United States
Environmental Protection
Agency

Region 1
J.F. Kennedy Building
Boston, MA 02203

EPA
March, 1980

EPA

Supplemental Environmental Impact Statement

Final

Scarborough, Maine

1070

SUPPLEMENTAL FINAL
ENVIRONMENTAL IMPACT STATEMENT

WASTEWATER COLLECTION AND TREATMENT FACILITIES
SCARBOROUGH, CUMBERLAND COUNTY, MAINE

This Supplemental Final Environmental Impact Statement evaluates the environmental and financial impacts associated with the use of four alternative treatment and/or disposal sites for wastewater facilities in Scarborough.

Further information on this statement can be provided by:

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- LEAD AGENCY -

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Technical Consultant

ANDERSON-NICHOLS & CO., INC.
Boston, Massachusetts

Approved by:

William R. Adams, Jr.
Regional Administrator
Environmental Protection Agency
Region I

MAY 05 1980

Final date by which comments on the Supplemental Final EIS must be received

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I

J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203

To: All Interested Federal, State and Local Boards, Citizens and Groups

Enclosed you will find a copy of EPA's Supplemental Final Environmental Impact Statement (EIS) on alternative sites for a wastewater treatment and disposal facility for Scarborough, Maine.

This Supplemental EIS was prepared as a result of the Scarborough Sanitary District's recommendation to select a new wastewater treatment and disposal site not previously considered and evaluated by EPA. Previous environmental reports prepared by EPA recommended a 1.8 million gallon per day wastewater treatment facility at Site A located near Ferry Road with a discharge to the ocean off Prout's Neck.

The EIS presents EPA's environmental review and cost analysis of four sites for the wastewater treatment facility. Should you have any comments regarding the Supplemental Final EIS, please submit them to the address below within the comment period specified on the cover sheet of the EIS.

U.S. Environmental Protection Agency
Environmental & Economic Impact Office
Room 2203
J.F.K. Federal Building
Boston, Massachusetts 02203

Sincerely,

William R. Adams, Jr.
Regional Administrator

Enclosure

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0.1 OVERVIEW

EPA, the Maine Department of Environmental Protection and the Scarborough Sanitary District have been involved in an extended process of developing an environmentally acceptable plan for wastewater collection, treatment and disposal. A series of draft, final and supplemental environmental impact statements were issued between 1975 and 1978.

The recommended alternative of the Supplemental Final EIS in May 1978 proposed a 1.8 MGD wastewater treatment facility located near Ferry Road (Site A) and a discharge to the ocean off Prout's Neck.

Further investigations, however, revealed very high costs to make Site A suitable for the treatment facility. With EPA's concurrence, the Scarborough Sanitary District investigated a second site, Site B.

In December 1979 the District held a public hearing to review the environmental and cost impacts associated with Sites A and B. At the hearing, the Sprague Corporation, the owners of Site B, suggested a third site, Site C, on land owned by the Corporation near Clay Pits Road.

Following the hearing, the District's engineers, Whitman & Howard, prepared a report in which the three sites were compared. The report concluded that Site B was the preferred site of the District.

0.2 SUPPLEMENTAL FINAL EIS

EPA determined that an independent evaluation of the District's report was required and ordered the preparation of this Supplemental Final EIS.

The Supplemental Final EIS includes:

-- an evaluation of the environmental and financial impacts associated with the use of Sites A, B and C.

-- an investigation of the feasibility of enlarging Site B to a new site, Site B-L, to allow both treatment and on-site disposal by means of land application.

The Supplemental Final EIS is confined to issues relating to the location of a wastewater treatment facility. It does not cover questions of need, size of facility, and ocean outfall desirability or sites other than A, B, B-L and C.

0.3 FINDINGS OF EVALUATION

The environmental and cost evaluation was confined to Sites A, B and C. During the study it was determined that land disposal would not be feasible at Site B-L due to inadequate acreage to satisfy Maine DEP criteria. Consequently, further environmental and cost investigations were not carried out for Site B-L.

The review covered both short-term/construction impacts and long-term impacts for a number of environmental categories. The environmental profile to compare Sites A, B and C revealed significant adverse short- and long-term impacts associated with the use of Sites A and C. There were no significant adverse environmental impacts attributable to the use of Site B for a wastewater treatment facility.

There is a potential for archaeological or historical resource impacts at all of the sites. The nature of the resources cannot be determined at this time. Subsequent investigations pursuant to Advisory Council on Historic Preservation procedures will be required in the spring.

The evaluation of site-related development and treatment facility costs was as follows:

Site A	$3,825,440
Site B	$2,287,500
Site C	$2,765,250

Site B is recommended as the alternative which is most acceptable from both a financial and environmental viewpoint.

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In December 1979 the District held a public hearing to review the environmental and cost impacts associated with Sites A and B. At the hearing, the Sprague Corporation, the owners of Site B, suggested a third site, Site C, on land owned by the Corporation near Clay Pits Road.

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CHAPTER 1 - PURPOSE AND NEED FOR ACTION

1.1 PRIOR ENVIRONMENTAL STUDIES

In 1972 the Scarborough Sanitary District initiated planning and engineering studies for an improved wastewater collection, treatment and disposal system. The work was carried out pursuant to an October 15, 1972 consent order with the Maine Department of Environmental Protection.

In April 1975 the Federal Environmental Protection Agency (EPA) determined that the proposed wastewater facilities, as covered by the District's engineering reports to that date, presented possibilities for significant environmental impacts. Accordingly, EPA issued a "Notice of Intent" to prepare an Environmental Impact Statement (EIS).

During the past five years EPA and its consultants have prepared a series of environmental reports, including a Draft EIS (November 1975), a Final EIS (April 1977) and a Supplemental Final EIS (May 1978).

The Final EIS recommended a 1.8 million gallon per day wastewater treatment facility located adjacent to the present treatment plant at Oak Hill. Effluent from the plant was to be pumped to an outfall at the Fore River in South Portland. Subsequent investigations revealed that both institutional and political constraints would preclude the acquisition of easement rights through South Portland.

In the face of this evidence EPA reevaluated alternatives in a Supplemental Final EIS. The recommended alternative called for a 1.8 MGD wastewater treatment facility located near Ferry Road (Site A) and a discharge to the ocean off Prout's Neck.

Subsequent engineering studies by the District, however, indicated that site problems on Site A would increase costs above those originally estimated. The District requested, and EPA granted permission to study and compare the environmental impacts and costs associated with Site A and a new site, Site B, located off of Black Point Road.

During the evaluation of Sites A and B a third site (Site C) was suggested by the owners of Site B, the Sprague Corporation. Engineering and environmental consultants were retained by the Sprague Corporation to compare Sites B and C. The Corporation is also the owner of Site C.

In November 1979 the District conducted a public hearing to address the merits of Sites A and B and receive public testimony. The Sprague Corporation's studies of Sites B and C were submitted at the hearing.

Following the hearing, the District's engineers, Whitman & Howard, prepared a report to the District in December 1979 entitled "A Cost Analysis and Environmental Comparison of Wastewater Treatment Sites". This report recommended that the District proceed with the acquisition of Site B.

1.2 Scope of Supplemental Final EIS

EPA has ordered this second Supplemental Final EIS to provide an independent evaluation of the environmental and financial impacts associated with the use of Sites A, B or C for a wastewater treatment facility.

In addition, the Supplemental Final EIS investigates the feasibility of enlarging Site B to allow both treatment and disposal by means of land application.

The evaluation covers both short- and long-term impacts associated with the use of each site.

1.3 Items Not Covered in Supplemental Final EIS

Previous environmental studies, as described in Section 1.1, have provided an exhaustive evaluation of the various impacts associated with the proposed wastewater collection system, the areas to be served, the type of treatment and the method for disposing of treated effluent. The prior studies have considered both direct impacts and indirect impacts such as induced growth.

Consequently, it is important for the reader to recognize that this Supplemental Final EIS does not evaluate:

-- The need for and desirability of a centralized wastewater collection and treatment facility.

-- The size and capacity of the treatment facility.

-- The type of treatment and disposal proposed, except as it relates to land application on an enlarged Site B.

-- The use of an ocean outfall off of Prouts Neck

-- Sites other than A, B, and C, and enlarged Site B (Site B-L) under the land application alternative.

CHAPTER 2 - ALTERNATIVE SITES/IMPACTS

2.1 DESCRIPTION OF SITES AND PROPOSED WASTEWATER FACILITIES

This Supplemental Final EIS is confined to an evaluation of four sites to be used for wastewater treatment or, as in one case, wastewater treatment and disposal.

The following givens apply to the use of each site:

-- The wastewater treatment facility will have a design capacity of 1.8 million gallons per day.

-- Wastewater will be conveyed to a treatment facility site through a system of interceptor sewers as previously designed by Whitman & Howard for the Scarborough Sewer District.

-- The treatment facility will utilize a combined physical/biological process (activated sludge) as previously designed by Whitman & Howard.

-- All sludge will be stabilized by composting.

2.11 Site A

2.111 Site Description

Location - Site A is located off of Ferry Road in the vicinity of Ferry Beach. See Figure 2-1.

Acreage - Site A consists of eight acres of property owned by the Scarborough Sanitary District.

Topography/Vegetation - The elevation of Site A is approximately 7 feet above mean sea level. Its relief is generally flat. Site A lies within a wooded area, dominated by red spruce, white pine, and hemlock. Wetlands are found on the north and east boundaries of Site A. These are salt marshes, where the typical vegetation consists of:

-- cordgrass
-- marsh hay
-- blackgrass

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710 2 Anderson-Nichols & Company, ǂe consultant.

