

THE CORPORATION OF THE DISTRICT OF BURNABY  
ENVIRONMENT AND WASTE MANAGEMENT COMMITTEE

HIS WORSHIP, THE MAYOR  
AND ALDERMEN

RE: CAPITOL HILL SANITARY SEWER SYSTEM

RECOMMENDATIONS:

1. THAT Council approve the preliminary sewer system concept.
2. THAT Council authorize staff to proceed with the final design program including the preparation of a detailed site remediation plan for the affected area.

R E P O R T

The Environment and Waste Management Committee, at its meeting held 1992 May 12 received and adopted the attached staff report outlining the proposed sanitary sewer construction in the Capitol Hill area and its potential impact on the surrounding environment.

The Committee therefore submits the report for Council's endorsement.

Respectfully submitted,

Alderman L. Rankin  
Chair

Alderman D.P. Drummond  
Member

Alderman D. Evans  
Member

Alderman D. Lawson  
Member

Alderman C. Redman  
Member

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- ACTING CH. PUB. HEALTH INSP.

**TO:** CHAIRMAN & MEMBERS ENVIRONMENT & WASTE MANAGEMENT COMMITTEE      **DATE:** 1992 04 06

**FROM:** DIRECTOR ENGINEERING      **FILE:** 41-05-08

**SUBJECT:** CAPITOL HILL SANITARY SEWER SYSTEM

**PURPOSE:** To inform the Environment & Waste Management Committee and Council of the proposed sanitary sewer construction in the Capitol Hill area and its potential impact on the surrounding environment.

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**RECOMMENDATION:**

1. THAT the Environment & Waste Management Committee recommend to Council:
  - a) that the preliminary sewer system concept be approved; and,
  - b) that staff be authorized to proceed with the final design program including the preparation of a detailed site remediation plan for the affected area.

**REPORT**

**1.0 EXECUTIVE SUMMARY**

A preliminary engineering study was initiated by the Engineering Department to investigate possible alternatives of extending municipal sewage collection services to approximately 42 houses in the northwest part of Capitol Hill. Presently, the area is served by on-site septic fields which have been found operating unsatisfactorily.

With the proximity of the study area to the Capitol Hill Conservation Area and the potential construction impact on the surrounding environment, staff are submitting this report to inform the Committee and Council of the proposed plan prior to proceeding to the detailed design phase of the program.

As part of the study, several alternatives were examined with construction costs ranging from \$418,000 to \$595,000. Results of the study concluded that a complete gravity sewer system with connection to the existing sewer at Bessborough Drive and Delta Avenue at an estimated cost of \$420,000 is the preferred solution.

To facilitate the construction, several areas within the Bessborough Drive right-of-way and on private property will be disturbed. To mitigate the adverse environmental impact, special construction procedures and site remediation measures were identified and recommended to be incorporated in the final design.

In view of the need to eliminate the existing aging and inadequate septic field system in the study area, it is recommended that the preliminary sewer system concept be approved by the Committee and Council, and staff be authorized to proceed with the detailed engineering design and right-of-way acquisition for construction in 1993.

## **2.0 INTRODUCTION**

In the 1991-1995 Capital Budget, provisions were made for the extension of sanitary sewer services to approximately 42 homes in the northwest part of Capitol Hill that presently are served by on-site septic field. Recent investigation conducted by the Environmental Health Division concluded that many of the septic fields are not in compliance with current Health Act Sewage Disposal Regulations primarily due to age, location and size of the facilities. It is also noted that a number of residents in the area have complained about sewage odour at certain times of the year. With the increased concern about the inefficient performance of the septic fields and its impact on the neighbourhood and environment, a resolution to the sewage disposal problem must be put forward.

As part of the solution finding effort, a preliminary engineering study was initiated in late 1991 to assess the sanitary sewer servicing requirements and to identify the most effective solution. Urban Systems Ltd., an engineering consultant was retained by the Municipality to conduct the study. The study has examined several possible servicing alternatives and evaluated their potential construction impact on the environment. Results and recommendations of the study are discussed in this report.

Because of the proximity of the study area to the Capitol Hill Conservation Area and the potential impact of the proposed construction work on existing trees and the environment, staff are submitting this report to inform the Committee and Council of the proposed work prior to undertaking the detailed design phase of the program.

## **3.0 DISCUSSION**

### **3.1 STUDY AREA**

The study area consists of approximately 42 properties in the northwest part of Capitol Hill as shown in Figure 1. The majority of the properties are fully developed and landscaped.

The area to the south of the study area is served by a system of combined sewers and separated sanitary sewers which connects to the GVS & DD combined trunk sewer that discharges into Vancouver.

Existing streets within the study area are of limited width. Access to many individual properties is restricted due to the narrow road width and location of existing buildings. Many of the side yards are occupied by storage sheds, landscapes and retaining walls, thus limiting the available space for sewer construction.

