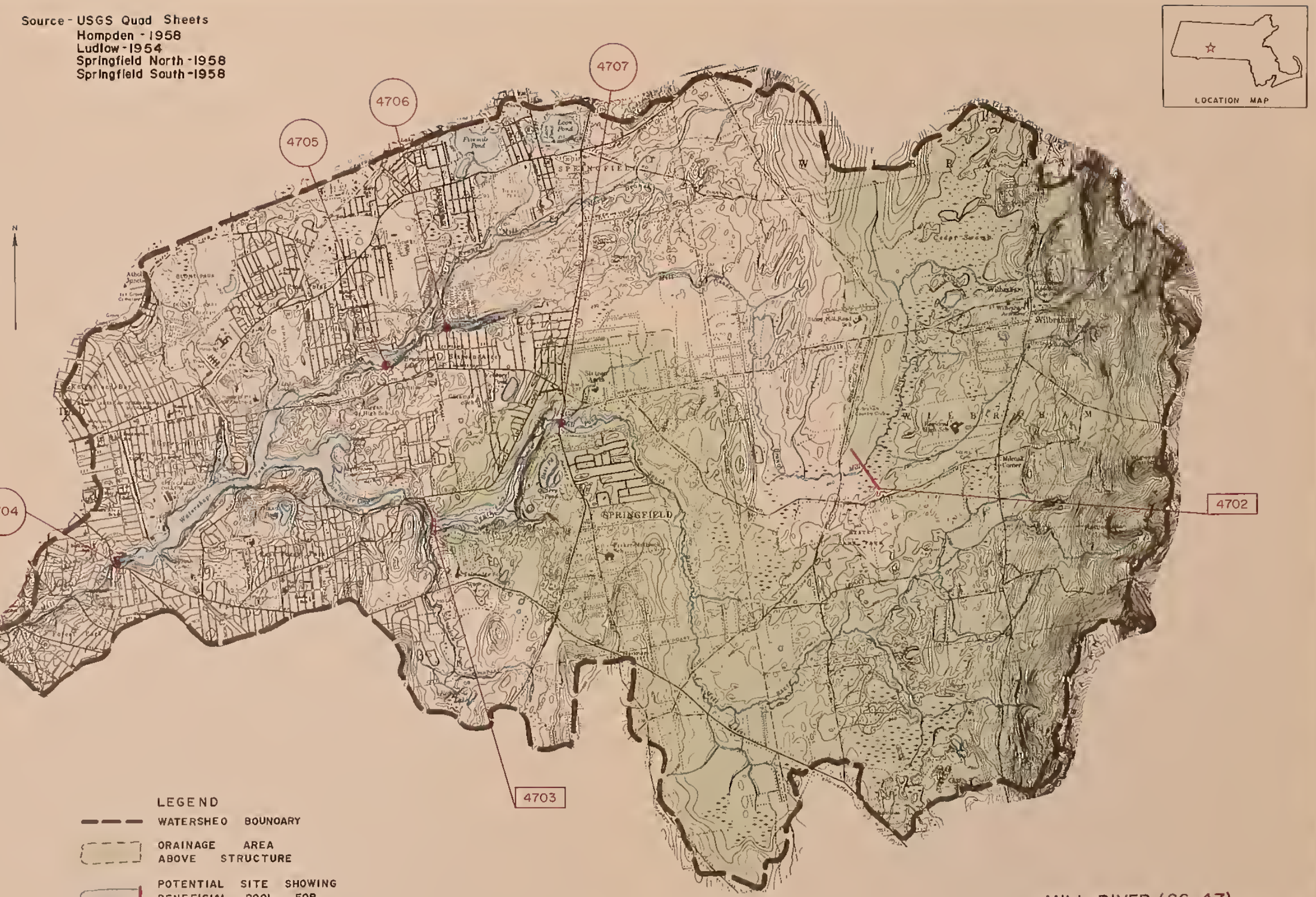
****

SC-4705
Breckwood Lake

SC-4707
Mill Pond

SC-4704
Watershops Pond

Source - USGS Quad Sheets
Hompden - 1958
Ludlow - 1954
Springfield North - 1958
Springfield South - 1958



MILL RIVER (SC-47)

SOUTHERN CONNECTICUT RIVER STUDY AREA
MASSACHUSETTS
EXISTING AND POTENTIAL RESERVOIR SITES
UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOUTHERN CONNECTICUT VALLEY STUDY AREA
SITE DATA FOR

Subwatershed SC-48, Longmeadow Brook

The Longmeadow Brook subwatershed covers about 17,000 acres in Agawam, East Longmeadow, Longmeadow, and Springfield; all in Hampden County.

The watershed is bisected by the portion of the Connecticut River from the South End Bridge in Springfield to the Massachusetts-Connecticut state line.

Geology of the potential reservoir sites is characterized by lacustrine sand and silt underlain by triassic sandstone and shale bedrock.

Five potential reservoir sites and three existing reservoirs were studied.

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POTENTIAL SITE SC-4801

Location: On Pecousic Brook about 1,400 feet upstream from Dickinson Street in Springfield, Mass.

Springfield South, Mass.-Conn. USGS quadrangle

Latitude: 42°04'07" Longitude: 72°32'58"

Facilities Affected:

Facility	Elevation
3 Houses	150

Geologic Conditions: Both abutments are thinly-bedded poorly-graded lacustrine sand and silt. Surficial deposits are swamp and lacustrine sand and silt. Depth to triassic sandstone-shale bedrock is estimated to be from 90 to 100 feet. Waterholding capabilities appear to be fair to good. Slight leakage is expected through both abutments and the foundation. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE SC-4802

Location: On an unnamed tributary to Threemile Brook about 2,000 feet upstream from Silver Lake in Agawam, Mass.

West Springfield, Mass.-Conn. USGS quadrangle

Latitude: 42°03'47" Longitude: 72°38'49"

Facilities Affected:

Facility	Elevation
Lodge Hall	162
Garden St. and Sewer Line	148

Geologic Conditions: Both abutments are fine poorly graded sand with some gravel. Surficial deposits are swamp. Depth to triassic sandstone and shale bedrock is estimated to be from 40 to 50 feet. Waterholding capabilities appear to be fair. Slight leakage is expected through both abutments and the foundation. Pervious borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE SC-4803

Location: On Three Mile Brook about 400 feet downstream from its confluence with Tarkill Brook in Agawam, Mass.

Springfield South, Mass.-Conn. USGS quadrangle

Latitude: 42°02'42" Longitude: 72°37'12"

Facilities Affected: None below elevation 68

Geologic Conditions: Both abutments and surficial deposits are bedded fine lacustrine sand and silt. Depth to triassic sandstone and shale bedrock in the foundation is estimated to be from 25 to 30 feet. Waterholding capabilities appear to be fair to good. Slight leakage is expected through both abutments and the foundation. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE SC-4805

Location: On Four Mile Brook about 400 feet upstream from Route 5A in Agawam, Mass.

Springfield South, Mass. USGS quadrangle

Latitude: 42°02'27" Longitude: 72°37'03"

Facilities Affected:

Facility	Elevation
Barn	70

Geologic Conditions: Both abutments and surficial deposits are bedded fine lacustrine sand and silt. Depth to triassic sandstone and shale in the foundation is estimated to be from 25 to 30 feet. Waterholding capabilities appear to be fair to good. Slight leakage is expected through both abutments and the foundation. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE SC-4806

Location: On Longmeadow Brook about 700 feet upstream from Longmeadow Street in Longmeadow. Mass.