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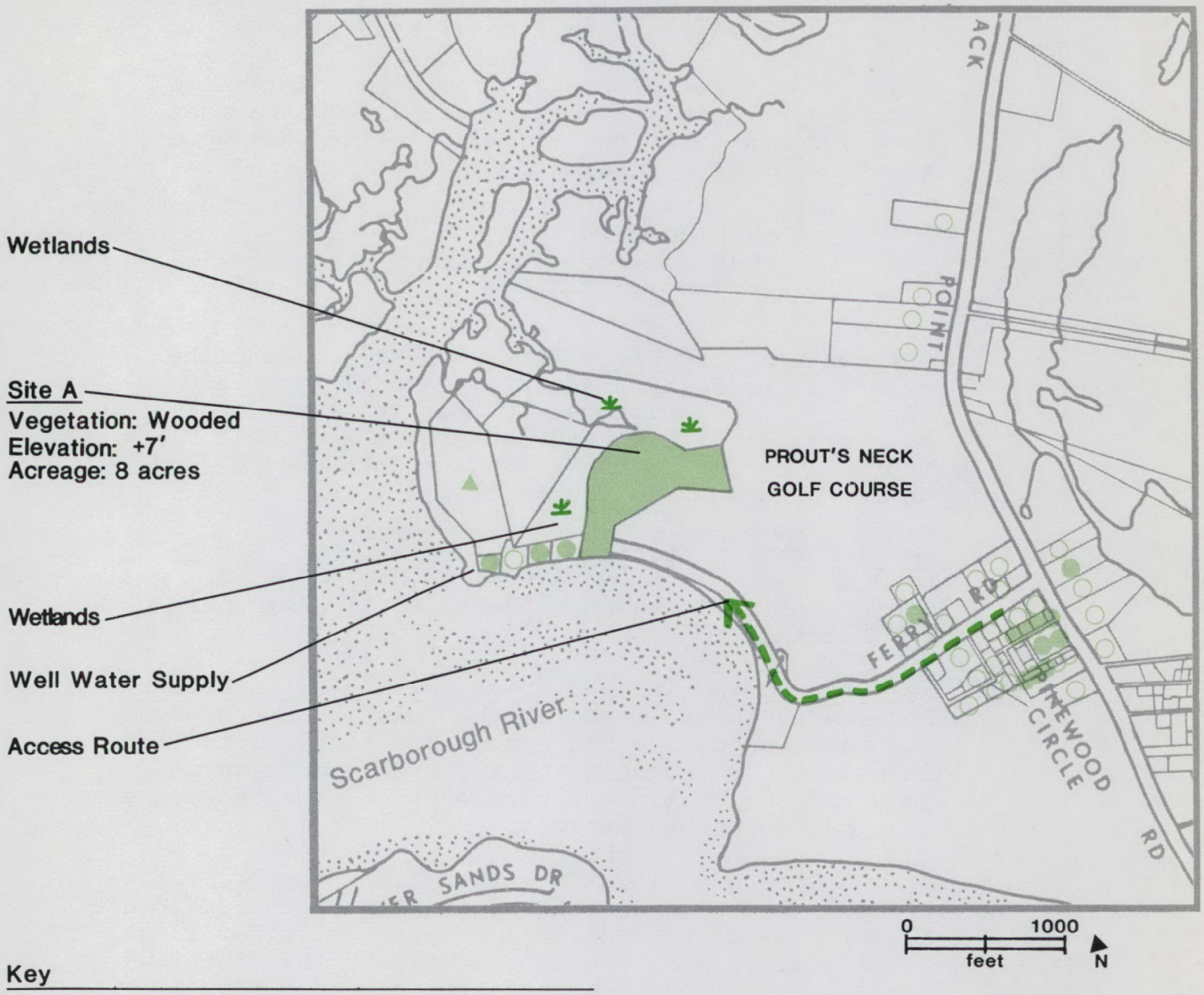
Fig. 2-1

Site A
Location Map



Key

- Seasonal Residence
- Permanent Single-Family Residence
- Commercial

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Access - Site A may be reached via Ferry Road. The road becomes unpaved before it reaches Site A and is bordered by sand dunes.

Subsurface Soil Conditions - The top 10-12 feet of soil underlying Site A consist of fibrous peat and organic silt. These layers are underlain by 3-4 feet of clayey fine sand. Estimated groundwater levels at Site A are 0.3 to 0.5 feet below ground surface. Three surficial soil conditions occur at Site A:

- Coastal Beaches
- Dune Land
- Sebago Mucky Peat

Surrounding Land Use - West of Site A, along the extension of Ferry Road, are seasonal homes and single-family dwellings. Commercial land lies northwest of Site A, and the Prouts Neck Golf Course lies to the east. The balance of the surrounding land is vacant or wetlands.

2.112 Development Constraints

Zoning - Site A is zoned "R-F", Rural Residence and Farming.

Resource Protection and Shoreland Protection Zones - Pursuant to State mandate, the Town of Scarborough has adopted special Shoreland Zone regulations in its zoning ordinance governing the protection of sensitive coastal natural resources. The Shoreland Zone has two sub-districts.

All of Site A is located within the Resource Protection District. Under the provisions of the ordinance a public utility use such as a wastewater facility would require a special use permit by the Planning Board subject to strict performance standards.

The southern portion of the site and the access road along the dunes are located in a Shoreland Protection District. Development of any use in a frontal, ridge or back dune area is subject to the special use permit requirements noted above as well as special performance standards governing beach construction.

Fig. 2-2

Site A
Development Constraints

Site A

Zoned: Rural Residential & Farming

Potential Archaeologic/ Historic Resources

10-12' of Fibrous Peat

Dunes

Unimproved Dune Road

End of Public Street

Town Beach

Prevailing Wind Direction: South

Key

- Shoreland Protection Zone
- R) Resource Protection Zone
- Wetlands
- — — 100-year Floodline
- - - - Zoning Boundary

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100-Year Flood Line - All of Site A and its access road fall within the 100-year special flood hazard area as designated under the National Flood Insurance Act. The Flood Hazard amendment of the Zoning Ordinance prescribes an application and permit procedure for any construction in a Special Flood Hazard Area.

EPA also has adopted regulations pursuant to Executive Order 11988 which encourages the avoidance of floodplain areas wherever possible.

Road Access - Site A may be reached over an unimproved private dune road, the extension of Ferry Road.

The paved portion of Ferry Road ends at the nearby Town beach.

Wetlands - Wetlands occur to the north and east of Site A. Wetlands, like the floodplain, are protected by an Executive Order (11990) which dictates the avoidance of adverse impacts to wetlands "wherever possible". According to Figure 2-2, Site A does not directly impact the wetlands; the boundaries of the site and those of the wetlands do not overlap; however, due to its proximity to the wetlands, construction at Site A could impact the wetlands.

Soils/Erosion - The soils at site A are unsuitable for construction of a wastewater treatment plant. There are 10 to 12 feet of fibrous peat below the ground surface at the Site. Groundwater occurs within 0.3 feet of the surface, indicating a high water table. The greatest threat of erosion would be in the southernmost portion of the Site, where coastal dunes are found.

Archaeologic/Historic Resources - There is a possibility that early 17th century historical sites exist at Site A, as reported by the Maine Historic Preservation Commission letter of March 3, 1980 (see Appendix B). A ground survey will be required to determine whether possible archaeological sites of National Register significance exist there.

Prevailing Wind Direction - This constraint relates to the question of possible odors being carried by the wind from the Site to an adjacent area. The prevailing wind direction for Scarborough is from the south. This may vary with the season and from day to night. With respect to possible odors produced at Stie A, the wind would blow them across the wetlands in the direction of the Libby River.

2.113 Proposed Wastewater Facilities

The proposed wastewater facilities will include the construction of a 1.8 mgd secondary treatment facility, utilizing the activated sludge process with sludge composting on-site. The construction project will include the construction of a control building with offices for the Scarborough Sanitary District Trustees; a garage for the district's vehicles; headworks and septage holding/receiving facilities; primary clarifiers; aeration tanks; secondary clarifiers; aerobic digestors and sludge thickeners.

From the point of view of odor control, covers will be installed over the primary clarifiers, secondary clarifiers and sludge thickeners; the headworks and septage receiving facility will be enclosed in a building under a constant net negative pressure (to prevent the escape of potentially malodorous gases); the building will have an odor control system; and the composting facility should make use of the static pile forced draft process.

In general, the development of any wastewater treatment facility requires a drainage system. This facility will have a special drainage system for the composting area so that runoff is recirculated to the treatment plant.

Site A will require extra work in the preparation of the site prior to construction of the treatment facility. This work will include the addition of fill to bring the site to a level above 100-year flood levels and piles to support portions of the facility. Development of the site will also require some special work in improving the access road that currently follows a sand dune.

2.114 Cost of Facilities

The cost of developing the wastewater treatment facility at Site A (not including the cost of building the facility) is presented in the following table:

ITEM	COST *
Land Acquisition	- 0 -
Access Taking/Improvement	$250,000
Foundation Work	577,150
Pipe Galleries	140,000
Land Clearing 9 acres @ $3,000/acre	27,000
Removal of Excavated Material	56,000
Site Variable Costs (see Appendix A)	2,010,200
SUB-TOTAL	$3,060,350
Engineering and Contingency - 25%	765,090
TOTAL COST **	$3,825,440

*ENR-CCI-3350

**Project cost

2.12 Site B

2.121 Site Description

Location - Site B is located on Black Point Road (Spurwink Road), opposite Massacre Pond (see Figure 2-3).

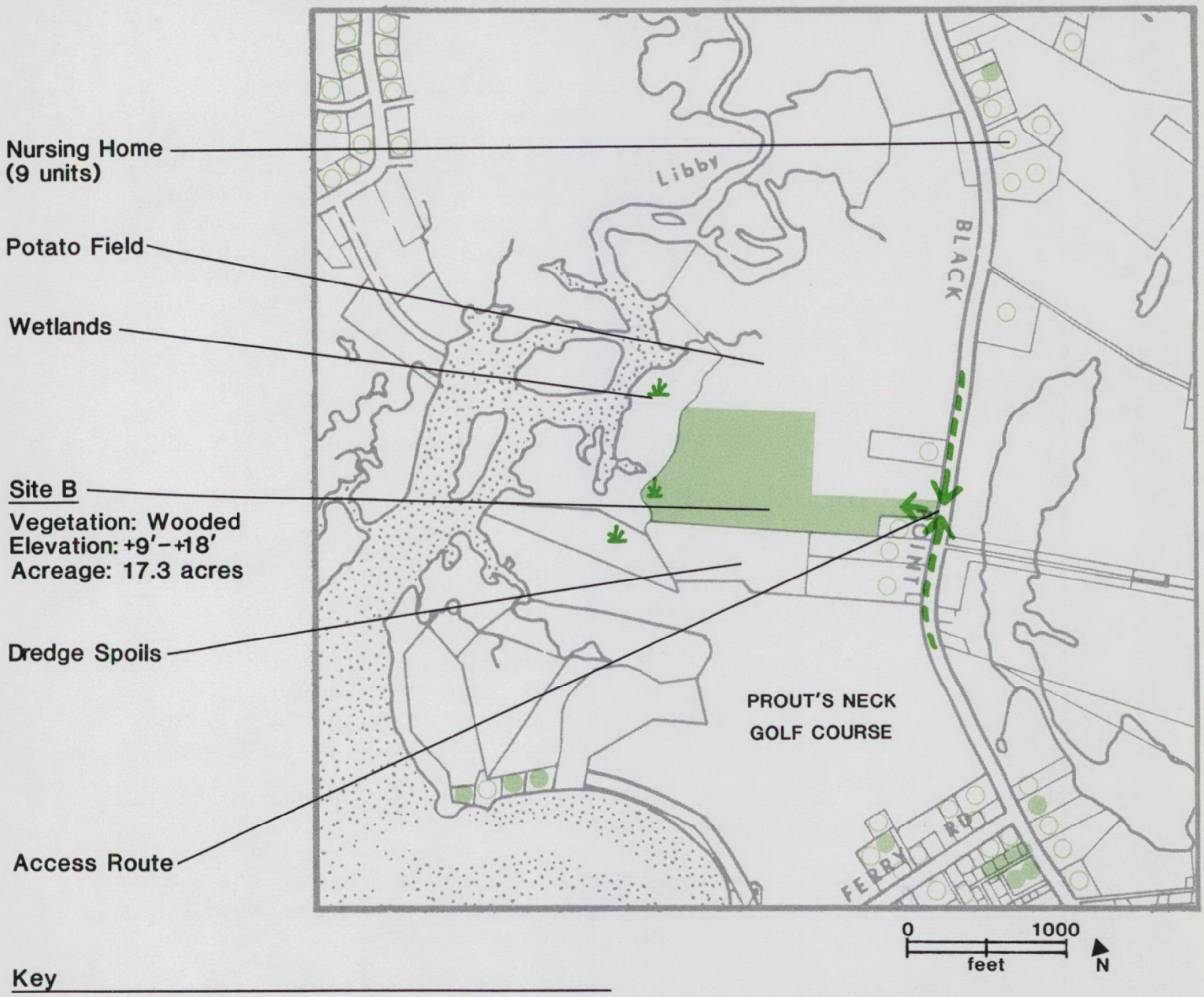
Acreage - Site B consists of 17.3 acres of property owned by the Sprague Corporation.