All the existing houses within the study area are served by septic fields. Recent tests carried out by the Environmental Health Department concluded that a number of these septic fields are below the required operating standards. A geotechnical study carried out in 1987 as part of the Capitol Hill Conservation Area review indicated that discharge from the septic field can be detrimental to the stability of the surface layer of soil overlaying the bedrock with respect to increasing the volume of ground water. Replacement of the septic fields with municipal sewage collection system would reduce this ground water concentration problem.

### 3.2 ALTERNATIVE SANITARY SEWER SYSTEMS

Preliminary evaluation was carried out by the engineering consultant to study possible alternatives and to establish budget estimates. The alternatives were then evaluated with respect to cost, disruption to existing development and environment, and maintenance in order to determine the best overall solution.

A total of 7 alternatives were examined including gravity system, central municipal pump station and forcemains, and individual private pump system. The estimated cost of the systems ranges from \$418,000 to \$595,000. In the final analysis, it was concluded that the option of gravity sewer with connection to the existing combined sewer at Bessborough Drive and Delta Avenue would provide the most cost effective solution with minimal impact on the environment. The estimated cost of this alternative is \$420,000.

A detailed discussion on the potential construction impact on the environment and the proposed mitigative measures for the recommended alternative is presented in Section 3.3.

### 3.3 ENVIRONMENTAL IMPACT AND REMEDIATION

The recommended sanitary sewer system will traverse through an area adjacent to the Capitol Hill Conservation Area (Bessborough Drive) and through well developed landscapes of several private properties.

To maintain the natural character and environmental integrity of the Bessborough Drive treed area and to minimize disruption to private landscapes, guidelines and re-vegetation measures were developed as part of the engineering study.

A brief outline of the potential major impact on the existing environment and the proposed remediation plan is given as follows :

#### **Bessborough Alignment (Delta Avenue - 5130 Bessborough Drive)**

Field inspections were conducted by staff from the Engineering, Planning and Parks Departments and the engineering consultant for the purpose of assessing the impact of the proposed sewer alignment on the existing environment. The recommended sewer alignment was chosen so as to minimize disturbance to existing trees and to take advantage of existing open area within the forest cover.

The field inspection concluded that 3 large coniferous trees will have to be removed to accommodate the proposed sewer construction. The three trees include 2 cedars located below 410 Hythe Avenue and 1 large cedar behind 5120 Bessborough Drive.

In addition to the tree removals, a 3.6m wide construction area (access track) will be required to allow equipment access during construction. It is expected that clearing and grubbing within the access track will be required prior to commencing construction. In critical areas, selected pruning and tree thinning may be required within an area of 1.4m beyond the 3.6m access track in order to accommodate machinery movement.

3.4 Cont.

In the course of the engineering study, the consultant's landscape architect has reviewed the potential environmental impact and developed a conceptual site remediation plan to address the environmental issues. More specific construction guidelines and site remedial requirement will be prepared in the next phase of detailed engineering design to ensure all necessary precautions and protection work are undertaken during construction.

The main element that will be included in the site remediation plan is the re-vegetation program. The program will be carried out in a manner respectful of the existing natural vegetation within the access track area as per the recommendation of the landscape consultant.

**Rights-of-Way Through Private Property**

The proposed sewer installation would also traverse several private properties and impact on existing landscapes. In the preliminary engineering investigation each alternative alignment was examined, and the potential site impact, special construction consideration and surface restoration were identified.

Because of the limited open area available between private property, existing landscapes and structures, some surface features may have to be removed to facilitate construction. Specifically, the easement behind Glynde Avenue would require the relocation of a small flowering cherry tree and the protection of the cedar hedge and small deciduous trees. Some pruning and cutting back of the cedar hedge will be necessary to avoid potential damage that may otherwise be caused by machinery during construction. A more detailed site inventory will be undertaken at the detailed design phase to confirm specific rehabilitation methods and the requirements of the affected property owners.

**4.0 CONCLUSIONS**

Having examined various possible alternatives of extending sanitary sewer services to the remaining unsewered area in Capitol Hill, a conclusion was reached that a complete gravity sewer system with connection to the existing sewer at Bessborough Drive and Delta Avenue is the preferred solution. Arising out of the preliminary investigation and engineering review, several areas where the natural character and environment will be disturbed as a result of the proposed construction were identified.

To mitigate the adverse environmental impact, special construction procedures and site remediation plans were identified by the study consultant and recommended to be incorporated in the final engineering design. Several trees in the Bessborough Drive right-of-way and the proposed construction access area will require removal to facilitate construction.

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4.0 Cont.

In view of the need to provide municipal sewer services to the study area, it is recommended that the preliminary sewer system concept be approved by the Committee and Council, and staff be authorized to proceed with the detailed engineering design and right-of-way acquisition for construction in 1993. To be included in the detailed design program, the engineering consultant will be required to compile a complete inventory of existing trees within the affected area to confirm specific tree removal and surface restoration requirements.