Springfield South, Mass. USGS quadrangle

Latitude: 42°02'13" Longitude: 72°31'55"

Facilities Affected:

Facility	Elevation
Mill Rd., utilities & sewer line	70

Geologic Conditions: Both abutments and surficial deposits are bedded lacustrine fine sand and silt. Depth to triassic sandstone and shale in the foundation is estimated to be from 50 to 60 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-SOUTHERN CONNECTICUT VALLEY SUBWATERSHED LONG MEADOW BROOK

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	PERCENT CHANCE (MGD)
SITE-SC 4801	DA= 4.38 SQ MI = 2803 AC						USGS QUAD-SPRINGFIELD SOUTH				LATITUDE 42-04-07 LONGITUDE 72-32-58					
SITE RATING (2)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 7.90 IN, PEAK FLOW = 827 CFS					
108.1	0	0.0		8		8.2	148.2 E	1442	6.1	530	150.6	73	155.0	55	116	*****
116.0	100	0.4	5170	17	29820	16.0	116.0 T	135	0.6	3830	129.0	37	132.8	33	35	0.35
125.8	338	1.4	2120	32	22560	25.9	125.8 T	373	1.6	1920	138.8	49	144.2	44	69	0.84
137.7	815	3.5	1100	48	18680	37.7	137.7 T	850	3.5	1050	148.7	68	151.7	52	99	1.48
146.3	1292	5.5	790	63	16080	46.4	146.3 T	1327	5.6	770	152.5	79	155.5	55	118	1.95
147.5	1363	5.8	750	66	15610	47.5	147.5 T	1398	6.0	730	152.3	79	155.3	55	118	2.01
SITE-SC 4802	DA= 0.77 SQ MI = 493 AC						USGS QUAD-WEST SPRINGFIELD				LATITUDE 42-03-47 LONGITUDE 72-38-49					
SITE RATING (2)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 7.90 IN, PEAK FLOW = 227 CFS					
136.6	0	0.0		2		6.6	154.3 E	170	4.1	2800	156.8	29	159.8	30	33	*****
150.8	100	2.4	6110	15	41070	20.9	157.3 E	250	6.1	2440	159.8	35	162.8	33	41	0.21
154.8	176	4.3	3850	24	28230	24.7	159.3 E	313	7.6	2160	161.7	42	164.7	35	47	0.30
160.0	328	8.0	2390	36	21900	30.0	162.5 E	438	10.7	1790	164.8	53	167.8	38	58	0.43
162.5	434	10.6	2020	45	19540	32.5	165.0 E	561	13.7	1560	167.3	62	170.3	40	70	0.50
SITE-SC-4803	DA= 5.35 SQ MI = 3424 AC						USGS QUAD-SPRINGFIELD SOUTH				LATITUDE 42-02-42 LONGITUDE 72-37-12					
SITE RATING (3)	STREAM WATER QUALITY (B)						100-YR PRIN SPWY DESIGN STORM				RUNOFF = 7.90 IN, PEAK FLOW = 1295 CFS					
62.5	102	0.4	9520	31	30910	12.5	62.5 T	145	0.5	6710	67.4	61	70.4	20	43	0.37

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.
** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-SOUTHERN CONNECTICUT VALLEY SUBWATERSHED LONG MEADOW BROOK

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-SC-4805 DA= 3.84 SQ MI = 2458 AC USGS QUAD-SPRINGFIELD SOUTH LATITUDE 42-02-27 LONGITUDE 72-37-03																
SITE RATING (3) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 7.90 IN, PEAK FLOW = 824 CFS																
52.6	0	0.0		15		4.6	71.4 T	850	4.1	770	75.8	92	79.6	32	40	*****
57.0	100	0.5	4700	32	14700	9.0	57.0 T	131	0.6	3600	70.0	60	77.4	29	33	0.33
61.1	267	1.2	1810	46	10500	13.2	61.1 T	297	1.5	1620	72.1	71	75.5	27	28	0.68
67.6	600	2.9	1130	56	12130	19.7	67.6 T	631	3.0	1080	76.1	93	80.0	32	41	1.16
72.5	901	4.4	830	73	10140	24.5	72.5 T	931	4.5	800	77.5	101	80.5	32	46	1.50
SITE-SC-4806 DA= 3.70 SQ MI = 2368 AC USGS QUAD-SPRINGFIELD SOUTH LATITUDE 42-02-13 LONGITUDE 72-31-55																
SITE RATING (2) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 7.90 IN, PEAK FLOW = 743 CFS																
76.1	100	0.5	4130	19	22250	14.1	76.1 T	130	0.7	3190	87.1	38	91.1	29	23	0.33
79.5	170	0.8	2890	23	21130	17.5	79.5 T	200	1.0	2460	87.9	40	92.6	31	25	0.49
84.5	310	1.6	1590	33	14930	22.5	84.5 T	340	1.7	1450	89.4	43	92.4	30	25	0.75
87.5	418	2.0	1490	39	15920	25.5	87.5 T	448	2.3	1390	90.0	44	93.0	31	26	0.92

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

EXISTING SITE SC-4810 (Porter Lake (Forest Park Upper))

Location: On Pecousic Brook about 2,300 feet upstream from Longmeadow Street in Springfield, Mass.

Springfield South, Mass. - Conn. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
88	28	25	4,500	7.03

Potential for Expansion: Steep topography limits any significant increase in surface area.

Remarks: The dam is a 400-foot long section of the embankment of Park Drive in Forest Park. Both slopes of the dam are covered with trees and brush. The spillway is a 70-foot wide circular weir having a maximum head of 3 feet and a total fall of 10 feet.

Ownership and Use: The lake is owned by the City of Springfield, Park Commission, and is used for recreation.

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EXISTING SITE SC-4811 (Silver Lake)

Location: On an unnamed tributary to Threemile Brook about 600 feet upstream from Suffield Street (State Route 75) in Agawam, Mass.

West Springfield, Mass.-Conn. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
125	8.3	8	800	1.25

Potential for Expansion: Limited due to residences along the waters' edge.

Remarks: The dam is an earthfill structure about 100 feet long with a concrete and stone-block weir spillway. The weir is 10 feet wide and has a total drop of 6 feet. There is a 4-foot wide 6-inch deep notch in the center of the weir.

Ownership and Use: The lake is privately owned and is used for recreation.

****

EXISTING SITE SC-4812 (Turner Park Dam)

Location: At the headwaters of Longmeadow Brook about 2,200 feet southwest of the intersection of Williams and Maple Streets in Longmeadow, Mass.

Springfield South, Mass.-Conn. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
183	6	13	50	0.08

Potential for Expansion: The very small drainage area limits expansion potential.

Remarks: The dam is an earthfill structure about 80 feet long. The principal spillway consists of a 36-inch corrugated metal pipe drop-inlet and a 24-inch corrugated metal pipe conduit. There is a 12-inch gated outlet used for draining the pool.

Ownership and Use: The site is owned by the Town of Longmeadow and is used for recreation.