Topography/Vegetation - The elevation of Site B is approximately 9-18 feet above mean sea level. The site has a gradual slope. Site B lies within a heavily-wooded area, with bordering wetlands to the west.

Access - Site B may be reached via Black Point Road.

Fig. 2-3

Site B
Location Map



Subsurface Soil Conditions - Six borings were made on Site B which determined clean granular soils to a depth of 50 feet. Estimated groundwater levels at Site B are 9-10 feet below ground surface. Two surficial soil conditions occur at Site B:

-- Hinckley Gravelly Sandy Loam
-- Windsor Loamy Sand

Surrounding Land Use - The lot adjacent to and south of Site B is a dredge disposal mound known as Googins' Pit. There are seasonal and single-family homes on Black Point Road in both directions from Site B. A potato field lies in the parcel adjacent to and north of Site B. Wetlands and the Libby River lie west of the site.

2.122 Development Constraints

Zoning - The land which Site B occupies is zoned "R-F", which indicates a rural residence and farming zone.

Resource Protection and Shoreland Protection Zones - A small portion of Site B lies within the Resource Protection District (see Figure 2-4).

100-Year Flood Line - See Section 2.112 for details of the flood line. Site B lies partially within the 100-year flood line, with the majority of the site above the flood hazard zone (see Figure 2-4).

Road Access - Site B may be reached by direct access from Black Point Road.

Wetlands - Wetlands occur to the west of Site B. Only the westernmost portions of the site would have a direct impact to the wetlands.

Proximity to Dunes - There are no coastal sand dunes located in the vicinity of Site B.

Soils/Erosion - The surface soils were described in Section 2.121. The potential for erosion at Site B would be greatest during the actual phases of construction at the site.

Archaeologic/Historic Resources - There is a possibility that significant resources exist at Site B, as reported by the Maine Historic Preservation Commission (see Appendix B). A ground survey will be required.

Fig. 2-4

Site B
Development Constraints

Site B

Zoned: Rural Residential & Farming
Potential Archaeologic/ Historic Resources
6-9' Fine to Medium Sand

Prevailing Wind Direction: South

Key

- Shoreland Protection Zone
- R Resource Protection Zone
- Wetlands
- 100-year Floodline
- Zoning Boundary

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2.13 Site B-L

2.131 Site Description

Location - Site B-L is located on Black Point Road opposite Massacre Pond and includes the acreage contained within Site B.

Acreage - Site B-L consists of 62.1 acres of property owned by the Sprague Corporation, plus one house lot of 1.8 acres.

Topography/Vegetation - The elevation of Site B-L is estimated to be 8-18 feet above mean sea level. Its relief is generally flat. Most of Site B-L is wooded. A portion of Site B-L is under cultivation as a potato field. This field has not been identified as prime farmland in the Scarborough Master Plan. Wetlands lie to the west of Site B-L, and beyond them is the Libby River.

Access - Site B-L may be reached via Black Point Road.

Subsurface Soil Conditions - To date, there have been no tests of the subsurface soil at Site B-L. The assumption can be made that the conditions are similar to those found at Site B. The same two surficial soil conditions which occur at Site B occur at Site B-L:

-- Hinckley Gravelly Sandy Loam
-- Windsor Loamy Sand

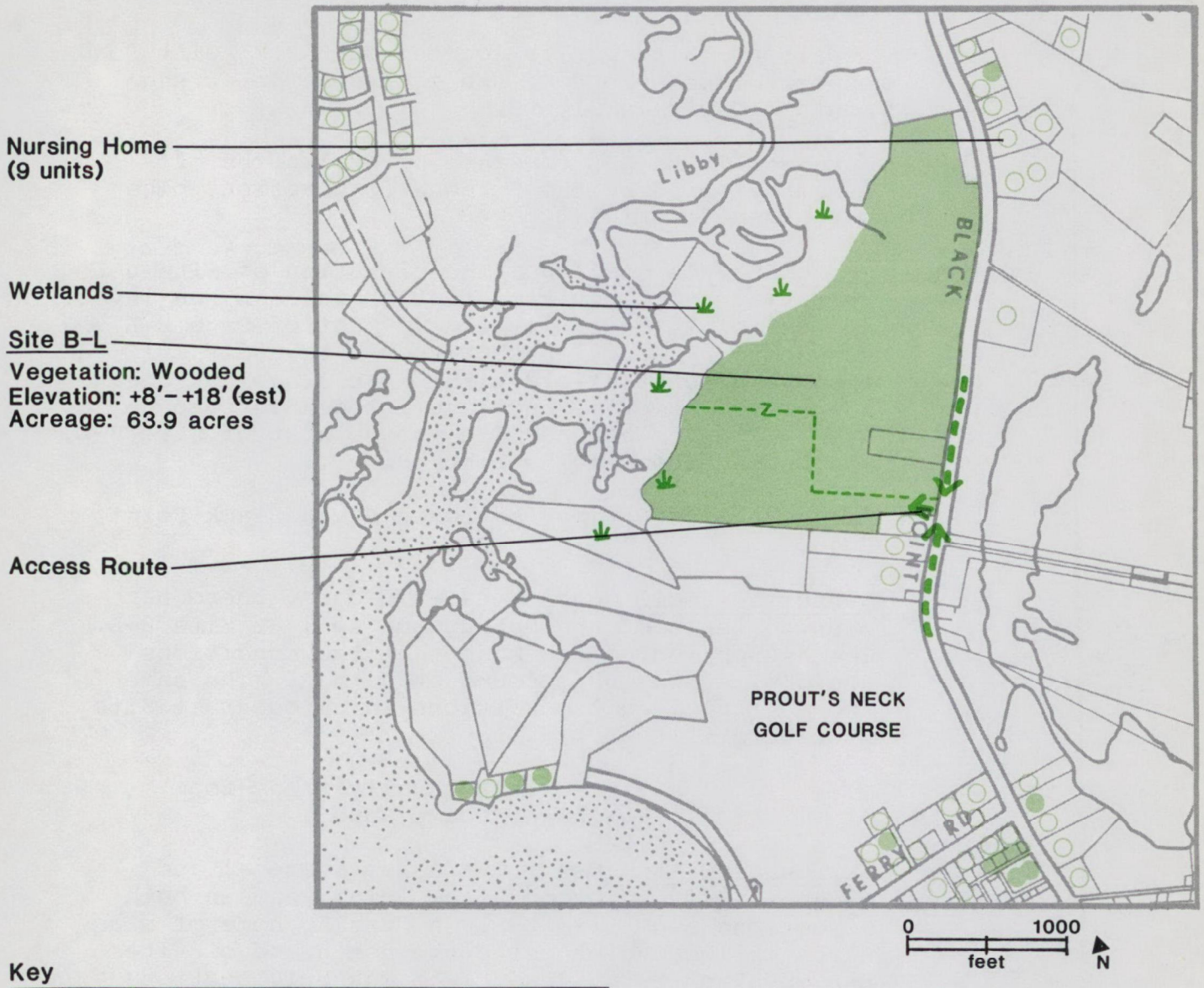
Surrounding Land Use - There are seasonal and single-family homes on Black Point Road in both directions from Site B-L. A Nursing Home of nine units is located opposite the north end of Site B-L on Black Point Road. The westerly portions of the site abut the Libby River.

2.132 Development Constraints

Zoning - The land which Site B-L occupies is zoned "R-F", which indicates rural residence and farming zone.

Fig. 2-5

Site B-L
Location Map



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Resource Protection and Shoreland Protection Zones - The westernmost strip of Site B-L lies within the Resource Protection District (see Figure 2-6).

100-Year Flood Line - See Section 2.112 for details of the flood line. Site B-L lies partially within the flood line, with the majority of the site above the flood hazard zone (see Figure 2-6).

Road Access - Site B-L may be reached by direct access from Black Point Road.

Wetlands - Wetlands occur to the west of Site B-L. The site includes 17.6 acres of wetlands, which may not be considered for development. Only the westernmost portions of the site would have a direct impact to the wetlands.

Proximity to Dunes - There are no coastal sand dunes located in the vicinity of Site B-L.

Soils/Erosion - The surface soils were described in Section 2.131. The potential for erosion at Site B-L would be greatest during construction phases.

Archaeologic/Historic Resources - See Section 2.122 under this same heading. The archaeologic/historic possibilities which exist at Site B apply to Site B-L as well.

Prevailing Wind Direction - See Section 2.112 under this same heading. With respect to possible odors produced at Site B-L, the wind would blow them across the wetlands in the direction of the Libby River.

2.133 Proposed Wastewater Facilities

Site B-L has been evaluated for both a treatment facility and disposal by applicaton of treated wastewater effluent to the land.

