

FINAL REPORT

THE CORPORATION OF THE
CITY OF WINDSOR



TECUMSEH ROAD WEST SUBWAY STRUCTURES AT WELLINGTON AVENUE ENVIRONMENTAL STUDY REPORT



DILLON
Consulting Engineers • Planners
Environmental Scientists

EXECUTIVE SUMMARY

E1 INTRODUCTION

The Tecumseh Road West Subway Structures at Wellington Avenue Environmental Study Report (ESR), was prepared to address the problems of the substandard vertical clearance and road width under the subway, flooding of the subway basin, and the inefficiency of the northerly intersection of Tecumseh Road West and Crawford Avenue.

This project has been undertaken in accordance with the Municipal Engineers Association, Class Environmental Assessment for Municipal Road Projects, June, 1993. The five phase Class Environmental Assessment (Class EA) process was undertaken in two components. The Tecumseh Road West Master Plan satisfies Phases 1 and 2 of the process, and identifies the preferred system solution for addressing problems in the Tecumseh Road West Corridor. This report satisfies Phases 3 and 4 of the process.

The Tecumseh Road West Master Plan identifies as the preferred system solution: improvements along the existing Tecumseh Road West alignment including increasing the clearance and road width under the subway structures at Wellington Avenue; improving the geometrics of the two intersections of Tecumseh Road West and Crawford Avenue; and, construction of a grade separation (a subway) on Tecumseh Road West, east of Crawford Avenue.

E2 PURPOSE OF A CLASS ENVIRONMENTAL ASSESSMENT

Though previous studies have identified the need for improvements in the Tecumseh Road West Corridor, the improvements require approval under the Environmental Assessment Act (EAA).

Improvements within the Tecumseh Road West Corridor are required to address traffic safety concerns as well as to increase roadway traffic efficiency. The need for improvements in the Corridor were first identified in the Windsor Area Transportation Study, completed in 1963, and have been supported by numerous subsequent studies.

Before municipal road improvements such as grade separations can be undertaken, approval is required under the EAA. The Minister of the Environment and Energy has approved the "Class Environmental Assessment for Municipal Road Projects" (Class EA) as the process by which municipalities can obtain EAA approval for improvements such as those required to address the problems identified in the Tecumseh Road West corridor.

The Tecumseh Road West Subway Structures at Wellington Avenue ESR documents the process of identifying and evaluating alternative system solutions and design alternatives, taking into account potential environmental impacts and public and agency input.

E3 NEED FOR IMPROVEMENT OF TECUMSEH ROAD WEST SUBWAY STRUCTURES AT WELLINGTON AVENUE

Existing problems at the subway location include: substandard vertical clearance; a two lane road width that is inefficient, as four lanes approach the subway from both the east and west; and, flooding of the subway basin during rainfall events.

In addition to the problems at the subway location, the Class EA for Tecumseh Road West Subway Structures at Wellington Avenue, identifies the preferred design for improving the geometrics of the northerly intersection of Tecumseh Road West and Crawford Avenue.

E4 PUBLIC CONSULTATION WAS USED TO DEVELOP THE TECUMSEH ROAD WEST SUBWAY STRUCTURES AT WELLINGTON AVENUE ESR

Input received from the public, agencies and government offices has been an important and integral part of the environmental assessment planning process.

The public consultation process allowed for the exchange of information, views and ideas between the public/agencies and the project team. At each step in the study process, the study findings were presented for review and comment. This allowed the project team to identify key issues, obtain input on the information presented, and to respond to specific concerns.

Points of Contact

1. **Public Information Centre:** Held on February 21, 1995. The format was an open house from 4:00 p.m. to 8:00 p.m., at the Moose Lodge, 777 Tecumseh Road West. The purpose of this information centre was to present the identified alternative design solutions and to obtain public comment on them. Notice of the Public Information Centre was advertised on two separate occasions in the Windsor Star, and was also hand delivered to homes and businesses in the Study Area.
2. **Ongoing Consultation:** Meetings with concerned groups, agencies, individuals, and the project team were held upon request. In many instances, specific project issues were discussed.

E5 DESCRIPTION OF THE PREFERRED DESIGN

The preferred design for the Tecumseh Road West Subway Structure at Wellington Avenue comprises the following:

- increase the vertical clearance under the subway structures from 3.75 m (12'-4") to 4.65 m (15'-3") which is in accordance with established geometric criteria for Ontario roads;
- increase the road width under the subway structures to accommodate four lanes of traffic; two in each direction;
- construct a new gravity storm sewer at the subway location which will convey stormwater along the railway right-of-way, outletting to the Detroit River;
- maintain four lanes of traffic on Tecumseh Road West within the Study Area, and improve the geometrics of the northerly intersection of Tecumseh Road West and Crawford Avenue;

- remove direct access to Tecumseh Road West from Wellington/Elm/Oak Avenues; and,
- remove direct access to Tecumseh Road West from South Cameron Boulevard, and construct a connecting road from South Cameron Boulevard easterly to Curry Avenue which has direct access to Tecumseh Road West.

A plan showing the aforementioned design elements, except the storm sewer, is included as Figure 19 located at the rear of this report.

Concerns and Issues

Throughout the study process, the public and agencies were invited to provide comments regarding the project at any time. At the information centres, attendees were given opportunities for input and were requested to submit comments in writing on comment sheets provided.