****

SC-4810
Porter Lake

SC-4811
Silver Lake

SC-4812
Turner Park Dam

4810

4801

4811

4802

4803

4812

4805

4806

CONNECTICUT RIVER

LONGMEADOW

Source - USGS Quad. Sheets
Springfield North - 1958
West Springfield - 1958

LEGEND

WATERSHED BOUNDARY

DRAINAGE AREA ABOVE STRUCTURE

POTENTIAL SITE SHOWING BENEFICIAL POOL FOR LARGEST STRUCTURE

EXISTING POND OR RESERVOIR

LONGMEADOW BROOK (SC-48)

SOUTHERN CONNECTICUT RIVER STUDY AREA

MASSACHUSETTS

EXISTING AND POTENTIAL RESERVOIR SITES

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOUTHERN CONNECTICUT VALLEY STUDY AREA
SITE DATA FOR

Subwatershed SC-49, Freshwater Brook

The Massachusetts portion of the Freshwater Brook subwatershed covers about 1,700 acres in East Longmeadow and Longmeadow; both in Hampden County.

The subwatershed includes the area drained by Jawbuck Brook. This brook forms in Longmeadow and flows southwesterly to Freshwater Brook in Enfield, Connecticut.

One existing reservoir was studied. There were no potential reservoir sites which met study criteria.

****

EXISTING SITE SC-4901 (Whetstone Tobacco #3)

Location: On Jawbuck Brook about 2,400 feet downstream from Denslow Road in Longmeadow, Mass.

Springfield South, Mass.-Conn. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
188 (est.)	10.1	8	800	1.25

Potential for Expansion: Expansion is limited by the nearby railroad. Extensive diking would be required and a large area of very shallow water would be created.

Remarks: The dam is an earthfill structure about 400 feet long with a 50-foot wide concrete weir located on the right abutment. The weir has a maximum head of 2 feet and has an 8-inch corrugated metal pipe located in the center which is used as a pond drain. Brush is growing on both slopes of the dam.

Ownership and Use: The site is owned by Whetstone Farms and is used for irrigation water.

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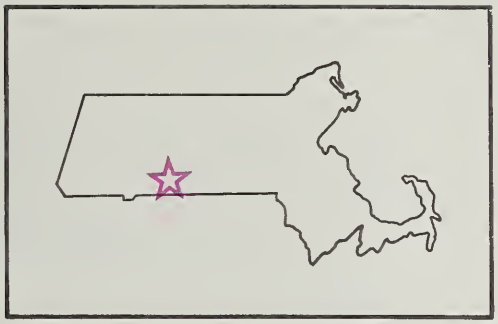
SC-4901
Whetstone

LEGEND

SUBWATERSHED BOUNDARY

EXISTING POND OR RESERVOIR



0 1/2 1

SCALE IN MILES

Source – U.S.G.S. Quad Sheets
Springfield South – 1958
Broad Brook – 1964

FRESHWATER BROOK (SC-49)

SOUTHERN CONNECTICUT RIVER STUDY AREA

MASSACHUSETTS

EXISTING AND POTENTIAL RESERVOIR SITES

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

USDA-SCS-HYATTSVILLE, MD. 1974

SOUTHERN CONNECTICUT VALLEY STUDY AREA
SITE DATA FOR

Subwatershed SC-50, Stony Brook

The Massachusetts portion of the Stony Brook subwatershed covers about 5,700 acres in Agawam and Southwick; both in Hampden County.

The subwatershed includes several small streams which form in Massachusetts and flow southerly into Connecticut joining Stony Brook in Enfield.

Geology of the potential reservoir sites is characterized by lacustrine sand and silt underlain by triassic sandstone, shale, and conglomerate bedrock.

Three potential reservoir sites and two existing reservoirs were studied.

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POTENTIAL SITE SC-5002

Location: On Philo Brook about 4,800 feet downstream from Shoemaker Lane in Agawam, Mass.

West Springfield, Mass. USGS quadrangle

Latitude: 42°02'54" Longitude: 72°40'05"

Facilities Affected:

Facility	Elevation
Golf Course	183

Geologic Conditions: The left abutment is bedded fine sand and silt at the lower elevation with possibly triassic bedrock higher on the abutment. The right abutment and surficial deposits are bedded fine sand and silt. Depth to triassic sandstone and shale bedrock in the foundation is estimated to be from 30 to 40 feet. Waterholding capabilities appear to be fair to good. Slight leakage is expected through both abutments. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

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POTENTIAL SITE SC-5003

Location: On an unnamed tributary to Still Brook about 1,000 feet upstream from Harts Pond, and northwest of Rising Corner, Conn. in Southwick, Mass.

West Springfield, Mass. USGS quadrangle

Latitude: 42°02'22" Longitude: 72°42'48"

Facilities Affected: None below elevation 226

Geologic Conditions: Both abutments are a thin soil mantle underlain by shale, sandstone, conglomerate and basalt. Surficial deposits are swamp and triassic bedrock. Depth to triassic bedrock in the foundation is estimated to be from 25 to 30 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: Preliminary designs indicate that the spillway should be a reinforced concrete drop structure.

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POTENTIAL SITE SC-5004

Location: On Still Brook about 800 feet upstream from Pine Street in Agawam, Mass.

West Springfield, Mass. USGS quadrangle

Latitude: 42°02'38" Longitude: 72°41'06"

Facilities Affected:

Facility	Elevation
South West St. & utility lines	205
2 Barns	200
2 Barns	195
2 Barns	190
Barn	188
2 Tobacco barns	185
2 Tobacco barns	180
High pressure gas line	170
Barn	143

Geologic Conditions: Both abutments and the surficial deposits are lacustrine sand and silt. Depth to shale, sandstone conglomerate bedrock in the foundation is estimated to be from 15 to 20 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location. If the site is developed to elevation 185, an auxiliary dike will be required.

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-SOUTHERN CONNECTICUT VALLEY SUBWATERSHED STONY RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-SC-5002 DA= 1.59 SQ MI = 1018 AC USGS QUAD-WEST SPRINGFIELD LATITUDE 42-02-54 LONGITUDE 72-40-05																
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 7.90 IN, PEAK FLOW = 435 CFS																
165.8	0	0.0		7		2.8	176.6 T	352	4.1	1330	179.1	88	182.1	19	16	*****
171.8	100	1.2	4850	32	15180	8.8	171.8 T	113	1.2	4310	178.8	86	182.0	19	16	0.26
174.0	186	2.2	2760	49	10540	11.0	174.0 T	198	2.3	2580	178.8	87	181.8	19	15	0.40
175.6	271	3.2	2080	61	9260	12.6	175.6 T	284	3.4	1990	179.8	94	182.8	20	17	0.50
177.5	404	4.8	1550	76	8270	14.5	177.5 T	417	4.9	1510	180.0	96	183.0	20	17	0.65
SITE-SC-5003 DA= 1.09 SQ MI = 698 AC USGS QUAD-WEST SPRINGFIELD LATITUDE 42-02-22 LONGITUDE 72-42-48																
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 7.90 IN, PEAK FLOW = 247 CFS																
213.1	0	0.0		9		1.1	219.8 E	241	4.1	930	223.1	72	229.5	18	16	*****
217.2	100	1.7	2580	40	6410	5.1	217.2 D	109	1.9	2370	222.6	70	226.5	15	11	0.24
219.0	181	3.0	1500	54	5070	7.0	219.0 D	190	3.3	1430	222.8	71	225.8	14	10	0.34
220.3	263	4.5	1120	63	4690	8.3	220.3 D	271	4.6	1080	224.2	76	227.2	15	12	0.43
222.5	403	6.8	810	70	4650	10.5	222.5 D	411	7.1	790	225.7	80	228.7	17	14	0.56
SITE-SC-5004 DA= 5.37 SQ MI = 3437 AC USGS QUAD-WEST SPRINGFIELD LATITUDE 42-02-38 LONGITUDE 72-41-06																
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 7.90 IN, PEAK FLOW = 1006 CFS																
171.8	0	0.0		24		5.9	189.5 E	1846	6.4	400	192.0	205	196.8	31	51	*****
174.6	100	0.3	6930	47	14650	8.6	174.6 T	143	0.5	4850	187.2	162	192.1	26	32	0.36
182.8	782	2.7	1180	121	7630	16.7	193.3 E	2604	9.1	350	195.6	235	200.3	34	68	1.55
191.3	2145	7.5	590	199	6310	25.2	191.3 T	2188	7.6	570	199.8	270	203.8	38	90	2.89
197.3	3508	12.2	430	250	5980	31.4	197.3 T	3551	12.3	420	199.8	271	202.8	37	84	3.72
197.5	3542	12.3	430	251	6000	31.5	197.5 T	3585	12.5	420	200.0	272	203.0	37	84	3.74