Maine DEP and EPA have agreed on the criteria that would apply to land application at Site B-L (see Appendix D). The major elements of the Maine DEP criteria are as follows:

Fig. 2-6

Site B-L
Development Constraints

Site B-L
Zoned: Rural Residential & Farming
Potential Archaeologic/ Historic Resources

Prevailing Wind Direction: South

Key

- Shoreland Protection Zone
- R Resource Protection Zone
- Wetlands
- 100-year Floodline
- Zoning Boundary

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-- Loading rate of 1 foot/week (1.07gpd/sf)

-- Minimum unsaturated thickness beneath the application facility equal to 10 ft.

-- Secondary treatment prior to application.

-- Monitoring wells required.

-- Adequate buffer zone.

The evaluation of land application on Site B-L (defined as the parcel, west of Black Point Road, owned by the Sprague Corporation plus the parcel owned by Mrs. Benson on the same side of the road) followed a sequential process. The first step in the evaluation process was a definition of the portion of the site that lies above the 100-year flood line and the Resource Protection District. This does not include the Site B portion of Site B-L which will be utilized as a treatment facility as proposed in 2.123. The second step was the calculation of frontage along Black Point Road and the proposed access road to Site B, where secondary treatment would be achieved. The third step was calculation of minimum land area required to meet the Maine criteria. The final step was comparison of the numbers.

The Sprague Corporation property, located west of Black Point Road near Site B, comprises approximately 79.7 acres, of which approximately 17.6 acres are wetland and, thus, by definition, are unsuitable for land application. Of the remaining portion, including the Benson property, only 26 acres lie above the 100-year flood line and Resource Protection District.

The calculated street frontage along Black Point Road is 1860 feet, while the calculated frontage along the access road is 600 feet. With a buffer of 100 feet along the street, 5.4 additonal acres would be required; with a 200-foot street buffer zone, 10.4 acres would be required.

Given the State of Maine criteria for land application and the design wastewater flow of 1.8 mgd, a total of 39 acres will be required for infiltration surface. Allowing room for berms to separate the infiltration surface into seven (7) lagoons (as suggested by Whitman & Howard) will require an additional 5.2 acres. If the infiltration surface is to be divided into 28 more reasonably-sized lagoons (the Whitman & Howard suggestion results in lagoons of over 5 acres each), then 8.9 acres will be required for berms.

This step-by-step evaluation is summarized as follows:

-- The proposed facility requires 39 acres for infiltration surface only.

-- The proposed facility requires between 44.2 acres and 47.9 acres when the infiltration surface is divided into lagoons.

-- The proposed facility requires between 49.6 acres and 58.3 acres when a buffer strip is included.

Consequently, the 26-acre portion of Site B-L, which is available for land application, falls short of meeting the Maine DEP/EPA criteria.

2.134 Cost of Facilities

No estimates have been made.

2.14 Site C

2.141 Site Description

Location - Site C is located off of Black Point Road, between Old Neck Road and Clay Pits Road (see Figure 2-7).

Acreage - Site C consists of 10.2 acres of property owned by the Sprague Corporation.

Topography/Vegetation - The elevation of Site C ranges from 8-15 feet above mean sea level. Its relief is that of gently-sloped land. Site C's vegetation is that of woods, bordered by wetlands on the west.

Access - There is presently no direct access to Site C.

Subsurface Soil Conditions - The top two feet of soil, sampled at Site C, represent organic topsoil. This is underlain by silty sand to a depth of 14 feet below ground surface, and fine to medium sand to a depth of 26 feet. Estimated groundwater levels at Site C are 5.0 feet below the ground surface. There are three surficial soil conditions at Site C:

-- Saugaluck Loamy Sand
-- Walpole Fine Sandy Loam
-- Windsor Loamy Sand

Surrounding Land Use - There are single-family and seasonal homes on Clay Pits Road, Nonesuch Cove Road and on Black Point Road in both directions from Site C. The property adjacent to, and southeast of Site C, is used for construction storage. Both seasonal and single-family homes (served by individual wells) are located southwest of Site C, along the Nonesuch (or Scarborough) River at Nonesuch Cove.

2.142 Development Constraints

Zoning - The land which Site C occupies is zoned "R-2" Residential allowing one-half acre lots.

Fig. 2-7

Site C
Location Map

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Final Supplemental
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Anderson-Nichols & Co, Inc.-Consultant
March 1980

Resource Protection and Shoreland Protection Zones - There are no portions of Site C within either of these zones.

100-Year Flood Line - See Section 2.112 for details of the flood line. Site C lies partially within the 100-year flood line, with the eastern portion of the Site above the flood hazard zone (see Figure 2-8).

Road Access - There are two potential means of access to the Site. One would be along an old right-of-way, which would have to be acquired, from Black Point Road to an adjacent abandoned gravel pit. The other would be from the unimproved and private roadway extending from Clay Pits Road along the Nonesuch River (see Figure 2-8).

The Owners of Site C, the Sprague Corporation, own an adjacent parcel to the south which abuts Clay Pits Road. They have offered to donate access over the parcel between Site C and the road.

Wetlands - Wetlands occur to the west of Site C, although their boundaries do not actually overlap with those of Site C. If access to the Site were by Clay Pits Road, impacts to the wetlands would be potentially greater than if access were by Black Point Road.

Proximity to Dunes - There are no coastal sand dunes located in the vicinity of Site C.

Soils/Erosion - Two borings were made at Site C, one of which included a thin layer of organic topsoil, underlain by 14 feet of silty sand. Below the silty sand, silty marine clay was deposited to a depth of 21.5 feet. The second boring at the Site found a layer of fine sand which extended to 26 feet below the surface. Surficial soils were listed in Section 2.141, description of Site C. The potential for erosion at Site C would be greatest during the actual phases of construction at the site.

Archaeologic/Historic Resources - There is a possibility that historic house sites of the late 1600's exist at Site C, as reported by the Maine Historic Preservation Commission's letter of February 26, 1980 (see Appendix B). A ground survey will be conducted at Site C to determine whether possible historic sites of National Register significance exist there.

Fig. 2-8

Site C
Development Constraints

Site C
Zoned: Residential
Potential Archaeologic/ Historic Resources
2' Organic Top Soil over Silty Sand to 14'

Private Road

Prevailing Wind Direction: South

Key

- Shoreland Protection Zone
- R) Resource Protection Zone
- Wetlands
- 100-year Floodline
- Zoning Boundary

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Prevailing Wind Direction - See Section 2.112 under this same heading. With respect to possible odors produced at Site C, the wind would blow them in the direction of Clay Pits Road and Black Point Road.

2.143 Proposed Wastewater Facilities

The proposed wastewater facilities to be constructed on Site C are identical to those described in Section 2.113. Based on subsurface exploration work done on Site C, development of the site will not require extraordinary foundation work. The site, although assumed to be readily available to the District, does not currently have reasonable access. This evaluation assumes an access road will be constructed along an old 30-foot right-of-way from Black Point Road. Acquisition of this strip of land will be required.

2.144 Cost of Facilities

The cost of developing the wastewater treatment facility at Site C (not including the cost of building the facility) is presented in the following Table:

ITEM	COST **
Land Acquisition	- 0 - ***
Access Taking/Improvement	$25,000****
Foundation Work	- 0 -
Pipe Galleries	- 0 -
Land Clearing 9 acres @ $1,000/acre	9,000
Removal of Excavated Material	- 0 -
Site Variable Costs (see Appendix A)	2,178,200
SUB-TOTAL	$2,212,200
Engineering and Contingency - 25%	553,050
TOTAL COST *	$2,765,250

*Project cost
**ENR-CCI-3350
***Assumes donation of Site C to Scarborough Sanitary District
****Assumes acquisition of 30' access strip from Black Point Road. Estimate of Anderson-Nichols

2.2 DESCRIPTION OF EVALUATION METHODOLOGY

The use and development of any site of land, whether it be for a wastewater treatment facility or a housing development, will have an impact on the site and its immediate environs. Some impacts may be beneficial. Others will be adverse.

Two general categories of impact apply. These are:

-- Direct or construction effects which occur at the same time and place.

-- Indirect effects which are caused by the action and are later in time and further removed in distance but are still reasonably foreseeable. Indirect effects might include development on nearby land which is induced or retarded because of the type of site use.

The key consideration, pursuant to Council on Environmental Quality and EPA regulations, is a determination of the significance of the impact whether it be of a short (6-24 months) or long-term nature. Significance requires consideration of both context and intensity.

The context for this Supplemental Final EIS is the site itself and the immediate environs of the site.

Intensity refers to the serverity of impact: For this EIS, four categories of impact have been used. These are none, insignificant, minor, and significant. These are more fully-described below:

-- No Impact

This is self-explanatory, meaning there are no impacts on the particular segment of the environment under consideration due to the actions proposed.

-- Insignificant Impact

The action proposed in site development will have a negligible impact on the environment.

-- Minor Impact

The impact of site development will be of importance but not severe enough to be considered under the definition of significant, below.

-- Significant Impact

The critical determination in any impact evaluation is that of significance. There are no hard or fast rules to rate significance. In some cases, it may relate to the value or importance of the environmental function or category which is impacted. In other situations, significance may be triggered by an action which results in a contravention of laws, regulations, or plans. Public controversy may be a catalyst for designating an action proposed by an alternative as a significant issue.

The criteria listed below have helped to define significance in the Supplemental Final EIS:

Public health or safety is threatened.

Unique characteristics, such as locally important wetlands or historic resources, may be adversely affected.

The effects on the quality of the human environment, including economic concerns, are likely to be highly controversial.

The effects on the environmental category are highly uncertain or contain unique or unknown risks.

The action, in concert with other actions which individually are insignificant or minor, could result in a cumulative impact of a significant nature.

Whether the action may have a significant adverse effect on an area or site listed in, or eligible for listing in, the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

Whether the action may have a significant adverse effect on the habitat of a species by the Endangered Species Act of 1973 determined to be critical.

Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

2.21 Category of Impact

Site development, as proposed for Sites A, B, B-L and C, have a capacity to impact both the natural and man-made environment. The category of impact largely relates to a number of considerations including:

-- The types of laws or regulations at the Federal, State, or local level which may be affected.

-- The issues raised by local or regional officials, community involvement participants and State or Federal agencies as part of the preceding environmental process in Scarborough.

In accordance with Council on Environmental Quality regulations, this Supplemental Final EIS does not attempt to cover every conceivable impact; rather, it focuses on those categories which have been identified using the criteria cited above.