As can be expected, not all concerned parties were totally satisfied with the selected preferred design. However, through on-going consultation and negotiation between these parties and the City, we are confident that solutions can be found.

Filing the ESR

If approved by City Council, this ESR will be filed in the public record (for a minimum of 30 days). The public will be notified of the project's completion by means of a Notice to be published in the Windsor Star, by Notices that will be hand delivered in the Study Area, and by Notices mailed to agencies.

If concerns regarding this project cannot be resolved in the 30 day period, a person may request that the Minister of the Environment and Energy "bump-up" this project to an individual Environmental Assessment.

TABLE OF CONTENTS

	<u>Page No.</u>
1.0 INTRODUCTION	1
1.1 Background	2
1.2 Problem Statement	3
1.3 Study Purpose	4
1.4 Study Area	4
2.0 STUDY PROCESS	5
2.1 The Environmental Assessment Process	5
2.1 The Environmental Assessment Process	5
2.1.1 Approval Requirements	5
2.1.2 Changing the Project Status - "Bump-Up" Request	6
2.2 The Class Environmental Assessment Process	7
2.3 Environmental Study Report (ESR)	10
2.4 Context for the Evaluation	11
2.4.1 Factor Groups and Factors	11
2.4.2 Indicators	11
2.4.3 Data Collection and Factor Analysis	12
2.5 Study Organization	13
2.6 Public Consultation	13
2.6.1 Purpose and Objective of Pre-Submission Consultation	13
2.6.2 Summary of Public Consultation Activities	14
2.6.3 Concerns and Issues	17
2.7 Filing the ESR	17
3.0 THE ENVIRONMENT	18
3.1 Natural Environment	18
3.2 Social Environment	18
3.2.1 Recreation	19
3.2.2 Public Transit	20
3.3 Economic Environment	20
3.3.1 Railway Operations	20
3.3.2 Industrial Establishments	21
3.3.3 Commercial Establishments	21
3.4 Traffic and Engineering Conditions	23

**TABLE OF CONTENTS
(Continued)**

	<u>Page No.</u>
4.0 IDENTIFICATION AND EVALUATION OF ALTERNATIVE DESIGN CONCEPTS	24
4.1 Alternative Designs Evaluation Factors	24
4.2 The Recommended Design for Tecumseh Road West Subway Structures at Wellington Avenue	26
4.2.1 Alternative Designs for Stormwater Management at the Subway Structures near Wellington Avenue	27
4.2.1.1 Stormwater Quality Considerations	28
4.2.1.2 Alternative Design Evaluation Factors for Stormwater Management	29
4.2.1.3 Assessment and Evaluation of Alternative Designs for Stormwater Management at the Subway Structures at Wellington Avenue	30
4.2.1.4 The Recommended Design for Stormwater Management at the Subway Structures near Wellington Avenue	33
4.3 Alternative designs for access to Tecumseh Road West from Wellington/Elm/Oak Avenues	33
4.3.1 Assessment and Evaluation of Alternative Designs for Tecumseh Road West Access from Wellington/Elm/Oak Avenues	34
4.3.2 The Recommended Design for Tecumseh Road West Access from Wellington/Elm/Oak Avenues	36
4.4 Alternative Designs for Access to Tecumseh Road West from South Cameron Boulevard	36
4.4.1 Assessment and Evaluation of Alternative Designs for Tecumseh Road West Access from South Cameron Boulevard	39
4.4.2 The Recommended Design for Tecumseh Road West Access from South Cameron Boulevard	39

**TABLE OF CONTENTS
(Continued)**

	<u>Page No.</u>
4.5 Public and Agency Input	41
4.5.1 Public Input	41
4.5.2 Agency Input	46
5.0 THE SELECTED PREFERRED DESIGN	47
5.1 The Preferred Design for Tecumseh Road West Subway Structures at Wellington Avenue	47
5.2 The Preferred Design for Stormwater Management at the Subway Structures near Wellington Avenue	48
5.3 The Preferred Design for Tecumseh Road West Access from Wellington/Elm/Oak Avenues	49
5.4 The Preferred Design for Tecumseh Road West Access from South Cameron Boulevard	50
5.5 Property Acquisition	51
5.6 Cost Sharing	51
6.0 MONITORING AND MITIGATION	53
6.1 Monitoring	53
6.2 Mitigation	54

APPENDICES

"A" PUBLIC/AGENCY NOTIFICATION

- Agency List
- Newspaper Notices - Public Information Centre No. 2
- Hand Delivered Notices - Public Information Centre No. 2
- Mailed Notice - Public Information Centre No. 2