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

EXISTING SITE SC-5010 (Leonard Pond)

Location: On an unnamed tributary to Still Brook at South West Street in Agawam, Mass.

West Springfield, Mass.-Conn. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
202	5.5	8	1,800	2.82

Potential for Expansion: Pool level could be raised 10 feet withou affecting facilities, but a large area of shallow water would be created.

Remarks: This is a 200-foot long section of the embankment of South West Street. The principal spillway is a 48-inch asphalt coated corrugated metal pipe located in the left abutment. A sluice gate is located about 150 feet south of the principal spillway. Both slopes of the dam are heavily covered with trees and brush.

Ownership and Use: The pond is owned by Myron & Irene Moraczewski and is used for recreation.

****

EXISTING SITE SC-5011 (Harts Pond)

Location: On an unnamed tributary to Still Brook about 6,800 feet upstream from South West Street in Agawam, Mass.

West Springfield, Mass.-Conn. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
212	5	3	1,000	1.56

Potential for Expansion: Topography would require a long dam. See Site Data and Summary Table for Potential Site SC-5003 located about 1,000 feet upstream in a more practical location.

Remarks: The dam is an earthfill structure about 180 feet long. The spillway is a 30-inch corrugated metal pipe. Stoplogs can be placed at the inlet of the pipe to raise the water level by 1.5 feet. Both slopes of the dam are covered with brush. The concrete in the spillway headwall is cracked.

Ownership and Use: The pond is owned by Charles F. Gogulski and is used for recreation.

****

STONY RIVER (SC-50)

SOUTHERN CONNECTICUT RIVER STUDY AREA

MASSACHUSETTS

EXISTING AND POTENTIAL RESERVOIR SITES

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

LEGEND

- WATERSHED BOUNDARY
- DRAINAGE AREA ABOVE STRUCTURE
- POTENTIAL SITE SHOWING BENEFICIAL POOL FOR LARGEST STRUCTURE
- EXISTING POND OR RESERVOIR

2000 0 2000
SCALE IN FEET

Source – U.S.G.S. Quod Sheets
West Springfield – 1970

USDA-SCS-HYATTSVILLE, MD. 1974

SOUTHERN CONNECTICUT VALLEY STUDY AREA
SITE DATA FOR

Subwatershed SC-51, Scantic River

The Massachusetts portion of the Scantic River subwatershed covers about 19,100 acres in East Longmeadow, Hampden, Monson, and Wilbraham; all in Hampden County.

The major stream is the Scantic River which originates in Stafford, Connecticut and flows northwesterly through Monson, Mass. to Hampden. Near the Hampden-East Longmeadow town line, the river turns and flows nearly due south into Somers, Connecticut.

Geology of the potential reservoir sites is characterized by silty sand with gravel, cobbles, and boulders (glacial till), or glacial outwash underlain by gneiss or triassic sandstone and shale bedrock.

Thirteen potential reservoir sites and three existing reservoirs were studied.

****

POTENTIAL SITE SC-5101

Location: On Big Brook about 3,500 feet downstream from Monson Road in Wilbraham, Mass.

Hampden, Mass. USGS quadrangle

Latitude: 42°06'09" Longitude: 72°23'20"

Facilities Affected:

Facility	Elevation
Monson Rd. & utilities	555
High tension lines	542
Hollow Road	545

POTENTIAL SITE SC-5101 (cont'd)

Geologic Conditions: Both abutments are thin discontinuous deposits of silty sand with gravel, cobbles, and boulders, and outcrops of gneiss. Surficial deposits are swamp, glacial till, and gneiss bedrock. Depth to bedrock in the foundation is estimated to be from 5 to 10 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location. If the site is developed to elevation 555, an auxiliary dike will be required.

****

POTENTIAL SITE SC-5102

Location: On East Brook about 6,500 feet upstream from Glendale Road in Hampden, Mass.

Hampden, Mass. USGS quadrangle

Latitude: 42°06'02" Longitude: 72°23'20"

Facilities Affected: None below elevation 618

Geologic Conditions: Both abutments and the surficial deposits are silty sand with gravel, cobbles, and boulders (glacial till). Depth to gneiss bedrock in the foundation is estimated to be 20 to 25 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

****

POTENTIAL SITE SC-5103

Location: On Big Brook about 10,300 feet upstream from Scantic Road in Hampden, Mass.

Hampden, Mass. USGS quadrangle

Latitude: 42°05'11" Longitude: 72°24'25"

Facilities Affected:

Facility	Elevation
North Rd. & utilities	475
House	472
High tension lines	387

Geologic Conditions: The right abutment is gneiss bedrock to about elevation 400, and then thin glacial till. The right abutment is silty sand with gravel cobbles, and boulders (glacial till). Surficial deposits are glacial till and gneiss bedrock. Waterholding capabilities appear to be good. Borrow material for dam construction was not located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

****

POTENTIAL SITE SC-5104

Location: On East Brook about 400 feet upstream from Glendale Road in Hampden, Mass.

Hampden, Mass. USGS quadrangle

Latitude: 42°05'07" Longitude: 72°23'41"

Facilities Affected:

Facility	Elevation
High tension lines	525

Geologic Conditions: Both abutments are silty sand with gravel and cobbles (glacial till): shallow to bedrock. Surficial deposits are swamp and glacial till. Depth to gneiss bedrock in the foundation is estimated to be from 20 to 25 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

****

POTENTIAL SITE SC-5105

Location: On Big Brook about 2,700 feet upstream from Scantic Road in Hampden, Mass.

Hampden, Mass. USGS quadrangle

Latitude: 42°04'13" Longitude: 72°24'33"

Facilities Affected: None below elevation 385

Geologic Conditions: Both abutments are outwash sand and gravel to about elevation 400, then silty sand with gravel and cobbles (glacial till). Surficial deposits are swamp, outwash sand and gravel, and glacial till. Depth to gneiss bedrock in the foundation is estimated to be from 25 to 30 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments. Pervious borrow material for dam construction was located near the site; impervious material was not located.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

****

POTENTIAL SITE SC-5106

Location: On Temple Brook about 200 feet upstream from Hampden Road in Monson, Mass.