For Scarborough, the following environmental categories warrant impact evaluations:

-- Short-term/construction

- o Coastal Dunes/Wetlands
- o Air/Noise Pollution
- o Water Pollution
- o Traffic/Access

-- Long-term

- o Coastal Dunes/Wetlands
- o Air/Noise Pollution
- o Water Pollution
- o Traffic/Access
- o Land Development
- o Aesthetics/Scenic Value
- o Historic/Archaeological Resources
- o Financial
- o Flood Hazard

2.22 Mitigating Measures

The intensity of an impact on any category of the environment often can be diminished by the use of appropriate mitigation measures. These can range from special provisions, written into the contracts, to major modifications in the way in which the site is developed.

Where appropriate, mitigating measures are proposed.

2.3 IMPACT PROFILE

Figure 2-9 provides a summary profile of the impacts associated with each site. The category and intensity of impact is based upon the detailed evaluations reported in subsequent sections of this chapter.

A review of the profile reveals the following:

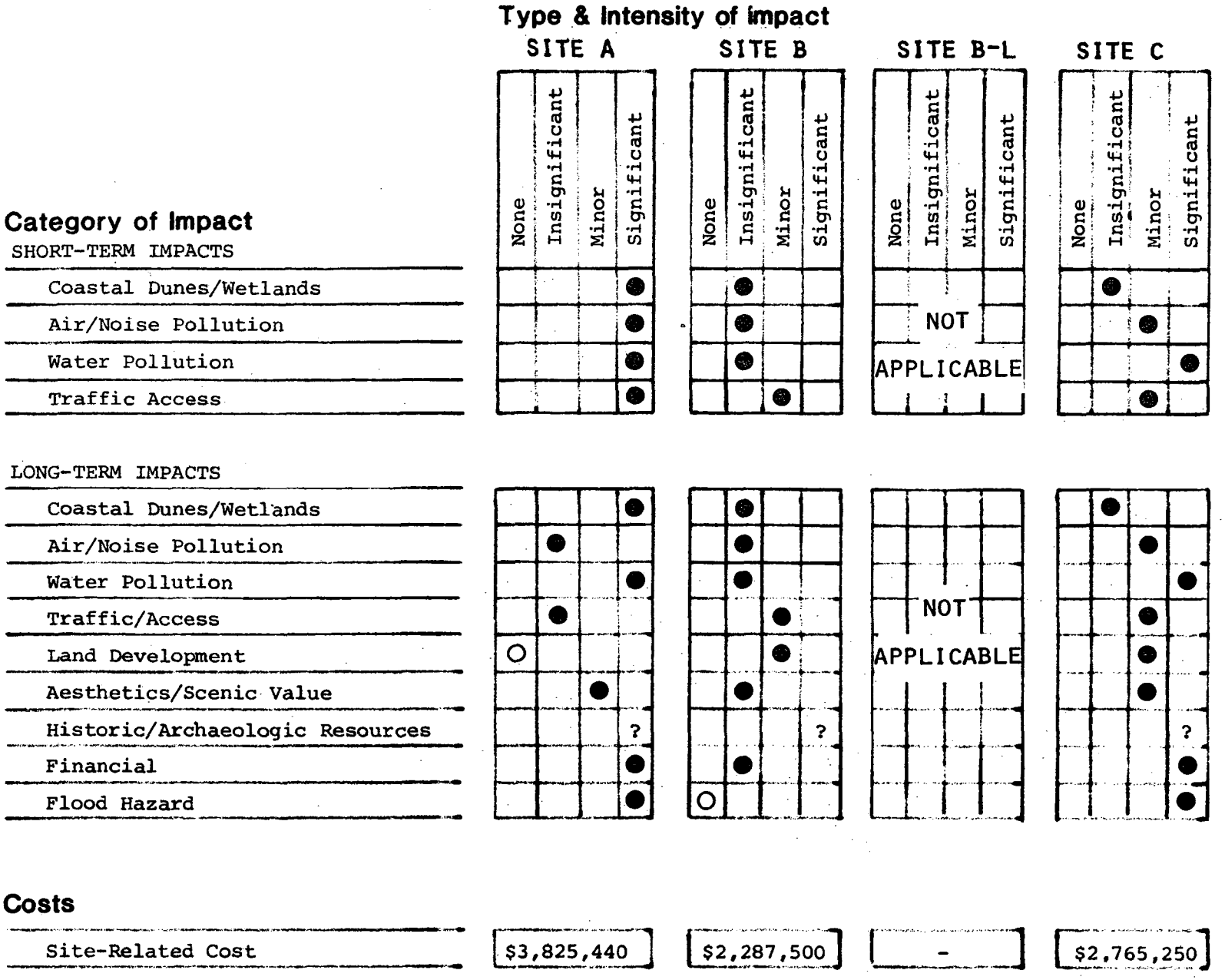
-- Site A could have significant impacts in the categories of coastal dunes/wetlands, air/noise, water pollution, traffic/access, financial and flood hazard.

-- Site B has no known impacts of a significant nature.

-- Site C could have significant impacts in the categories of water pollution, financial, and flood hazard.

-- The impacts on historic/archaeological resources are not known at this time.

Fig. 2-9 Environmental Impact Profile – Wastewater Treatment Sites



2.4 PREFERRED ALTERNATIVE

Site B is recommended as the alternative which is most acceptable from both a financial and environmental viewpoint.

2.5 ENVIRONMENTAL EVALUATION OF ALTERNATIVES

The following sections provide a summary of the many considerations used in measuring the nature and intensity of impacts. These evaluations are backed by the considerable documentation contained in prior environmental studies conducted by EPA and additional research carried out in the preparation of this Supplemental Final EIS.

The evaluation reflects the technical judgements of an experienced team of environmental impact specialists.

The major impacts associated with the development of Sites A, B, B-L, and C are as follows:

2.51 Site A

2.511 Coastal Dunes/Wetlands

Short Term/Construction

-- Significant/Adverse

Impact Evaluation

Construction of the wastewater facility would require the improvement of the Ferry Road extension to withstand the activity of heavy construction vehicles. This improvement would necessitate considerable alteration to a sensitive coastal sand dune environment.

Both State and local regulations would be contravened if such construction were to be accomplished.

Dewatering activities could have an adverse impact on the salinity of adjacent coastal wetlands.

Long Term

-- Significant/Adverse

Impact Evaluation

The long-term impacts associated with improving Ferry Road could be more severe than short-term impacts as the forces of nature act upon a dune environment which might become vulnerable to erosion and the natural movement of sand within the sand dune system.

2.512 Air/Noise Pollution

Short Term/Construction

-- Significant/Adverse

Impact Evaluation

Removal of peat and over 6,700 truck trips to bring in 135,000 cubic yards of fill offer opportunities for dust and noise generation.

Appropriate mitigating measures would be capable of keeping some impacts to a modest level.

Long Term

-- Insignificant/Adverse

Impact Evaluation

The proposed wastewater facility has been designed to reduce odor emissions. The prevailing winds would tend to blow any emissions to the wetland areas north of the site.

2.513 Water Pollution

Short Term/Construction

-- Significant/Adverse

Impact Evaluation

The several homes located along the beach extension of Ferry Road use private wells for water supply. Dewatering actions during construction could influence some of the wells by causing a change in the nearby groundwater/saltwater interface.

Long Term

-- Significant/Adverse

Impact Evaluation

Following construction, there would be a gradual return to the normal groundwater/saltwater interface in the adjacent area.

2.514 Traffic/Access

Short Term/Construction

-- Significant/Adverse

Impact Evaluation

The movement of construction vehicles to and from the site would have a temporary impact on Ferry Road residences (see Section 2.512 and 2.524).

Long Term

-- Insignificant/Adverse

Impact Evaluation

The long-term impacts would be those associated with the traffic generated by employees and visitors to the wastewater facilities. The District's offices will be located at the site.

Septic pumpers will also move to and from the septage disposal facility incorporated into the plant. About two trips per day can be anticipated.

2.515 Land Development

Long Term

-- None

Impact Evaluation

Natural and man-made constraints preclude the use of Site A for land development of any consequence.

2.516 Aesthetics/Scenic Value

Long Term

-- Minor/Adverse

Impact Evaluation

After the removal of vegetation and the elevation of the site above the 100-year flood level, the wastewater facility will have a fairly high visibility to adjoining residences and a residential subdivision to the north and across the Libby River.

2.517 Historic/Archaeological

Long Term

-- Impact unknown

Impact Evaluation

The Maine Historic Preservation Commission believes there is a potential for early 17th century sites. A ground survey will be required after the ground thaws out this spring.

2.518 Financial

Long Term

-- Significant/Adverse

Impact Evaluation

This is the most expensive of the three sites. Costs exceed the least expensive site by over $1,500,000.

2.519 Flood Hazard

Long Term

-- Sifnificant/Adverse

Impact Evaluation

The entire site is located within the 100-year floodplain. Although site modifications can

raise the plant above the 100-year flood elevation, such modifications would be at variance with EPA's procedures for Floodplain Management and Wetlands Protection -- particularly where there may be alternative sites not requiring construction within the floodplain.

2.52 Site B

2.521 Coastal Dunes/Wetlands

Short Term/Construction

-- Insignificant/Adverse

Impact Evaluation

The wetlands along the Libby River would be subject to the usual impacts associated with nearby development. Adequate buffer areas between the facilities and the site boundaries and between the site boundaries and the wetlands would mitigate the impact.

A small section of coastal wetland which crosses the southern corner of Site B would not be disturbed.

Long Term

-- Insignificant/Adverse

Impact Evaluation

Development of the site would be designed to leave the portion of the site which lies within the Resource Protection District as a natural buffer area.

2.522 Air/Noise Pollution

Short Term/Construction

-- Insignificant/Adverse

Impact Evaluation

Construction activity and the removal of existing trees could increase noise levels and produce dust in the immediate environs of the site.

Long Term

-- Insignificant/Adverse

Impact Evaluation

As noted in 2.512, the proposed plant will be designed to eliminate odor problems. A properly maintained treatment plant does not generate odors that can be noticed in the surrounding environment.

The prevailing winds would tend to blow any odor to the north of the site. At the present time, the adjoining land to the north is vacant.

2.523 Water Pollution

Short Term/Construction

-- Insignificant/Adverse

Impact Evaluation

The utilization of environmentally sensitive construction techniques will preclude water pollution impacts on adjacent wetlands.

Long Term

-- Insignificant/Adverse

Impact Evaluation

All drainage from the site will be designed to preclude any sedimentation of nearby wetlands.

2.524 Traffic/Access

Short Term/Construction

-- Minor/Adverse

Impact Evaluation

During the two-year construction period there will be temporary increases in traffic. The worst situation will occur during a two-month period when concrete is being poured -- about 20-8cy trucks per day.