**"B" COMPLETED SIGN-IN SHEETS AND COMMENT
SHEETS - PUBLIC INFORMATION CENTRE NO. 2**

LIST OF FIGURES

		Following Page No.
Figure 1	Tecumseh Road West Corridor Master Plan Preferred Solution	2
Figure 2	Problem Location Map	3
Figure 3	Study Area Map	4
Figure 4	Class EA Process Chart	7
Figure 5	City Parks Map	19
Figure 6	Business Location Map	21
Figure 7	Truck Routes Map	23
Figure 8	Stormwater Management - Alternative No. 1	28
Figure 9	Stormwater Management - Alternative No. 2	28
Figure 10	Stormwater Management - Alternative No. 3	28
Figure 11	Tecumseh Road West Access from Wellington/Elm/Oak Avenues - Alternative No. 1	33
Figure 12	Tecumseh Road West Access from Wellington/Elm/Oak Avenues - Alternative No. 2	34
Figure 13	Tecumseh Road West Access from Wellington/Elm/Oak Avenues - Alternative No. 3	34
Figure 14	Tecumseh Road West Access from South Cameron Blvd. - Alternative No. 1	37
Figure 15	Tecumseh Road West Access from South Cameron Blvd. - Alternative No. 2	37
Figure 16	Tecumseh Road West Access from South Cameron Blvd. - Alternative No. 3	38
Figure 17	Tecumseh Road West Access from South Cameron Blvd. - Alternative No. 4	38
Figure 18	Tecumseh Road West Access from South Cameron Blvd. - Alternative No. 1A	38
Figure 19	Tecumseh Road West Subway Structures at Wellington Avenue - Selected Preferred Design	In Sleeve at Rear
Figure 20	Property Acquisition Plan	In Sleeve at Rear

LIST OF TABLES

	<u>Page No.</u>
Table 1	Stormwater Management - Evaluation of Alternative Designs 32
Table 2	Tecumseh Road West Access from Wellington/Elm/Oak Avenues - Evaluation of Alternative Designs 35
Table 3	Tecumseh Road West Access from South Cameron Blvd. - Evaluation of Alternative Designs 40

1.0 INTRODUCTION

On September 19, 1994, the City of Windsor Council adopted Resolution 1136/94 authorizing the continuation of an Environmental Assessment Study for the Tecumseh Road West Corridor. The Council action is a continuation of previous studies undertaken in the corridor to address problems identified therein. Resulting from the Council Resolution, the Tecumseh Road West Corridor Master Plan was prepared to address problems identified along Tecumseh Road West from Janette Avenue West to Curry Avenue/Everts Avenue.

The Environmental Study Report for the Tecumseh Road West Subway Structures at Wellington Avenue, includes the Tecumseh Road West Corridor Master Plan, which fulfils Phases 1 and 2 of the 5 phase Class Environmental Assessment (Class EA) process. The Master Plan is to be referenced for information pertaining to Phases 1 and 2 of the Class EA process which are:

Phase 1 - Problem Identification

Phase 2 - Identification and Evaluation of Alternative Solutions

This component of the Environmental Study Report (ESR) fulfils the requirements of Phases 3 & 4 of the Class EA process for the Tecumseh Road West Subway Structures at Wellington Avenue, which are:

Phase 3 - Identification and Evaluation of Alternative Designs

Phase 4 - Completion of an Environmental Study Report

*Tecumseh Road West
Subway Structures at Wellington Avenue
Environmental Study Report*

Subject to City Council approval of this ESR, and the lapsing of a thirty day public review period, barring any bump-up requests, Phase 5 of the Class EA process may be initiated. Phase 5 is described as follows:

Phase 5 - Completion of Contract Drawings, proceed to construction, and monitoring the project for environmental provisions and commitments.

This report together with the Tecumseh Road West Corridor Master Plan comprise the Environmental Study Report for Tecumseh Road West Subway Structures at Wellington Avenue.

1.1 Background

As noted in the previous section, the Tecumseh Road West Corridor Master Plan fulfils Phases 1 and 2 of the 5 phase Class EA process. Resulting from the evaluation of alternative solutions, and public and agency input, a preferred solution was identified in the Master Plan.

The preferred solution, according to the Master Plan, is to provide grade separations (subways) at the three railway crossing locations on Tecumseh Road West and realignment of the connecting length of existing Crawford Avenue, refer to Figure 1.

Due to the size and scope of work required to implement the preferred solution, as identified in the Master Plan, multiple projects are envisioned. The first project is the Tecumseh Road West Subway Structures at Wellington Avenue which is the subject of this ESR.

INCREASE THE HEIGHT AND ROAD WIDTH UNDER THE GRADE SEPARATION



IMPROVE ROADWAY GEOMETRICS

PROVIDE A GRADE SEPARATION

PROJ. NO. 92-8966-03



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**TECUMSEH ROAD WEST CORRIDOR
MASTER PLAN**

PREFERRED SYSTEM

FIGURE 1

1.2 Problem Statement

This Environmental Study Report addresses Problem 1 and part of Problem 2 as identified in the Tecumseh Road West Corridor Master Plan which are:

- Problem 1) The substandard subways under the railway crossings near Wellington Avenue. The two existing subways permit two lanes of traffic only and have substandard headroom clearance necessitating the relocation of commercial truck traffic to adjacent major designated roads. The subway has experienced flooding during rain events.
- Problem 2) The two intersections of Tecumseh Road West and Crawford Avenue are inefficient for the volume of traffic using them. The sharp bend on the southerly intersection is particularly inefficient and hazardous.

This ESR addresses only the northerly intersection of Tecumseh Road West and Crawford Avenue due to its proximity to the Subway Structures on Tecumseh Road West at Wellington Avenue.

The locations of these problems as they relate to the Tecumseh Road West Subway Structures at Wellington Avenue ESR are shown on Figure 2.