Monson, Mass. USGS quadrangle

Latitude: 42°04'07" Longitude: 72°21'31"

Facilities Affected:

Facility	Elevation
Springfield Sportsmen Club	730

Geologic Conditions: Both abutments are silty sand with gravel, cobbles, and boulders (glacial till). Surficial deposits are swamp, valley fill sand and gravel, and glacial till. Depth to gneiss bedrock in the foundation is estimated to be from 25 to 30 feet. Waterholding capabilities appear to be fair to good. There may be leakage in the foundation. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergnecy spillway location.

****

POTENTIAL SITE SC-5107

Location: On Temple Brook about 2,700 feet downstream from Butler Road in Monson, Mass.

Monson, Mass. USGS quadrangle

Latitude: 42°03'52" Longitude: 72°21'31"

Facilities Affected:

Facility	Elevation
House	730
House and garage	715
House	712
House and barn	710
House	708
Wood Hill Rd. & utilities	705
Hampden Rd. & utilities	703
Butler Rd. & utilities	703

Geologic Conditions: The left abutment is silty sand with gravel, cobbles, and boulders (glacial till). The right abutment is outwash sand and gravel. Surficial deposits are outwash sand and gravel. Depth to bedrock in the foundation is estimated to be from 15 to 20 feet. Waterholding capabilities appear to be poor. Leakage is expected through the right abutment. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

****

POTENTIAL SITE SC-5108

Location: On Scantic River about 3,000 feet upstream from Chapin Road in Hampden, Mass.

Hampden, Mass. USGS quadrangle

Latitude: 42°03'43" Longitude: 72°24'17"

Facilities Affected:

Facility	Elevation
2 Houses and barn	335
Scantic Road	335
High pressure gas line	310

POTENTIAL SITE SC-5108 (cont'd)

Geologic Condition: The left abutment is outwash sand and gravel to about elevation 390, then silty sand with gravel and cobbles (glacial till). The right abutment is outwash sand and gravel. Surficial deposits are swamp, outwash sand and gravel, and glacial till. Depth to gneiss bedrock in the foundation is estimated to be from 30 to 40 feet. Waterholding capabilities appear to be poor. Leakage is expected through both abutments and the foundation. Pervious borrow material for dam construction was located near the site; impervious material was not located.

This is substantially the same site as Site MC3-3 that was included in the Comprehensive Study of the Connecticut River Basin, U.S. Department of Agriculture, June 1970.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

****

POTENTIAL SITE SC-5109

Location: On an unnamed tributary to Watchaug Brook about 300 feet upstream from Main Street in East Longmeadow, Mass.

Hampden, Mass. USGS quadrangle

Latitude: 42°03'11" Longitude: 72°29'27"

Facilities Affected:

Facility	Elevation
House and pool	248
High tension lines	245
High tension lines	239

Geologic Conditions: Both abutments are bedded fine lacustrine sands and silt. Surficial deposits are swamp and lacustrine sand and silt. Depth to triassic sandstone, shale bedrock in the foundation is estimated to be from 20 to 25 feet. Waterholding capabilities appear to be fair to good. Slight leakage is expected through both abutments and the foundation. Borrow material for dam construction was located near the site.

Engineering Notes: The left abutment is recommended for the excavated emergency spillway location.

****

POTENTIAL SITE SC-5110

Location: On an unnamed tributary to Watchaug Brook about 2,000 feet downstream from Pease Road in East Longmeadow, Mass.

Hampden, Mass. USGS quadrangle

Latitude: 42°02'28" Longitude: 72°29'13"

Facilities Affected:

Facility	Elevation
House	239
House	238
House	235
Somers Road & utilities	232
2 Houses	231
Gas line	230
Pond St. & utilities	230
Lee St. and utilities	230
House	221
House	220
Pease Road & utilities	210

Geologic Conditions: Both abutments are bedded sand and silt at the toe of the slope and poorly graded sands about halfway up the abutments. Surficial deposits are swamp and lacustrine sand and silt. Depth to triassic sandstone, shale bedrock is estimated to be from 15 to 20 feet. Waterholding capabilities appear to be fair to good. Slight leakage is expected through both abutments. Borrow material for dam construction was located near the site.

Engineering Notes; The right abutment is recommended for the excavated emergency spillway location. If the site is developed to elevation 235 an auxiliary dike will be required.

****

POTENTIAL SITE SC-5111

Location: On Rockadundee Brook about 1,100 feet upstream from Rockadundee Road in East Longmeadow, Mass.

Hampden, Mass. USGS quadrangle

Latitude: 42°02'33" Longitude: 72°23'05"

Facilities Affected:

Facility	Elevation
Rockadundee Rd. & utilities	405
Road	435

POTENTIAL SITE SC-5111 (cont'd)

Geologic Conditions: Both abutments and the surficial deposits are silty sand with gravel, cobbles, and boulders (glacial till). Depth to gneiss bedrock in the foundation is estimated to be from 10 to 15 feet. Waterholding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

****

POTENTIAL SITE SC-5112

Location: On Watchaug Brook about 5,000 feet downstream from Main St. in East Longmeadow, Mass.

Hampden, Mass. USGS quadrangle

Latitude: 42°02'09" Longitude: 72°23'50"

Facilities Affected:

Facility	Elevation
Route 83 & utilities	235
Mill St. & utilities	225
Power line	218
Gas line	215
Pease Rd. & utilities	210

Geologic Conditions: Both abutments are outwash sand and gravel. Surficial deposits are swamp and outwash sand and gravel. Depth to triassic sandstone, shale bedrock is estimated to be from 30 to 40 feet. Waterholding capabilities appear to be fair to poor. Leakage is expected through both abutments and the foundation. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location.

****

POTENTIAL SITE SC-5114

Location: On an unnamed tributary to the Scantic River about 700 feet upstream from St. Germain Road in Monson, Mass.

Monson, Mass. USGS quadrangle

Latitude: 42°02'51" Longitude: 72°21'55"

Facilities Affected:

Facility	Elevation
2 Garages	575
House and barn	570

Geologic Conditions: Both abutments are silty sand with gravel (englacial drift) and with some thin gravel on the right abutment. Surficial deposits are englacial drift. Depth to bedrock in the foundation is estimated to be from 10 to 15 feet. Water-holding capabilities appear to be good. Borrow material for dam construction was located near the site.

Engineering Notes: The right abutment is recommended for the excavated emergency spillway location. See existing Site SC-5114 for data on the existing dam and reservoir at this site.