Long Term

-- Minor/Adverse

Impact Evaluation

Some conflicts will occur during the summer months when traffic peaks along Black Point Road. The major conflicts would occur near the entrance to Scarborough Beach State Park.

These conflicts can be mitigated by proper scheduling of the time when septage pumpers can utilize the plant during summer months.

2.525 Land Development

Long Term

-- Minor/Adverse

Impact Evaluation

Construction of the wastewater facility will eliminate 17 acres of land suitable for residential development.

Adjoining land to the north also is desirable development land. The psychological problems associated with having a wastewater facility as a neighbor could be mitigated by cluster-type development which would allow ample open space between Site B and any contemplated housing.

2.526 Aesthetics/Scenic Values

Long Term

-- Insignificant/Adverse

Impact Evaluation

Development of the site will eliminate some of the vegetation on the site. Screening of the access road from adjoining Black Point Road residences can mitigate impacts to existing development.

A 100-200' buffer area of existing trees and vegetation will be retained to buffer the treatment facilities from potential development land to the north and east.

2.527 Historic/Archaeological

Long Term

-- Unknown

Impact Evaluation

The Maine Historic Preservation Commission has identified potentials for the following on Site B:

- o early 17th century site(s)
- o prehistoric shell middens

A ground survey, after the spring thaw, will be required to determine the significance of the stated potentials.

2.528 Financial

Long Term

-- Insignificant/Adverse

Impact Evaluation

This is the least expensive of the three sites in terms of site-related development costs. This site, however, requires an acquisition cost to be borne by the District. There are no acquisition costs for Sites A and C.

2.529 Flood Hazard

Long Term

-- No impact

Impact Evaluation

All lands within the designated 100-year flood-plain will be retained in a natural state as a buffer area.

2.53 Site B-L

As land disposal is not feasible on Site B-L, no impact evaluation has been carried out.

2.54 Site C

2.541 Coastal Dunes/Wetlands

Short Term/Construction

-- Insignificant/Adverse

Impact Evaluation

Dewatering of Site C could impact wetlands along the Nonesuch River. This impact could be mitigated by pumping onto the adjacent parcel owned by the Sprague Corporation.

Long Term

-- Insignificant/Adverse

Impact Evaluation

See comment above for short term.

2.542 Air/Noise Pollution

Short Term/Construction

-- Minor/Adverse

Impact Evaluations

The discussions above under 2.522 would also apply to Site C.

Long Term

-- Minor/Adverse

Impact Evaluation

This site is located in close proximity to a number of homes on Black Point Road and Clay Pits Road. Although, as previously discussed, odors are not anticipated as a problem, due to design and management options, any malfunction would be evident. The prevailing winds would blow any odors in the direction of Black Point Road and Clay Pits Road homes.

2.543 Water Pollution

Short Term/Construction

-- Significant/Adverse

Impact Evaluation

Homes, located along the Nonesuch River, use private wells. Dewatering actions during construction might have the potential to influence some of the wells by causing a change in the nearby groundwater/salt water interface. Some of this impact might be mitigated by recharging through the use of two ponding areas on adjacent land owned by the Sprague Corporation.

Long Term

-- Significant/Adverse

Impact Evaluation

Following construction, there would be a gradual return to the normal groundwater/salt water interface of the adjoining area.

2.544 Traffic/Access

Short Term/Construction

-- Minor/Adverse

Impact Evaluation

The movement of construction and construction worker vehicles to and from the site would have a temporary impact on residences near the access road to Black Point Road (see Section 2.524).

Long Term

-- Minor/Adverse

Impact Evaluation

Traffic generated by the wastewater plant will include employees, visitors to the District's Offices and septic pumpers.

It will introduce stopping and turning movements in an intensely developed strip of residences along Black Point Road.

2.545 Land Development

Long Term

-- Minor/Adverse

Impact Evaluation

Utilization of the site for a wastewater treatment facility could deter development of adjoining sites. Most of the adjacent land is not of a size or dimension to allow cluster type buffering as suggested for Site B in Section 2.525.

2.546 Aesthetics/Scenic Value

Long Term

-- Minor/Adverse

Impact Evaluation

The limited size of the site will mean that there will be few opportunities to retain existing trees which could act to screen the plant from the view of existing or future residences on adjoining properties.

Sensitive design of the plant, however, could mitigate some of the adverse views of the facility.

2.547 Historic/Archaeological

Long Term

-- Unknown

Impact Evaluation

The Maine Historic Preservation Commission has identified a potential for historic house sites at or near Site C. A ground survey, after the spring thaw, will be required to determine their existenace and significance.

2.548 Financial

Long Term

-- Significant/Adverse

Impact Evaluation

Site-related development costs for Site C are about $480,000 higher than comparable costs for Site B. The major financial plus is the offer of land donation by the Sprague Corporation. This benefit, however, is not sufficient to overcome the unavoidably higher costs to place the facility on Site C.

2.549 Flood Hazard

Long Term

-- Significant/Adverse

Impact Evaluation

About one-half of the site is located within the 100-year floodplain. Certain site modifications would be required to satisfy the Flood Hazard provisions of the Scarborough Zoning Ordinance. Such modifications would be at variance with EPA's procedures for Floodplain Management and Wetlands Protection -- particularly where there is an alternative site (Site B) not requiring construction within the floodplain.

CHAPTER 3 - THE AFFECTED ENVIRONMENT

3.1 INFORMATION SOURCES

During the past five years EPA, the Scarborough Sanitary District, and interested citizens have prepared extensive studies covering the Town's environmental resources. The information contained in these studies has been utilized in the evaluations conducted in Chapter 2.

The following documents provide a full description of the town-wide and site-specific natural and man-made resources of the Town of Scarborough, Maine:

- EPA, Draft Environmental Impact Statement Wastewater Collection and Treatment Facilities; Scarborough, Maine - November, 1975

- EPA, Final Environmental Impact Statement Wastewater Collection and Treatment Facilities; Scarborough, Maine - April, 1977, Volumes I and II

- EPA, Supplemental Final Environmental Impact Statement Recommended Wastewater Collection and Treatment Facilities; Scarborough, Maine, March, 1978

- Geotechnical Engineers, Inc., letter to Whitman & Howard regarding geotechnical investigations of Site B - January 28, 1980

- Scarborough Planning Board, Scarborough Master Plan - 1979

- Scarborough Planning Board, Zoning Ordinance; Scarborough, Maine - June, 1970 and sebsequent amendments

- Whitman & Howard, Inc., A Cost Analysis and Environmental Comparison Wastewater Treatment Facility Sites; Scarborough, Maine - December, 1979

Copies of the above documents are available for inspection at the offices of the Scarborough Sanitary District in Scarborough, Maine and the U. S. Environmental Protection Agency; Region I; JFK Federal Building; Boston, Massachusetts.

CHAPTER 4 - ENVIRONMENTAL CONSEQUENCES

4.1 NATIONAL ENVIRONMENTAL POLICY ACT STATEMENTS

The following statements are made in response to specific requirements in the National Environmental Policy Act:

4.11 Adverse Environmental Effects which Cannot be Avoided

In the development of Site A, significant adverse environmental impacts include disruption of a coastal dune environment, construction in a flood-hazard area, high costs in comparison to other alternatives, changes in private wells and short-term air, noise and traffic impacts.

In the development of Site C, significant adverse environmental impacts include changes in nearby private wells, high costs in comparison with Site B, and partial construction within a flood hazard zone.

There are no known significant adverse environmental impacts associated with the development of Site B.

Sites A, B, B-L, and C all are the locations for potential archaeological resources. Confirmation of the significance of these resources must await favorable ground conditions for further investigation by the Maine Historic Preservation Commission.

4.12 Relationship Between Short-Term Use of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

Long-term productivity of the environment would be enhanced by the use of Site B which has no significant adverse impacts associated with its use as a site for a wastewater treatment facility.

4.13 Any Irreversible or Irretrievable Commitments of Resources

Permanent resource commitments associated with the use of the sites include:

- Changes in land use

- Use of physical and energy resources involved in plant construction.

- Elimination of portions of the natural floodplain at Sites A and C.

- Potential disruption of a natural dune system at Site A.

- Expenditures of capital and financing costs for construction.

- Potential destruction of archaeological resources at any site.

CHAPTER 5 - MONITORING/GRANT REQUIREMENTS

5.1 BASIS FOR REQUIREMENTS

EPA's recently adopted regulations covering the preparation of environmental impact statements for wastewater projects establish the Agency's continuing concern with environmental protection. These concerns go beyond the completion of impact evaluations and include grant conditions and monitoring provisions extending through the useful life of a facility.

5.2 REQUIREMENTS APPLICABLE TO PREFERRED ALTERNATIVE

The following grant requirements shall apply to the use of Site B, the preferred alternative:

- No construction activities shall take place within those portions of the site lying within the 100-year floodplain or the Resource Protection Zone. If necessary, additional land should be acquired to accomplish this requirement.

- Provisions in plant design and natural or created landscaping shall be made for screening the access road from adjoining homes on Black Point Road and the wastewater facility from land subject to further subdivision to the north of the site.

- Construction contract specifications shall call for detailed measures to control soil erosion and sedimentation with particular attention to the protection of adjoining coastal wetland areas.

- Use of the plants septage disposal facilities shall be scheduled so as not to interfere with periods of peak summer traffic to Scarborough Beach State Park.

- The District shall comply with the procedures of the Advisory Council on Historic Preservation in implementing the provisions of the Archaeological and Historic Preservation Act of 1966 as amended.

The following monitoring requirements shall apply to Site B:

- EPA shall monitor the implementation of all grant conditions through grant requirements for periodic submissions of "Statements of Compliance" by the District.

CHAPTER 6 - LIST OF PREPARERS

6.1 RESPONSIBLE AGENCY AND TECHNICAL CONSULTANTS

Region I of EPA was responsible for preparing this Draft EIS.

Technical assistance to EPA was provided under a contract with Anderson-Nichols of Boston. Anderson-Nichols is a multi-disciplined firm of planners, environmental specialists, engineers, and architects.

6.2 REGION I - EPA STAFF

6.21 Project Manager

Mr. Robert Mendoza had overall responsibility for the preparation of this DEIS. He is a professional planner with an MRP degree from Pratt Institute. Mr. Mendoza supervises the preparation of all wastewater EIS's in Region I.

6.22 Municipal Facilities Branch Staff

Mr. David Austin is a professional engineer, responsible for coordinating the various wastewater projects in Maine being funded by EPA. He holds a degree in Civil Engineering from the University of New Hampshire and is completing a Masters Degree at Northeastern University.