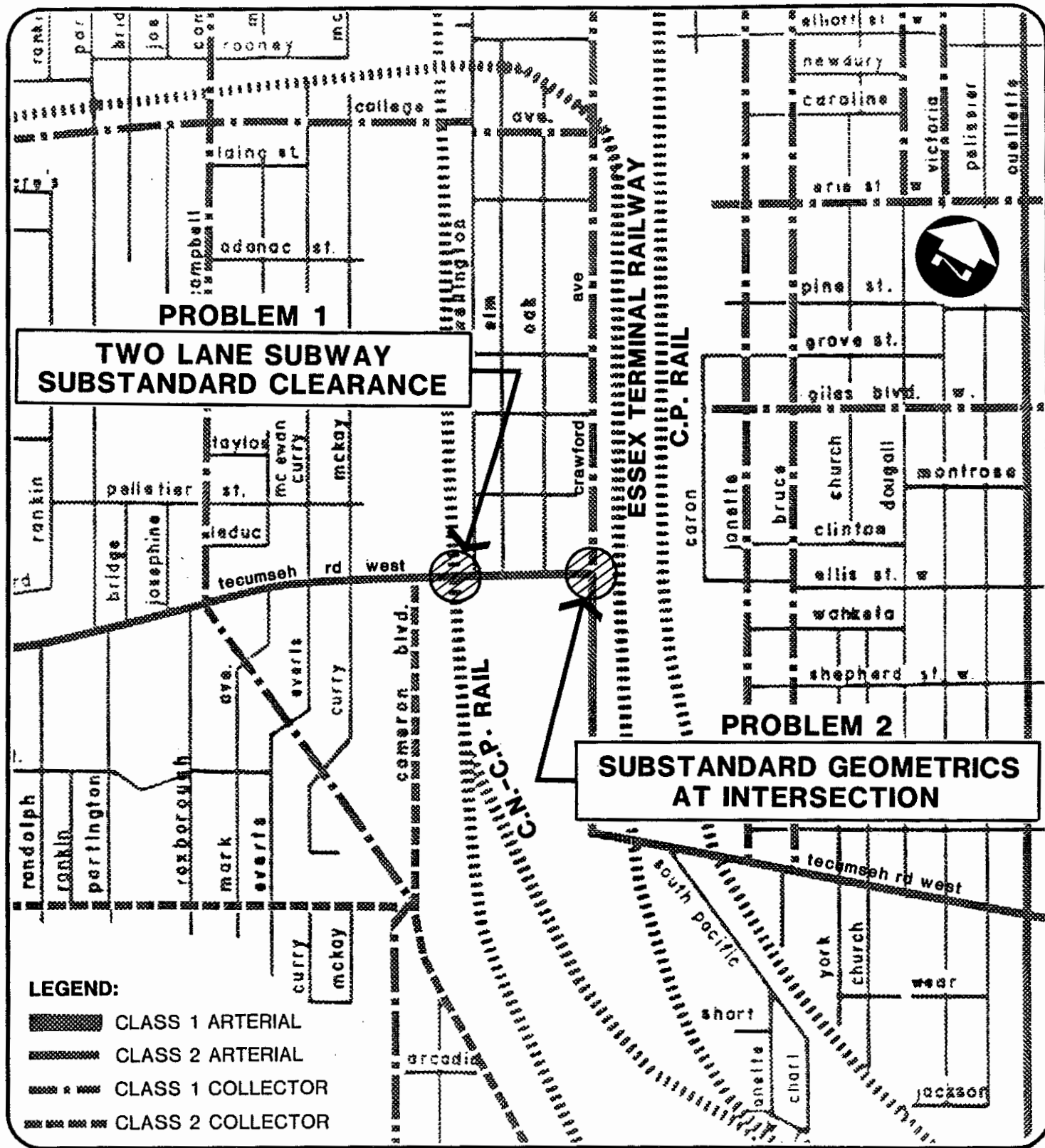
In addition to the above noted problems, additional problems arise from the alternative design solutions to these problems. In particular are the unsafe intersections with Tecumseh Road West in proximity to the Subway structures, namely Wellington/Elm/Oak Avenues and South Cameron Boulevard. Alternative designs to address these problems are part of this ESR.



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**TECUMSEH ROAD WEST
SUBWAY STRUCTURES
AT WELLINGTON AVENUE
ENVIRONMENTAL STUDY REPORT**