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SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-SOUTHERN CONNECTICUT VALLEY SUBWATERSHED SCANTIC RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV ++ TYPE (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-SC 5101 DA= 0.82 SQ MI = 525 AC USGS QUAD-HAMPDEN LATITUDE 42-06-09 LONGITUDE 72-24-13																
SITE RATING (2) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 7.80 IN, PEAK FLOW = 238 CFS																
526.8	0	0.0		2		6.8	544.7 E	240	5.5	1210	547.0	39	550.5	31	25	*****
539.2	100	2.3	3780	17	21990	19.2	547.7 E	350	8.0	1080	550.2	48	553.5	34	32	0.21
543.7	203	4.6	1950	29	13570	23.7	548.2 E	370	8.5	1070	550.7	50	553.7	34	32	0.33
549.2	409	9.3	1300	45	11700	29.2	553.7 E	650	14.8	820	555.9	64	559.0	39	48	0.50
552.5	574	13.1	1020	55	10770	32.5	555.0 E	725	16.6	810	557.3	68	560.3	40	57	0.59
SITE-SC-5102 DA= 0.43 SQ MI = 275 AC USGS QUAD-HAMPDEN LATITUDE 42-06-02 LONGITUDE 72-23-20																
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 7.80 IN, PEAK FLOW = 125 CFS																
586.0	0	0.0		1		6.0	604.3 E	95	4.1	1710	606.7	18	609.7	30	19	*****
604.9	100	4.4	2300	15	15430	24.9	609.4 E	188	8.2	1220	611.8	26	614.8	35	27	0.17
607.2	139	6.1	1730	19	12660	27.2	609.7 E	195	8.5	1230	612.0	27	615.0	35	28	0.20
610.7	217	9.5	1300	25	11390	30.7	613.2 E	286	12.5	990	615.5	31	618.5	39	36	0.26
612.5	264	11.5	1160	27	11320	32.5	615.0 E	338	14.7	910	617.3	33	620.3	40	41	0.29
SITE-SC 5103 DA= 1.86 SQ MI = 1190 AC USGS QUAD-HAMPDEN LATITUDE 42-05-11 LONGITUDE 72-24-25																
SITE RATING (1) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 7.80 IN, PEAK FLOW = 541 CFS																
391.6	0	0.0		3		11.6	429.7 T	412	4.1	2860	439.5	26	446.7	67	178	*****
408.9	100	1.0	6340	8	78700	28.9	408.7 T	115	1.2	5520	419.7	15	423.7	44	54	0.27
431.2	431	4.3	3090	22	61280	51.2	431.2 T	446	4.5	2980	445.0	30	451.2	71	216	0.72
454.0	1092	11.0	1700	38	48720	74.0	454.0 T	1107	11.2	1680	465.2	48	471.5	92	458	1.22
472.5	1944	19.6	1030	56	36140	92.5	472.5 T	1959	19.7	1030	477.2	63	480.2	100	608	1.59

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.
** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-SOUTHERN CONNECTICUT VALLEY SUBWATERSHED SCANTIC RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY					DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	STORAGE IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV ++ TYPE (MSL)	STORAGE AT CREST AC FT	STORAGE AT CREST IN	COST PER AC FT ($)		ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-SC-5104	DA= 1.34 SQ MI = 858 AC		USGS QUAD-HAMPDEN								LATITUDE 42-05-07 LONGITUDE 72-23-41						
SITE RATING (1)	STREAM WATER QUALITY (B)		100-YR PRIN SPWY DESIGN STORM								RUNOFF = 7.80 IN, PEAK FLOW = 390 CFS						
493.7	C	0.0		3		7.8	520.9 E	481	6.6	1240		523.3	40	527.2	41	136	*****
505.9	100	1.4	5570	15	37140	19.9	505.9 T	111	1.5	5030		514.9	27	519.0	33	78	0.25
518.2	381	5.3	2180	31	27060	32.2	528.7 E	813	11.3	1020		531.0	55	534.5	49	208	0.58
531.3	943	13.2	1240	56	20950	45.3	537.8 E	1360	19.0	860		540.2	74	543.5	58	330	0.96
542.5	1696	23.7	930	78	20160	56.5	542.5 T	1707	23.9	920		547.0	86	550.0	64	440	1.21
SITE-SC-5105	DA= 2.54 SQ MI = 1626 AC		USGS QUAD-HAMPDEN								LATITUDE 42-04-13 LONGITUDE 72-24-33						
SITE RATING (3)	STREAM WATER QUALITY (B)		100-YR PRIN SPWY DESIGN STORM								RUNOFF = 7.80 IN, PEAK FLOW = 738 CFS						
314.4	0	0.0		9		3.4	344.0 E	1031	7.6	470		346.4	62	351.1	40	97	*****
320.5	100	0.7	5140	24	21670	9.5	320.5 T	120	0.8	4270		335.2	42	342.5	31	56	0.30
336.6	648	4.8	1200	43	17930	25.6	336.6 T	668	4.9	1160		349.0	67	356.2	45	128	1.04
354.7	1743	12.8	650	76	14830	43.8	367.2 E	2796	20.6	400		369.6	92	375.4	64	326	1.80
373.7	3387	25.0	440	99	15140	62.6	382.2 E	4311	31.7	350		384.6	116	388.9	78	563	2.32
SITE-SC 5106	DA= 0.80 SQ MI = 512 AC		USGS QUAD-MONSON								LATITUDE 42-04-07 LONGITUDE 72-21-05						
SITE RATING (2)	STREAM WATER QUALITY (B)		100-YR PRIN SPWY DESIGN STORM								RUNOFF = 7.70 IN, PEAK FLOW = 230 CFS						
696.5	0	0.0		4		2.5	711.0 E	224	5.3	1350		713.5	27	717.2	23	48	*****
705.5	100	2.3	3860	17	22490	11.5	714.0 E	297	6.8	1300		716.5	29	719.8	26	64	0.21
718.5	422	9.8	1660	32	22250	24.5	725.0 E	653	15.2	1080		727.4	39	730.8	37	158	0.50
727.5	744	17.4	1250	39	23750	33.5	732.0 E	937	22.0	1000		734.4	45	737.4	43	242	0.65
735.0	1067	25.0	1170	46	27210	41.0	739.5 E	1289	30.2	970		742.0	53	745.3	51	376	0.73

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
(2) EMERGENCY SPILLWAY STORAGE AND COSTS ARE BASED ON TOTAL STORAGE, INCLUDING BENEFICIAL POOL.
(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.
** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-SOUTHERN CONNECTICUT VALLEY SUBWATERSHED SCANTIC RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	PERCENT CHANCE (MGD)
SITE-SC-5107 DA= 1.80 SQ MI = 1152 AC USGS QUAD-MONSON LATITUDE 42-03-52 LONGITUDE 72-21-31																
SITE RATING (3) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 7.70 IN, PEAK FLOW = 517 CFS																
676.4	0	0.0		2		16.4	707.9 E	696	7.1	1680	710.2	70	714.5	55	147	*****
691.5	100	1.0	12840	14	89080	31.5	691.5 T	114	1.2	11220	704.0	48	709.2	49	112	0.27
703.3	447	4.6	3140	45	30930	43.3	713.8 E	1119	11.7	1260	716.2	86	720.5	61	196	0.72
714.3	1141	11.8	1460	81	20580	54.3	720.8 E	1743	18.2	960	723.2	109	727.2	67	264	1.23
722.5	1908	19.9	1050	106	18930	62.5	722.5 T	1923	20.0	1040	727.0	122	730.0	70	304	1.55
SITE-SC 5108 DA= 13.40 SQ MI = 8576 AC USGS QUAD-HAMPDEN LATITUDE 42-03-43 LONGITUDE 72-24-17																
SITE RATING (3) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 7.80 IN, PEAK FLOW = 3549 CFS																
310.6	0	0.0		33		5.6	331.5 T	2966	4.1	660	338.0	252	343.2	38	84	*****
****THIS SITE LACKS SUFFICIENT STORAGE FOR BENEFICIAL WATER.****																
SITE-SC-5109 DA= 1.41 SQ MI = 902 AC USGS QUAD-HAMPDEN LATITUDE 42-03-11 LONGITUDE 72-29-27																
SITE RATING (2) STREAM WATER QUALITY (B) 100-YR PRIN SPWY DESIGN STORM RUNOFF = 7.70 IN, PEAK FLOW = 405 CFS																
233.8	0	0.0		10		0.8	240.5 E	312	4.1	1200	243.0	126	246.0	13	20	*****
237.3	100	1.2	5070	46	10970	4.4	241.8 E	436	5.8	1160	244.2	149	247.2	14	26	0.25
239.6	224	3.0	2430	69	7900	6.6	242.1 E	457	6.1	1190	244.5	152	247.5	15	26	0.43
241.1	348	4.6	1920	92	7280	8.1	243.6 E	643	8.5	1040	245.8	176	248.8	16	34	0.57
242.5	496	6.6	1540	117	6540	9.5	245.0 E	856	11.3	890	246.7	193	249.7	17	40	0.70