6.23 Environmental Coordinator

Mr. Paul Pinault is the Environmental Coordinator for EPA's Municipal Facilities Branch. He holds an undergraduate degree from Southeastern Massachusetts University and a Master's Degree in Environmental Engineering from Northeastern University.

6.3 ANDERSON-NICHOLS

6.31 Project Manager

Burk Ketcham, Director of the firm's Planning Division, had overall responsibility for preparing this Supplemental Final EIS and coordinating with EPA. Mr. Ketcham is a professional planner with a Masters Degree from Columbia University.

6.32 Project Engineer

Joe Zeneski is a professional engineer, specializing in wastewater projects. He was responsible for major items of an engineering nature. He holds a Masters Degree in Environmental Engineering from the University of Rhode Island.

6.33 Environmental Specialist/Writer

Anne Pierce carried out research assignments and assisted in the writing of the EIS. She holds undergraduate and graduate degrees in Anthropology from Stanford University.

6.34 Wetlands Specialist

William Richardson is a professional planner/landscape architect with wide experience in wetlands analysis. He was the author of an environmental assessment manual on wetland impacts prepared for Region I. He holds degrees in Environmental Planning and Landscape Architecture from the Rhode Island School of Design.

APPENDIX A

COST COMPARISON - SCARBOROUGH SITE ALTERNATIVES

A.1 INTRODUCTION

In December, 1979, Whiteman & Howard, Inc. of Wellesley, Massachusetts, issued a report entitled "A Cost Analysis and Environmental Comparison, Wastewater Treatment Facility Sites, Scarborough, Maine". Three separate cost comparisons were included as follows: a cost comparison of Site A and Site B as prepared by Whitman & Howard; a cost comparison of Site A, Site B, and Site C as prepared by Hunter-Ballew Associates; and an additional cost comparison of Site B and two Site C alternatives also prepared by Whitman & Howard.

The three cost comparisons were all based on ENR-CCI of 3350 and generally agreed in estimates of quantity of materials required. There does exist, however, some differences in the cost comparisons that would result in different conclusions.

The purpose of this report is to present the findings of a study to review the cost estimates and produce a summary that could be used to compare the development of the proposed wastewater treatment facility on either Site A, Site B, or Site C.

A.2 BASIS OF COST ESTIMATES

In evaluating the cost estimates produced by Whitman & Howard and Hunter-Ballew, it was found that there were some inconsistencies in the Hunter-Ballew estimates in addition to the discrepancies between the Whitman & Howard and Hunter-Ballew estimates. It was found that while the Whitman & Howard cost estimates were well-documented and reproducible, the Hunter-Ballew estimates were not. For example, the following table presents the calculated unit costs used by Hunder-Ballew in their comparison of site variable facilities for Site A, Site B, and Site C:

ESTIMATED UNIT COSTS

ITEM	SITE A	SITE B	SITE C
Gravity Sewer from Oak Hill-Black Point Road			
- separate trench	24"@$78/ft.	24"@$78/ft.	-
- common trench	-	-	8"@$18.33/ft.
F.M.-P.S. #6 to Plant			
- separate trench	24"@$84/ft.	24"@$84/ft.	-
- common trench	24"@$84/ft.	24"@$84/ft.	6"@$15/ft.
F.M.-P.S. #8 to Plant			
- common trench	6"@$15/ft.	6"@$15/ft.	6"@$15/ft.
Outfall F.M.			
- separate trench	24"@$100/ft.	24"@$100/ft.	24"@$100/ft.
- common trench	24"@$91/ft.	24"@$91/ft.	24"@$80/ft.

As can be seen from the preceding table, there is an inconsistency in the unit costs used by Hunter-Ballew, specifically in the unit costs used for 24" force main. A less obvious discrepance is the difference between the cost of 24" gravity sewer (calculated to be $78/ft.) and the cost of 24" force main (calculated to range between $91/ft. and $100/ft.). Intuitively, the cost of a gravity sewer, given the requirements for manholes, house connections and strict adherence to grade, would be higher than the cost of a force main of equal size.

Given the above-described discrepancies and inconsistencies in the Hunter-Ballew unit costs and the fact that the development of the Whitman & Howard unit costs was presented in the text, the Whitman & Howard unit costs were used in this analysis. The following table summarizes the unit costs used in the analysis contained herein:

Gravity Sewers	
Size	Cost/ft.
8"	$69
12"	75
18"	86
24"	97
30"	114
36"	126

Force Mains		
	Cost per ft.	
Size	Separate trench	Common trench
8"	$50	$31
12"	62	43
18"	72	53
24"	84	66

The costs for pump stations are from EPA publications as used by Whitman & Howard in their analysis.

A.3 COST ESTIMATES

Four alternatives that represent the differences in getting the wastewater to, and the treated effluent from, the three wastewater treatment facility sites were analyzed. In all four alternatives, the following conditions were assumed:

- The locations of the two pump stations (P.S.) within the site variable facilities would be held constant, that is, P.S. #8 would be located at the entrance to Site B in all four alternatives, and P.S. #6 would be located approximately 2600 ft. from the entrance to Site C on Black Point Road.

- An additional 500 ft. of pipe would be required to leave a site over the amount required to enter the site.

Given these conditions, the four alternatives analyzed, can be described as follows:

- Development of the collection interceptor system to deliver wastewater to Site A.

- Development of the collection/interceptor system to deliver wastewater to Site B.

A.4 Development of the collection/interceptor system to deliver wastewater to Site C using P.S. #6 as a local pump station and building an influent pump station at the wastewater treatment plant.

A-5 Development of the collection/interceptor system to deliver wastewater to Site C using P.S. #6 as the influent pump station.

The estimated construction costs (at ENR-CCI 3350) are presented in TABLE A-1.

TABLE A-1

COST ANALYSIS OF ALTERNATIVES

ITEM	Size Quantity				Unit Cost				TOTAL COST		
	ALT. A	ALT. B	ALT C-1	ALT. C-2	ALT. A	ALT. B	ALT C-1	ALT. C-2	ALT. A	ALT. B	ALT. C-1
F.M. from P.S. #8	4800'8"	800'8"	5000'8"	5000'8"							
- separate trench	2000'	—	—	—	$ 50	$ —	$ —	$ —	$ 100,000	$ —	$ —
- common trench	2800'	800'	5000'	5000'	31	31	31	31	86,800	24,800	155,000
Pumping Station #6	3900 gpm	3900 gpm	600 gpm	3900 gpm	507,000	507,000	362,000	507,000	507,000	507,000	362,000
F.M. from P.S. #6	9500'24"	7800'24"	2600'8"	3300'24"							
- separate trench	7500'	5000'	—	—	84	84	—	—	630,000	420,000	—
- common trench	2000'	2800'	2600'	3300'	66	66	31	66	132,000	184,800	80,600
INFLUENT PUMPING STATION	—	—	4200 gpm	—	—	—	$380,000	—	—	—	380,000
Gravity Sewer from Site C Entrance			(c)	(c)							
- to Pumping Station #6	2600'36"	2600'26"	2600'10"	2600'36"	126	126	72	126	327,600	327,600	187,200
- to Influent P.S.	—	—	700'36"	—	—	—	126	—	—	—	88,200
Effluent F.M. 24	3300'24"	3800'24"	12800'	12800'							
- separate trench	500'	500'	7000'	7000'	84	84	84	84	42,000	42,000	588,000
- common trench	2800'	2800'	5800'	5800'	66	66	66	66	184,800	184,800	382,800
									2,010,200	1,691,000	2,223,800

APPENDIX B

LETTERS FROM MAINE HISTORIC PRESERVATION COMMISSION

Recent letters from the Maine Historic Preservation Commission relating to Sites A, B, B-L and C are reproduced on the pages which follow.

JOB 3441-15
B-1

MAINE HISTORIC PRESERVATION COMMISSION
242 State Street
Augusta, Maine 04333

Earle G. Shettleworth, Jr.
Director

Telephone:
207-289-2133

February 26, 1980

Anne M. Pierce, Environmental Specialist
Anderson-Nichols
150 Causeway Street
Boston, Massachusetts 02114

Dear Miss Pierce:

Thank you for your letter of the 20th concerning the supplement EIS for a wastewater treatment plant in Scarborough, Maine. This letter is a follow-up to this morning's telephone conversation between you and Dr. Robert Bradley of my staff. As you pointed out, I cleared proposed sites A and B several years ago, but I have not yet commented on proposed site C.

Site C lies in an area of sensitivity for house sites of the early colonial period (1660's on). I therefore ask that Dr. Bradley have an opportunity to inspect site C as soon as weather and ground conditions permit (late April or early May). There will be no charge for this preliminary survey, and if no archaeological resources of National Register significance are encountered, I will then issue a letter of no effect.

Dr. Bradley will contact you in due course to co-ordinate with you the inspection. If you have further questions in the meantime, please do not hesitate to let me know.

Sincerely,

Earle G. Shettleworth, Jr.
State Historic Preservation Officer

cc: Dr. Robert L. Bradley

EGS/slm

JOB # 3141-15
B-1

RECEIVED
MAR 5 1980
ANDERSON-NICHOLS & CO., INC.

MAINE HISTORIC PRESERVATION COMMISSION
242 State Street
Augusta, Maine 04333

Earle G. Shettleworth, Jr.
Director

Telephone:
207-289-2133

March 3, 1980

Anne M. Pierce, Environmental Specialist
Anderson-Nichols
150 Causeway Street
Boston, Massachusetts 02114

re: Scarborough Wastewater Treatment Plant

Dear Miss Pierce:

In response to your inquiry based upon information from Mr. Lakari, it is probable that there is a prehistoric archaeological site on or near Alternative Treatment Plant site B.

Moreover, there is a strong possibility that early 17th century archaeological sites may exist on both site A and site B.

My staff archaeologists will field-check the areas in question as soon as weather permits (probably late April), and make a determination of National Register significance.

Sincerely,

Earle G. Shettleworth, Jr.
State Historic Preservation Officer

cc: Dr. Robert L. Bradley
Dr. Arthur E. Spiess

EGS/slm

JOB #3441-15
B-1

MAINE HISTORIC PRESERVATION COMMISSION
242 State Street
Augusta, Maine 04333

Earle G. Shettleworth, Jr.
Director

March 6, 1980

Ms. Anne Pierce
Anderson-Nichols
150 Causeway Street
Boston, Massachusetts 02114

Dear Ms. Pierce:

From a description provided by Mr. Tahari of Sprague Corporation, I am certain that there is a prehistoric archaeological site on or near site B: Parcel A or Parcel B. If it is on site B, it may in fact be on both. From your recent detailed map showing the exact location of the river, it seems more likely that the site is on Parcel B of Site B.