**PROBLEM LOCATION MAP
FIGURE 2**

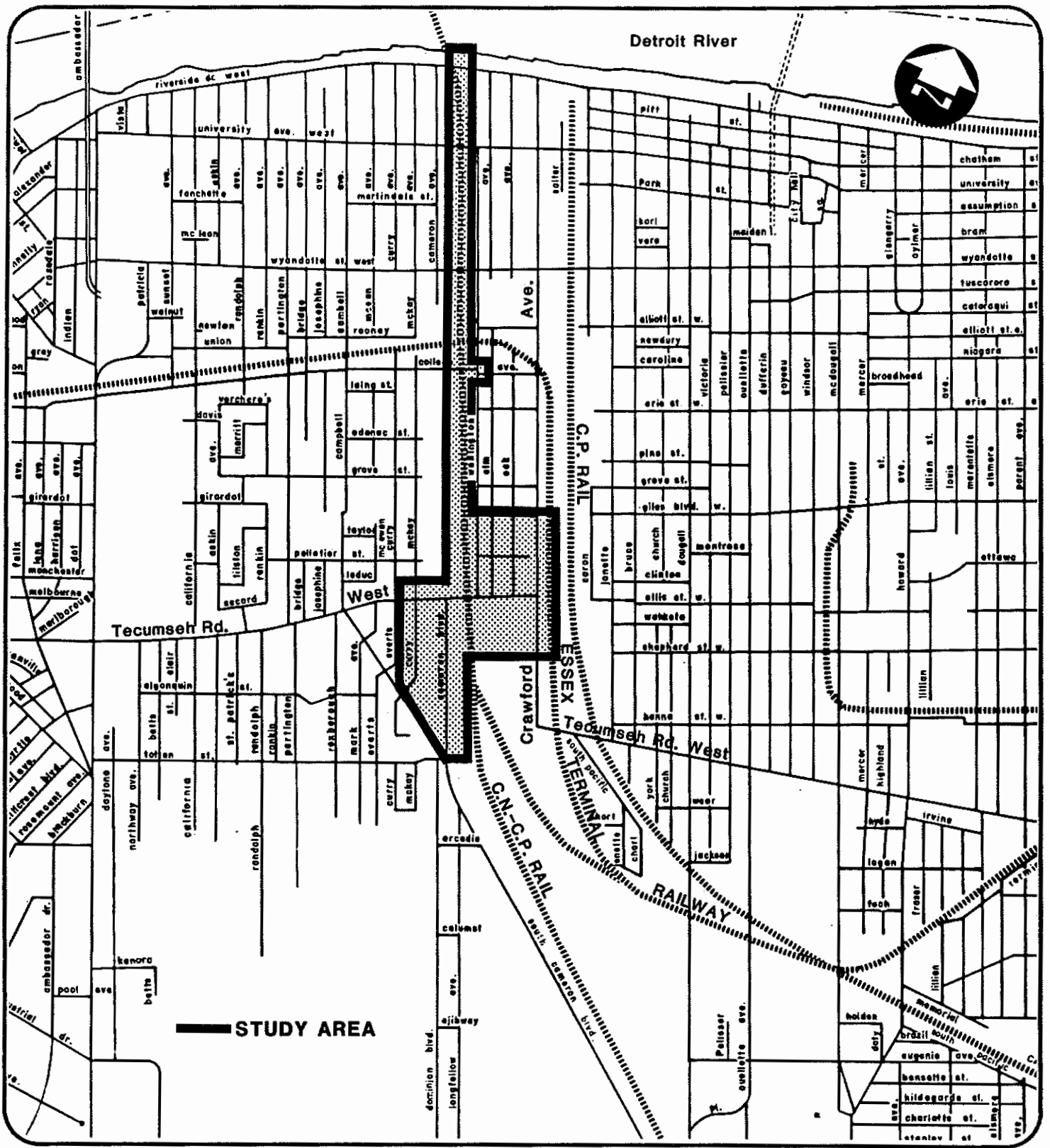


1.3 Study Purpose

The purpose of this study is to identify and evaluate alternative design concepts for the problems noted in the previous Subsection, resulting in the selection of a preferred design.

1.4 Study Area

The Study Area for the Environmental Study Report for Tecumseh Road West Subway Structures at Wellington Avenue is as shown on Figure 3. The Study Area includes the railway right-of-way west of Wellington Avenue which extends to the Detroit River. This provides an outlet for stormwater that collects in the subway basin near Wellington Avenue. The Study Area extends southerly to Totten Street as an alternative design for the intersection of South Cameron Boulevard and Tecumseh Road West impacts this area.



Proj. no. 92-0906-03



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**TECUMSEH ROAD WEST
 SUBWAY STRUCTURES
 AT WELLINGTON AVENUE
 ENVIRONMENTAL STUDY REPORT
 STUDY AREA MAP
 FIGURE 3**

2.0 STUDY PROCESS

This chapter documents the study process for the Environmental Assessment of Tecumseh Road West Subway Structures at Wellington Avenue. It outlines the environmental assessment process, the principles and context for the evaluation, the study organization and the public and agency consultation program.

2.1 The Environmental Assessment Process

An environmental assessment study has been carried out by the City of Windsor for improvements to Tecumseh Road West Subway Structures at Wellington Avenue, and associated road work. This section describes the approval process and requirements to proceed with such a project. The study process, findings and recommendations have been documented in this report, which is called the Environmental Study Report (ESR). Section 2.3 describes the organization of this report.

2.1.1 Approval Requirements

The Tecumseh Road West Subway Structures at Wellington Avenue Environmental Assessment was carried out according to the approved process of the *Class Environmental Assessment For Municipal Road Projects* (Class EA) (1993). Before a project can proceed, the Class EA requires that an ESR be prepared for the project and upon completion that the ESR is to be filed for public review for a period of no less than thirty days.

The Class EA describes a planning process which was approved by the Minister of the Environment in April 1987. In approving the Class EA, the Minister of the Environment has declared that any municipal road project which is planned in accordance with Class EA process is automatically approved under the *Environmental Assessment Act* (EAA) (RS0, 1980) provided there are no "bump-up" requests.

The Class EA divides types of projects into "Schedules" according to their anticipated impact. The Class EA describes Schedule "A" projects as "...limited in scale, have minimal adverse effects and include the majority of municipal road maintenance activities." Schedule "A" activities are approved and require no environmental assessment.

Schedule "B" projects have the potential for some adverse impacts and some review of these projects is required. The proponent must contact agencies and the directly affected public to determine if there is any opposition to the project. If there is no opposition the project may proceed.

Schedule "C" projects have the potential for more significant impacts. These projects include road widenings, new interchanges, new roads, grade separations and other major works. They are required to follow the full five-phase planning process, detailed in the Class EA, including documenting the results in an ESR.

The Tecumseh Road West Subway Structures at Wellington Avenue project falls under Schedule "C" of the Class EA process. The study for this project has followed the required five-phase planning process, including the preparation of this ESR.