  
DIRECTOR ENGINEERING

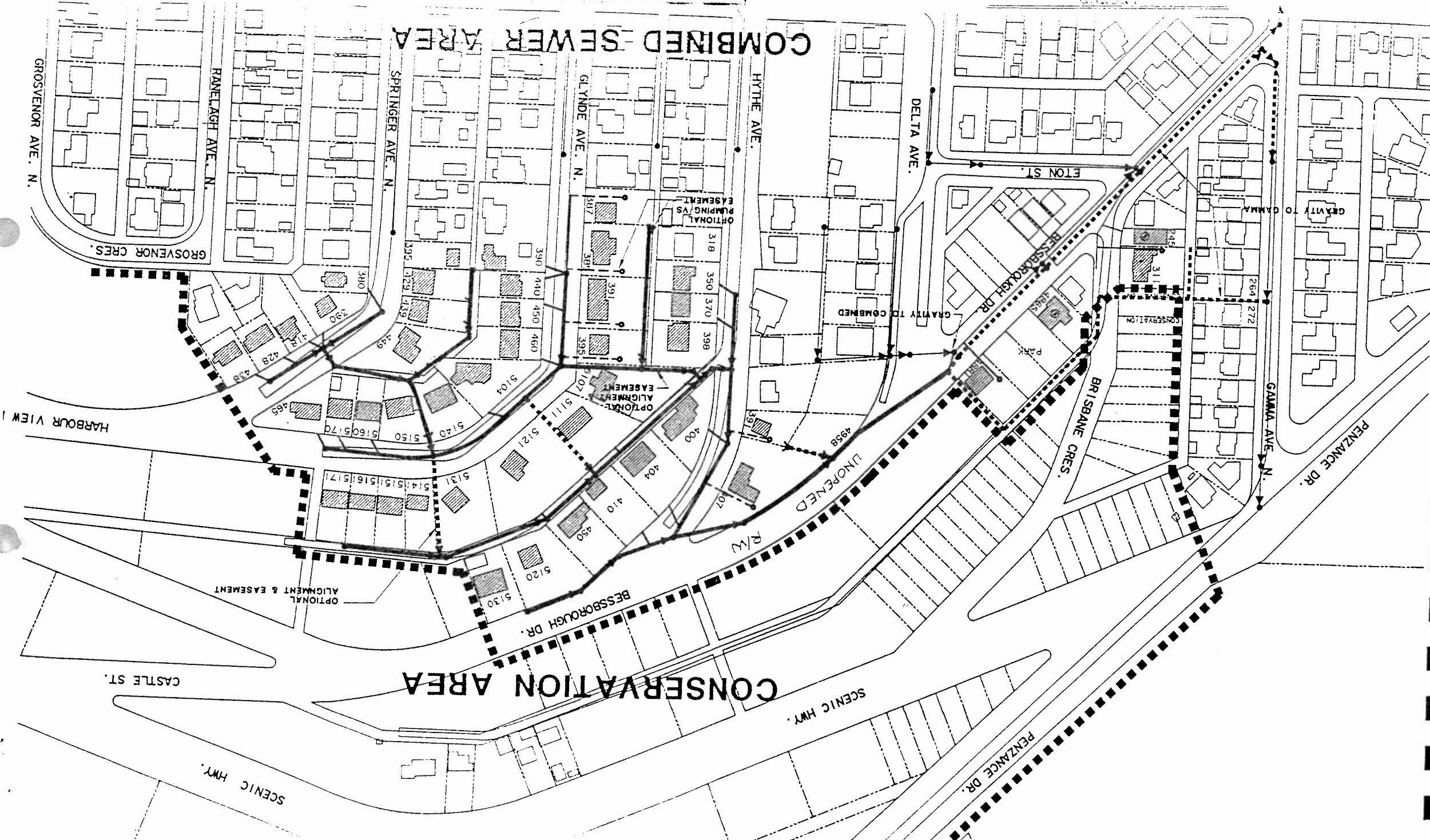
LSC:jb

cc: Director Planning & Building Inspection  
Director Administrative & Community Services  
Acting Chief Public Health Inspector  
Director Recreation & Cultural Services

Legend  
Proposed Sewer Routes  
Existing Sewer Routes

# COMBINED SEWER AREA

# CONSERVATION AREA



CELESTIAL DESIGN

PROPOSED SEWER ALIGNMENT SUBJECT TO LOCAL AUTHORITY SEWER SERVICE

OPTIONAL ALIGNMENT & EASEMENT

SCENIC HWY.

SCENIC HWY.

CASTLE ST.

HARBOUR VIEW I

GROSVENOR CRES.

GROSVENOR AVE. N.

RAMELAGH AVE. N.

SPRINGER AVE. N.

GLYNDE AVE. N.

HYTHE AVE.

DELTA AVE.

ETON ST.

GRAVITY TO GAMMA

GAMMA AVE. N.

PENZANCE DR.

BR/SBANE CRES.

BESSBOROUGH DR.

UNOPENED RW

BESSBOROUGH DR.

OPTIONAL ALIGNMENT & EASEMENT

OPTIONAL PUMPING STATION

GRAVITY TO COMBINED

PARK

CONSERVATION