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
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(3) EMERGENCY SPILLWAY TYPE CODE- C=CONCRETE CHUTE, D=CONCRETE DROP, E=EXCAVATED, T= TWO SPILLWAYS, N= NONE
(4) TABULAR DATA ARE BASED ON PRELIMINARY INFORMATION. FIGURES SHOWN ARE PRIMARILY FOR COMPARISON PURPOSES.
(5) ELEVATIONS ARE SHOWN TO THE NEAREST 0.1 FOOT TO SHOW VARIATION BETWEEN DEVELOPMENTS ONLY, AND ARE NOT TO BE CONSIDERED ACCURATE TO THAT DEGREE.

** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

SUMMARY DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-SOUTHERN CONNECTICUT VALLEY SUBWATERSHED SCANTIC RIVER

BENEFICIAL POOL							EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV ++ TYPE (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-SC 5110	DA= 3.03 SQ MI = 1939 AC		USGS QUAD-HAMPDEN				LATITUDE 42-02-28 LONGITUDE 72-29-13									
SITE RATING (2)	STREAM WATER QUALITY (B)		100-YR PRIN SPWY DESIGN STORM				RUNOFF = 7.70 IN, PEAK FLOW = 746 CFS									
216.1	0	0.0		11		4.1	234.7 E	1188	7.3	930	236.3	195	239.8	28	50	*****
221.2	100	0.6	10870	30	36700	9.3	233.7 E	1041	6.4	1040	236.2	193	239.5	28	48	0.31
225.7	286	1.7	4050	55	20920	13.7	225.7 T	310	1.9	3730	235.5	179	239.8	28	50	0.67
228.6	472	2.9	2430	72	15820	16.6	228.6 T	496	3.0	2310	235.3	177	239.0	27	45	0.91
232.5	844	5.1	1670	125	11260	20.5	232.5 T	868	5.4	1620	237.3	213	240.3	28	59	1.30
232.5	846	5.1	1670	126	11250	20.5	232.5 T	870	5.4	1620	237.3	213	240.3	28	60	1.30
SITE-SC 5111	DA= 3.64 SQ MI = 2330 AC		USGS QUAD-HAMPDEN				LATITUDE 42-02-33 LONGITUDE 72-23-05									
SITE RATING (1)	STREAM WATER QUALITY (B)		100-YR PRIN SPWY DESIGN STORM				RUNOFF = 7.70 IN, PEAK FLOW = 1007 CFS									
412.2	0	0.0		4		12.3	449.9 T	806	4.1	2310	461.4	67	469.0	69	491	*****
425.7	100	0.5	11280	14	79270	25.7	425.7 T	129	0.7	8740	438.5	29	443.7	44	174	0.33
452.4	892	4.6	2140	46	41790	52.4	452.4 T	921	4.6	2070	467.2	86	472.9	73	557	1.46
473.9	2477	12.8	1020	103	24600	73.9	486.4 E	3948	20.2	640	488.7	137	494.4	94	1034	2.57
492.5	4789	24.7	710	151	22330	92.5	492.5 T	4818	24.7	700	497.2	174	500.2	100	1206	3.30
SITE-SC 5112	DA= 7.02 SQ MI = 4493 AC		USGS QUAD-HAMPDEN				LATITUDE 42-02-09 LONGITUDE 72-28-50									
SITE RATING (3)	STREAM WATER QUALITY (B)		100-YR PRIN SPWY DESIGN STORM				RUNOFF = 7.70 IN, PEAK FLOW = 1431 CFS									
208.1	100	0.3	9230	57	16240	5.1	208.1 T	156	0.4	5910	219.8	247	224.3	21	45	0.37
211.7	392	1.0	2040	107	7440	8.7	211.7 T	448	1.2	1780	219.8	246	223.5	20	41	1.06
214.0	684	1.7	1230	146	5730	11.0	214.0 T	740	2.0	1130	219.7	244	222.7	20	37	1.58
215.8	976	2.5	950	178	5240	12.8	215.8 T	1032	2.8	900	220.0	248	223.0	20	38	1.97

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** DO NOT USE FOR FINAL SITE SELECTION OR LAND ACQUISITION. **

SUMMARY - DATA FOR POTENTIAL UPSTREAM RESERVOIR SITES

STUDY AREA-SOUTHERN COOSA BASIN SUBWATERSHED SCANTIC RIVER

BENEFICIAL POOL						EMERGENCY SPILLWAY				DESIGN HIGH WATER		DAM			SAFE YIELD AT 95 PERCENT CHANCE
ELEV (MSL)	STORAGE AC FT	IN	COST PER AC FT ($)	AREA (AC)	COST/ SURF AC ($)	DEPTH AT DAM (FT)	CREST ELEV (MSL)	STORAGE AT CREST AC FT	IN	COST PER AC FT ($)	ELEV (MSL)	AREA (AC)	TOP ELEV (MSL)	HGT FT	FILL VOL (1000 CY)	(MGD)
SITE-SC-5,14	DA= 1.01 SQ MI = 646 AC				USGS QUAD-MONSON					LATITUDE 42-02-51 LONGITUDE 72-21-55						
SITE RATING (1)	STREAM WATER QUALITY (S)				100-YR PRIM SPWY DESIGN STORM					RUNOFF = 7.70 IN, PEAK FLOW = 290 CFS						
556.7	0	0.0			6..	* 562.5 E	402	7.5	1010	* 584.9	35	* 589.7	40	56	* *****
570.8	100	1.9	4850	15	32030	20.7	* 570.8 T	108	2.0	4490	* 579.8	31	* 585.2	35	40	* 0.23
577.0	220	4.1	2760	20	19770	27.0	* 587.5 C	576	10.7	890	* 590.0	39	* 594.0	44	75	* 0.39
586.2	485	9.0	1360	35	18710	37.2	* 593.7 E	816	15.2	300	* 596.0	44	* 600.0	50	111	* 0.60
591.9	746	13.7	1120	40	20470	41.9	* 591.9 T	746	13.7	1110	* 596.4	44	* 599.4	49	108	* 0.74
592.5	761	14.1	1100	41	20500	42.5	* 592.5 T	769	14.2	1090	* 597.0	45	* 600.0	50	112	* 0.75

NOTES - (1) COSTS ARE BASED ON 1972 S.C.S. DESIGN CRITERIA AND COST DATA.
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EXISTING SITE SC-5114 (Boulder Hill Pond)

Location: On an unnamed tributary to the Scantic River about 700 feet upstream from St. Germain Road in Monson, Mass.