2.1.2 Changing the Project Status - "Bump-Up" Request

The Class EA planning process contains a provision which allows for changing the status of a project from a Class EA to an individual environmental assessment. This is called a "Bump-Up" request. Members of the public, interest groups and government agencies may request that an individual environmental assessment be prepared for a specific project if they feel their concerns have not been addressed through the Class EA planning process. The Minister of the Environment and Energy determines whether or not this is necessary. The Minister's decision in this regard is final. If the "bump-up" is granted, the project cannot proceed unless an individual environmental assessment is prepared and approved. The individual environmental assessment is subject to a formal government review and approval and may require a formal public hearing. The time to make a

"bump-up" request is up to the end of the minimum thirty day review period following the filing of the ESR in the public record. If anyone wishes to make a "bump-up" request of the Tecumseh Road West Subway Structures at Wellington Avenue Class Environmental Assessment Study, they must submit a written request to the Minister of the Environment and Energy at the following address:

**The Honourable C.J. (Bud) Wildman
Minister of the Environment and Energy
135 St. Clair Avenue West
15th Floor
Toronto, Ontario
M4V 1P5**

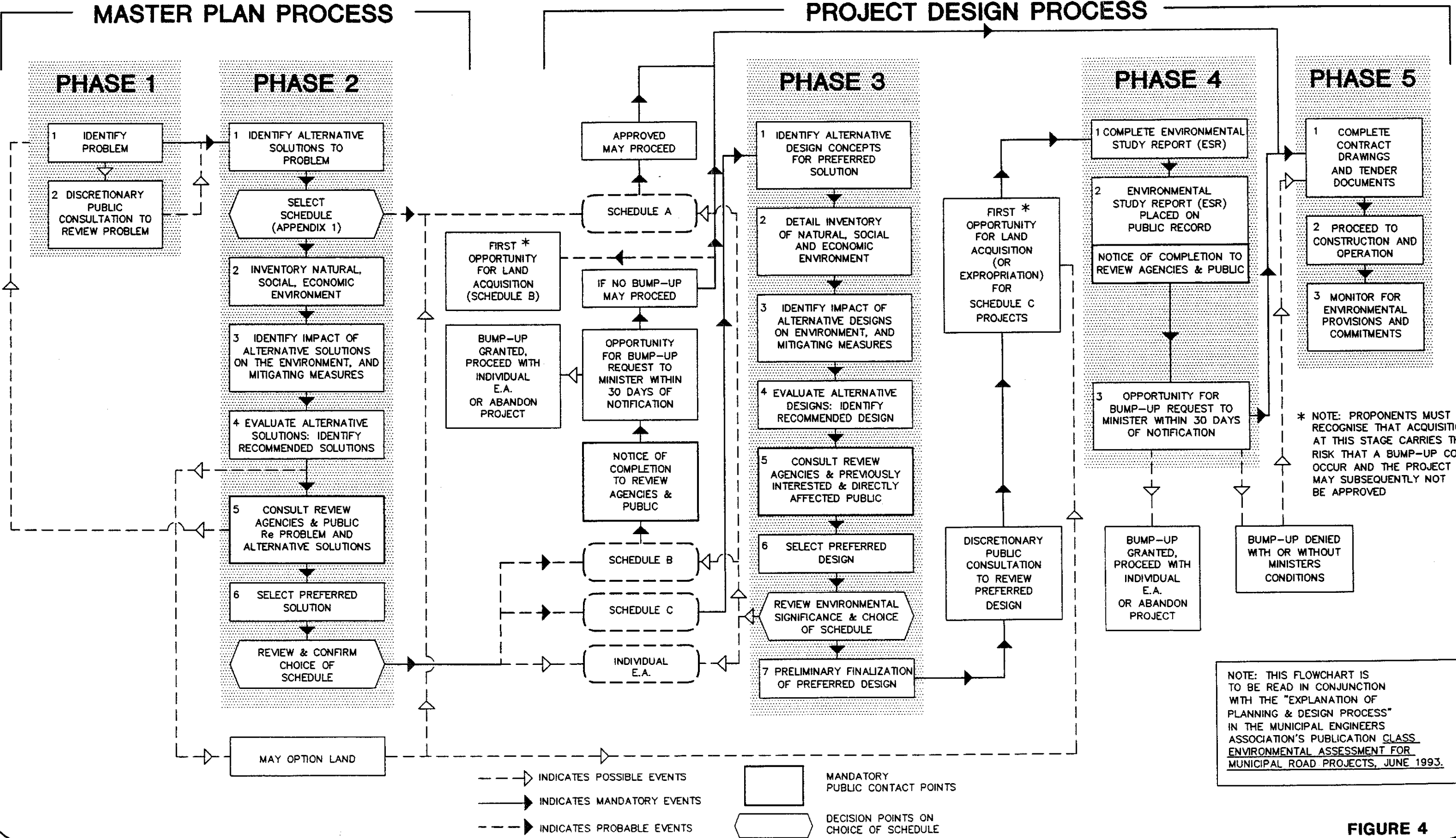
2.2 The Class Environmental Assessment Process

The Tecumseh Road West Subway Structures at Wellington Avenue Environmental Assessment was carried out in accordance with the approved *Class Environmental Assessment for Municipal Road Projects* (1993). It was therefore also conducted in accordance with the spirit and intent of the EAA. The Tecumseh Road West Subway Structures at Wellington Avenue Environmental Assessment falls under Schedule "C" of the Class EA and followed the required five-phase planning process as illustrated on Figure 4. The study included the following activities:

Phase 1: Identify and Describe the Problem

- collect and review background data and previous reports;
- document and assess existing and projected traffic demands in the study area; and

MASTER PLAN AND DESIGN PROCESS FOR THE TECUMSEH ROAD WEST CORRIDOR



Proj. No. 92-8986-03

NOTE: THIS FLOWCHART IS TO BE READ IN CONJUNCTION WITH THE "EXPLANATION OF PLANNING & DESIGN PROCESS" IN THE MUNICIPAL ENGINEERS ASSOCIATION'S PUBLICATION CLASS ENVIRONMENTAL ASSESSMENT FOR MUNICIPAL ROAD PROJECTS, JUNE 1993.

FIGURE 4

- document the factors which lead to the conclusion that improvements are required, including a clear statement of the problems.

Phase 2: Development and Evaluation of Alternative Solutions

- identify, document and inventory the natural, social and economic environment within the study area;
- identify the alternative solutions to the problem;
- identify and evaluate the positive and negative impacts of the alternative solutions;
- conduct a Public Information Centre regarding the alternative solutions; and
- select the preferred solution for solving the problems taking into consideration input from the public and utilizing an evaluation process which incorporates natural, social, economic and transportation issues.

Phase 3: Identification and Evaluation of Alternative Design Concepts

- identify the alternative design concepts for the preferred solution;
- identify and document a detailed inventory of the natural, social and economic environment as they relate to the evaluation of the alternative design concepts;
- identify and evaluate the positive and negative impacts of the alternative design concepts;

*Tecumseh Road West
Subway Structures at Wellington Avenue
Environmental Study Report*

- conduct a Public Information Centre regarding the alternative design concepts;
- select the preferred alternative design concept, taking into consideration input from the public and utilizing an evaluation process which incorporates natural, social economic and transportation issues; and
- finalize preliminary design plans for the preferred design concept.

Phase 4: Prepare and File ESR With Municipal Clerk

- document the study process, findings, evaluations and decisions in an ESR;
- file the ESR with the municipal clerk and place on the public record for review.

The filing of the ESR will conclude the planning and preliminary design stages of the project. The ESR will be filed with the City of Windsor Clerk and will be available for review by the public for a minimum of thirty (30) days. If no significant outstanding concerns are brought forward during the minimum thirty (30) day review period, the City of Windsor may proceed with the construction of the project.

Phase 5: Construction, Operation and Monitoring

Phase 5 of this process is the construction of the facility and will be undertaken when all of the necessary approvals have been received. This phase includes, completion of the contract drawings and tender documents, constructing and operating the facility, monitoring of the environmental impacts, and commitments to eliminate or minimize negative impacts.

2.3 Environmental Study Report (ESR)

The ESR documents the five-phase planning process followed in preparing the Tecumseh Road West Subway Structures at Wellington Avenue Environmental Assessment. It includes documentation of the information gathered, decisions made, and trade-offs made during the planning phases of the project. Each of the following main elements is documented in the ESR:

- the introduction, background, and purpose of the study;
- the study process;
- the alternative solutions to the problem;
- the existing and future natural, social and economic environmental conditions in the study area;
- the alternative design concepts considered;
- the recommended preliminary design of the project, the construction requirements and mitigating measures associated with implementing the project;
- the results of the public consultation process; and
- commitments to further work.

2.4 Context for the Evaluation

The context for the evaluations set out in this ESR were structured around factor groups which cover the range of disciplines required to assess all reasonable aspects of the environment. To measure the effects of each factor group, factors were identified. To measure the specific effects of each factor, indicators were identified. Factor groups, factors and indicators are each described in more detail as they relate to the context for the evaluations undertaken.

2.4.1 Factor Groups and Factors

Factors are used to measure the effects of factor groups. Factors were grouped into broad categories or subject areas that define the full scope of the environment found in the Environmental Assessment Act (EAA).

The determination of the factor groups and factors used in the evaluation process was an important step since these were the considerations which were used in selecting the recommended alternatives. The list of factors used throughout this study are documented in the chapters that describe each of the evaluations.

2.4.2 Indicators

Indicators are specific measures of effects for each factor. They are ways of identifying, describing and measuring impacts, costs and level of service. The indicators for each factor are different for each of the decision points of evaluations in the study. The selection of indicators for each evaluation was based on the following decision rule:

- indicators used for the comparative evaluation of alternative design concepts (of the preferred system solution) should relate to federal, provincial or municipal

legislation or policy, but more importantly should be based on more detailed information and field verification, if possible. They should also reflect technical considerations.

2.4.3 Data Collection and Factor Analysis

At each decision point, data collection, data analysis, references and sources of information were clearly outlined. The uncertainty and limitations associated with data were noted and how they were addressed were identified.

The final determination of the selection of factor groups, factors and indicators occurred after they were finalized for each decision point. Once the data had been collected and assessed, input was obtained from the study team, the public and agencies. The following considerations were used in determining the importance of the factors and indicators:

- potential for effect;
- severity of effect;
- public policy;
- local and regional significance;
- frequency
- certainty of prediction of effect;
- potential for mitigation; and
- public and agency comments.