Moreover, from Mr. Tahari's description, the site is almost certainly of National Register significance. The larger area of Parcel B makes it more likely that historic archaeological sites of 17th century age are also included in Site B.

We will do a field check as soon as the ground thaws, and advise you immediately. It would certainly be wise to include wording in the E.I.S. that archaeological survey is a concern.

Sincerely,

Arthur E. Spiess,
Archaeologist

AES/slm

APPENDIX C

LETTER FROM THE SPRAGUE CORPORATION

Letter from the Sprague Corporation relating to the donation of Site C.

3441-15
B-1

DONALD W. PHILBRICK
EDWARD F. DANA
COUNSEL

DONALD L. PHILBRICK
ROGER A. PUTNAM
ROBERT B. WILLIAMSON, JR.
JOHN A. MITCHELL
LOUIS A. WOOD
JOHN W. PHILBRICK
JOHN L. SULLIVAN
PETER B. WEBSTER
HOWARD H. DANA, JR.
CHARLES R. OESTREICHER
MICHAEL T. HEALY
CHRISTOPHER J. W. COGGESHALL
CHARLES L. CRAGIN
THOMAS J. VAN MEER
ROBERT B. PATTERSON, JR.
BRUCE W. BERGEN
ROBERT A. MOORE
P. BENJAMIN ZUCKERMAN
CHARLES A. HARVEY, JR.
JOHN R. McKERNAN, JR.
JUDITH M. COBURN

LEWIS D. EPSTEIN
CHRISTOPHER S. NEAGLE
DAVID C. HILLMAN
JOHN D. DUNCAN
ANDREW M. HORTON
WILLIAM S. HARWOOD
THOMAS A. PURINGTON
JAMES G. GOGGIN

VERRILL & DANA
TWO CANAL PLAZA
P. O. BOX 586
PORTLAND, MAINE 04112
207/774-4000

YORK COUNTY OFFICE
207/324-7700
DEPOT ROAD
ALFRED, MAINE 04002

TELECOPIER
207/774-4400

March 6, 1980

RECEIVED
MAR 10 1980
ANDERSON-NICHOLS & CO., INC.

Mr. Burk Ketcham
Vice President
Anderson-Nichols
150 Causeway Street
Boston, MA 02114

Re: Preparation of Supplemental Final Environmental Impact Statement on Alternate Wastewater Treatment and Disposal Sites for Scarborough, Maine - Scarborough Sanitary District

Dear Burk:

I write to you at Mr. Lakari's suggestion because of the problems which have arisen and some confusion which has arisen with regard to this project.

My understanding with regard to the problem is that in your interview with Phineas Sprague he indicated to you that it was his view that Sprague Corporation could not donate the so-called Clay Pits Site (Site C) to the Scarborough Sanitary District without the unanimous consent of all of the shareholders of Sprague Corporation. Mr. Sprague indicated to you that he would not consent, and therefore the matter was closed.

As an alternative, of course, Sprague Corporation could determine the "fair market value" of the Clay Pits Site and that might be the figure that you would use in your analysis.

We have reviewed the situation which has been developed to me, and we are now satisfied that under Maine Law, a majority of the Board of Directors present and voting at a meeting called consistent with the By-Laws of the Corporation, at which adequate

notice of the proposed action is given, can donate the Clay Pits Site to the Scarborough Sanitary District.

A word of caution: I must say to you that the Board of Directors of Sprague Corporation have not addressed this specific problem. I have, however, been authorized to state, and I have stated previously, authorized by the President, Robert A. G. Monks, Esq., that such a proposal would be made to the Board of Directors when and if it were clear that the gift would be accepted by the Scarborough Sanitary District and that Mr. Monks, who is both President and a Director, would urge his fellow Directors to vote with him to donate the Clay Pits Site to the District.

While I have no crystal ball, and neither do you, I think for the purposes of your evaluation you may consider that the cost of the Clay Pits Site is zero.

Very truly yours,

Roger A. Putnam

RAP/flb
cc: Robert A. G. Monks, Esq.
Phineas Sprague
David Lakari

APPENDIX D

EPA DESIGN CRITERIA FOR LAND DISPOSAL - SITE B (SITE B-L)

EPA memorandum and Maine DEP letter outlining design criteria and cost-effective analysis for land disposal relative to Site B-L.

STATE OF MAINE
Department of Environmental Protection

MAIN OFFICE: RAY BUILDING, HOSPITAL STREET, AUGUSTA
MAIL ADDRESS: STATE HOUSE, AUGUSTA 04333

Henry E. Warren
COMMISSIONER
289 2811

ADMINISTRATIVE SERVICES:
289 2691

BUREAUS:

AIR QUALITY CONTROL
289 2437

LAND QUALITY CONTROL
289 7111

WATER QUALITY CONTROL
289 2591

OIL POLLUTION CONTROL
289 2591

REGIONAL OFFICES:

31 CENTRAL STREET
BANGOR 04401
947 6746

634 MAIN STREET
PRESQUE ISLE 04769
764 3737

OIL POLLUTION CONTROL
17 COMMERCIAL STREET
PORTLAND
773 6491

OIL SPILL REPORTS ONLY
(TOLL FREE) 1 800 482 0777

CITIZENS' ENVIRONMENTAL ASSISTANCE SERVICE
289 7691
(TOLL FREE) 1 800 452 1942

AIR QUALITY CONTROL
17 COMMERCIAL STREET
PORTLAND
773 0196

LAND QUALITY CONTROL
17 COMMERCIAL STREET
PORTLAND
773 0196

February 25, 1980

Mr. David Austin
Municipal Facilities Branch
Region I-ME,VT,NH
United States EPA
JFK Federal Building
Boston, MA 02203

Subject: C230115 01 Scarborough Sanitary District

Dear Dave:

Presented herewith is the effluent disposal criteria given to Mr. Jubinville of Whitman & Howard, Inc. by phone on February 11, 1980, for use in estimating the cost of the effluent disposal alternative at Site B.

The criteria to be used for effluent disposal is recommended by the DEP to be equal to that for rapid infiltration.

1. Application rate = 1 foot/week.
2. Depth to groundwater = 10 feet minimum.
3. Groundwater monitoring on site.
4. Use 7 basins; thereby allowing for 1 day of use and 6 days of rest for each one.

The criteria to be used for lagoon construction is recommended by the DEP to be based on "Ten States Standards".

1. The minimum dike width shall be 8 feet to permit access of maintenance vehicles.
2. Inner and outer dike slopes shall not be steeper than 1 vertical to 3 horizontal.
3. Entire site shall be fenced.
4. Ponds should be located so that local prevailing winds will be in the direction of uninhabited areas.

If you have any questions, please do not hesitate to contact us.

Very truly yours,

David P. Achorn

David P. Achorn
Division of Municipal Services
Bureau of Water Quality Control

DPA/lwc

cc: Richard Jubinville, Whitman & Howard, Inc.
Alvin Keene, Superintendent, Scarborough S.D.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE:

SUBJECT: Evaluation of the design criteria and cost effective analysis for land disposal on Site B in Scarborough, ME

FROM: Lawrence F. Sheehan, Jr., Chief
Engineering Section, ME, NH, VT

TO: Wallace E. Stickney, Director
Environmental & Economic Impact Office

THRU: Charles W. Murray, Jr., Director
Water Division

Currently a Supplemental Environmental Impact Statement (SEIS) is being conducted to evaluate which of three sites the proposed Scarborough Sanitary District wastewater treatment facility should be constructed upon. As part of this SEIS the feasibility of utilizing Site "B" for rapid infiltration land disposal versus the proposed ocean outfall is to be evaluated, if the land disposal alternate is shown to be cost effective. The Maine Department of Environmental Protection (DEP) supplied their criteria by letter of February 25, 1980 for this land disposal alternate and the District's consulting engineer, Whitman and Howard, prepared the cost effective analysis (CEA). An evaluation of the Maine DEP criteria and the CEA follows.

The major components of the Maine DEP criteria (copy attached) are:

1. Loading rate of one foot/week
2. Minimum of 10 feet to groundwater
3. Secondary treatment required prior to land disposal (This is not included in the February 25, 1980 Maine DEP letter but was stated by Mr. Charles King, Director, Municipal Service Division of the Maine DEP in a meeting held in Boston on February 1, 1980. This letter is based on this.)
4. Monitoring wells
5. Adequate buffer zone

The loading rate and depth to groundwater are consistent with Program Requirements Memoranda No. 79-3. Although the loading rate is on the conservative end of the recommended range, it is not restrictive. Secondary treatment preceding land disposal is necessary because of the proximity of development in this area. This criteria is considered proper and justified because of the adjacent salt marsh and suburban development.

The CEA (copy attached), as presented, shows that effluent disposal by rapid infiltration is 47% more costly than the recommended ocean outfall.

This analysis assumes that the pumping costs for both options are equal, however, it appears that the pumping cost for the outfall would be more costly. Although the same size pumps would be needed to pump the same flow to each option the total dynamic head of the outfall would be greater,

therefore, larger motors would be required. These motors would cost slightly more and require more energy to operate.

The total present worth of the land disposal option presented in the CEA includes chlorination facilities. Because of the nature of this type of effluent disposal chlorination may not be required.

Adding in the additional pumping costs to the outfall alternate and subtracting the chlorination cost from the land disposal alternate does not change the conclusion of the CEA. The result is that land disposal is 27% more costly than the outfall. Because of this large difference the 15% alternative cost preference is not applicable. The cost estimates, engineering assumptions and calculations in the remainder of the CEA are reasonable and correct. Therefore, because the land disposal option is not cost effective it need not be further analyzed in the SEIS.

Borings taken on Site "B" show ground water at 7.5, 9.2, 10 and 11 feet below the ground surface in the lower portion of the site. The remainder of the parcel that would have to be taken for land disposal (if cost effective) is at a lower elevation than the 17 acre parcel (site B) where the borings were taken. Also these borings were taken during a very dry winter period, therefore, it can be expected that the ground water will be higher during a normal spring high ground water period. Considering this it is very possible that the site would have to be filled to maintain the minimum 10 feet to ground water. Whitman and Howard has estimated that to fill this site with filter sand would cost $387,000 per foot. Therefore, the addition of one or two feet of filter sand to the site would increase the cost of the land disposal option by $387,000 or $774,000, thus emphasizing the cost effectiveness of the recommended ocean outfall for this project.