Monson, Mass. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
563	5	13	650	1.02

Potential for Expansion: Please refer to Site Data and Design Summary Table for Potential Site SC-5114.

Remarks: The dam is a concrete structure about 150 feet long with a two-step weir located in the center. The principal spillway is a 10-foot wide by 6-inch deep weir which has a total fall of about 15 feet. The emergency spillway is a 30-foot wide by 1-foot deep weir. A rock fill is located downstream of and adjacent to the dam. The structure appears to be well maintained.

Ownership and Use: The pond is owned by Mr. St. Germain and used for recreation.

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EXISTING SITE SC-5120 (Bradley Pond)

Location: On an intermittent tributary of Temple Brook about 600 feet upstream from Wood Hill Road in Monson, Mass.

Monson, Mass.-Conn. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
790	5	15	250	0.39

Potential for Expansion: Steep topography and the small drainage area limit the potential for expansion.

Remarks: The dam is a rock masonry dam about 150 feet long with a 20-foot wide wier in the center portion. The weir is one foot deep and has a fall of 6 feet. The downstream face of the dam is vertical.

Ownership and Use: The pond is owned by the Springfield Sportsmen's Club and is used for recreation.

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EXISTING SITE SC-5122 (Lunden Dam)

Location: On an unnamed tributary of Temple Brook about 2,300 feet southwest of the intersection of Lower Hampden Road and Butler Road in Monson, Mass.

Monson, Mass.-Conn. USGS quadrangle

Surface Elevation	Surface Area (Acres)	Height of Dam (Ft.)	Drainage Area (Acres)	Drainage Area (Sq. Mi.)
687	6	10	150	0.23

Potential for Expansion: Steep topography and the small drainage area limit the potential for expansion.

Remarks: The dam is an earthfill structure about 300 feet long. The principal spillway is a 24-inch corrugated metal pipe with a 30-inch riser and concrete headwall at the outlet. The emergency spillway is a 30-foot wide vegetated spillway located on the right abutment. The dam appears to be well maintained.

Ownership and Use: The site is owned by Mr. C.W. Lunden and is used for recreation.

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SC-5114
Boulder Hill Pond

SC-5120
Bradley Pond

SC-5122
Lunden Dam

EXISTING RESERVOIRS
SUBWATERSHED SC-51
SCANTIC RIVER

SCANTIC RIVER (SC-51)

SOUTHERN CONNECTICUT RIVER STUDY AREA

MASSACHUSETTS

EXISTING AND POTENTIAL RESERVOIR SITES

UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

LEGEND

- WATERSHED BOUNDARY
- DRAINAGE AREA ABOVE STRUCTURE
- POTENTIAL SITE SHOWING BENEFICIAL POOL FOR LARGEST STRUCTURE
- EXISTING POND OR RESERVOIR

Source: U.S.G.S. Quad. Sheets

Monson - 1967

Hampden - 1958

Springfield South - 1958

MUNICIPAL INDEX OF RESERVOIR SITE INFORMATION

City or Town	Site No.	Narrative Information Page	Design Summary Page
Amherst	CV-1903	51	52
	CV-1904	51	53
	CV-1912	55	-
	CV-2101	65	70
	CV-2102	66	70
	CV-2106	68	71
Agawam	SC-4802	150	152
	SC-4803	150	152
	SC-4805	151	153
	SC-4811	154	-
	SC-5002	159	161
	SC-5004	160	161
	SC-5010	162	-
	SC-5011	162	-
Belchertown	CV-2113	74	-
	CV-2502	124	128
	CV-2503	125	128
	CV-2504	125	129
	CV-2508	127	130
Bernardston	NC-0805	13	20
	NC-0807	14	21
	NC-0809	15	21
	NC-0904	27	30
	NC-0905	28	30
Chicopee	CV-2614	142	-
Deerfield	CV-1701	31	33
	CV-1702	31	33
	CV-1703	32	33
	CV-1703	35	-
	CV-2001	57	61
Easthampton	CV-2303	96	98
	CV-2310	99	-
	CV-2311	99	-
	CV-2312	101	-
	CV-2412	107	116
	CV-2415	109	117
	CV-2417	110	118

MUNICIPAL INDEX OF RESERVOIR SITE INFORMATION

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MUNICIPAL INDEX OF RESERVOIR SITE INFORMATION

City or Town	Site No.	Narrative Information Page	Design Summary Page
Wilbraham	SC-5101	163	172
Williamsburg	CV-2201	75	84
	CV-2202	76	84
	CV-2203	76	84
	CV-2204	77	85
	CV-2206	78,89	85
	CV-2207	78	86
	CV-2208	79	86
	CV-2209	79	86
	CV-2222	91	-
	CV-2223	91	-
	CV-2224	92	-
	CV-2225	92	-

APPENDIX

This report is one of a series dealing with reservoir sites. Previous reports in the series are:

1. Study of Possible Water Storage Areas, Ipswich River Watershed, January 14, 1965.

2. Study of Possible Water Storage Sites, Upper Hoosic River and Upper Housatonic River, February 1966.

3. A Study of Potential Reservoir Sites in Massachusetts, Hudson River Basin, January 1968.

4. A Study of Potential Reservoir Sites, Housatonic Study Area, Massachusetts, June 1969.

5. Inventory of Potential and Existing Reservoir Sites, Merrimack Study Area, Massachusetts, March 1970.

6. Inventory of Potential Reservoir Sites, Neponset Study Area, Massachusetts, October 1970.

7. Inventory of Potential and Existing Upstream Reservoir Sites, Thames Study Area, Massachusetts, January 1971.

8. Inventory of Potential and Existing Upstream Reservoir Sites, Parker and North Shore Study Area, Massachusetts, June 1971.

9. Inventory of Potential and Existing Upstream Reservoir Sites, Nashua Study Area, Massachusetts, March 1972.

10. Inventory of Potential and Existing Upstream Reservoir Sites, Deerfield Study Area, Massachusetts, November 1972.

11. Inventory of Potential and Existing Upstream Reservoir Sites, Chicopee Study Area, Massachusetts, May 1973.

12. Inventory of Potential and Existing Upstream Reservoir Sites, Taunton and Narragansett Bay Study Areas, Massachusetts, January 1974.

13. Inventory of Potential and Existing Upstream Reservoir Sites, Ipswich Study Area, May 1974.

14. Inventory of Potential and Existing Upstream Reservoir Sites, Millers Study Area, July 1974.

Reports will be prepared in future years for the remainder of the state. Basic data from which this report was prepared are on file in the Soil Conservation Service Office, 29 Cottage Street, Amherst, Massachusetts 01002.

RIVER BASIN STUDY AREA

LEGEND

Study Area Boundary

Watershed Boundary and Number

MASSACHUSETTS WATER RESOURCES STUDY

MASSACHUSETTS

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

JULY 1971