2.5 Study Organization

The City of Windsor is the study proponent and retained the firm of M.M. Dillon Limited to assist in undertaking the environmental assessment. The day-to-day study activities were undertaken by the Project Team which included staff from the City of Windsor and M.M. Dillon Limited.

The study was conducted with input from the following groups:

- The Project Team which carried out the study;
- City of Windsor Departments;
- Federal Departments, Provincial Ministries, agencies and authorities, and community associations; and
- Interest groups and the general public.

2.6 Public Consultation

2.6.1 Purpose and Objective of Pre-Submission Consultation

Public awareness and feedback during the Class EA process is an integral part of a successful study. Concerns expressed, as well as information received from the public and various ministries, agencies and authorities were invaluable during the analysis and evaluation phase of this study. The input received broadened the information base and facilitated the decision-making process.

An objective for the Tecumseh Road West Subway Structures at Wellington Avenue Environmental Assessment was to provide an interactive and open approach to the planning process. This would allow the public and government agencies to become more familiar with the details of the proposed undertaking and to participate in decision-making. In addition, the purpose was to provide the City of Windsor with the opportunity to gather information concerning public and government agency perspectives, goals, attitudes, values, concerns and potential impacts.

Responding to concerns early in the planning process can assist in the scoping of the impacts to be assessed and also help reduce confrontation which could delay the process. In addition, consultation can enhance the overall quality of the environmental assessment through the integration of the collective knowledge, experience, values and judgement of the potentially affected public.

2.6.2 Summary of Public Consultation Activities

The consultation program purpose and objectives were pursued through a series of activities which first concentrated on the Tecumseh Road West Corridor Master Plan and subsequently focused on the Tecumseh Road West Subway Structures at Wellington Avenue. The activities that have contributed to the public and agency consultation are documented in the sections that follow. The results of the public and agency consultation program are documented in Subsection 4.5 of this report.

Formal contacts with the public have been made during the study described in this ESR:

1. Notice of Invitation for Public and Agency Comment

A Notice of Invitation for Public and Agency comment regarding the problems identified in the Tecumseh Road West Corridor was published in the Windsor Star newspaper on October 1, 1994. The notice included a description of the problems, a study area map, information regarding the Master Plan process, and contacts for further information. Also,

similar notices were issued by mail to potentially affected agencies. Copies of the notices and responses received are included in the appendices of the Tecumseh Road West Corridor Master Plan report.

2. Public Information Centre/Meeting No. 1

The first Public Information Centre/Meeting was held on Tuesday, December 6, 1994, at the Moose Lodge, 777 Tecumseh Road West. The open house session was held from 3:00 p.m. to 9:00 p.m.. Fifty-eight people registered at this information centre.

The purpose of the first Public Information Centre was to obtain comments from the public on the study findings presented. To help with these comments information was provided to:

- describe the Class Environmental Assessment process;
- describe the nature of the problems and the need to carry out improvements;
- identify possible alternative solutions to the problems;
- present the evaluation of the alternative solutions and identify the recommended solution.

Newspaper advertisements were published in the Windsor Star on three separate occasions prior to Public Information Centre No. 1. Copies of the advertisements are included in the appendices of the Tecumseh Road West Corridor Master Plan.

Sign-in sheets and comment forms were available at the information centre. An example of each is provided in the appendices of the Tecumseh Road West Corridor Master Plan.

3. Public Information Centre/Meeting No. 2

Public Information Centre No. 2 was held on Tuesday February 21, 1995 at the Moose Lodge, 777 Tecumseh Road West. The Information Centre session was held from 4:00 p.m. to 8:00 p.m. Eighty-three people registered at this information centre.

The purpose of the second Public Information Centre was to obtain comments from the public on the alternative designs presented. To help with these comments, information was provided to:

- describe the Class Environmental Assessment process;
- summarize the results of the first Public Information Centre;
- identify alternative designs for the Tecumseh Road West Subway Structures at Wellington Avenue improvements.
- present the evaluation of the alternative designs and recommended designs for the Tecumseh Road West Subway Structures at Wellington Avenue.

Notices of this Public Information Centre were hand delivered to all homes and businesses in the study area approximately one week prior to the information centre. In addition, notices were mailed to potentially affected agencies, and persons who had requested being placed on the project mailing list at Public Information Centre No. 1.

Newspaper advertisements of the Public Information Centre were published in the Windsor Star on two separate occasions, February 11 and 18, 1995, prior to the information centre.

Copies of the above noted notices and a list of persons and agencies receiving them are included in Appendix "A" of this report.

Sign-in sheets and comment forms were available at the information centre. Completed copies of these are provided in Appendix "B" to this report.

2.6.3 Concerns and Issues

Throughout the study process, the public and agencies were invited to provide comments regarding the project at any time. At the information centres, attendees were given an opportunity to ask questions regarding the project. Also, all those in attendance at the information centres were asked to fill out a comment form expressing any concerns or comments regarding the project. A summary of comments received from the Public Information Centre No. 1 is included in the Tecumseh Road West Corridor Master Plan. A summary of comments received from Public Information Centre No. 2 is included in Subsection 4.5.1 of this report.

2.7 Filing the ESR

If approved by City Council, this ESR will be filed in the public record (for a minimum of 30 days) and the public will be notified by means of newspaper advertisements and individual mailings to interested parties and potentially affected agencies.

3.0 THE ENVIRONMENT

This section outlines the existing natural, social and economic conditions in the Tecumseh Road West Subway at Wellington Avenue study area. This inventory is necessary to select a preferred design for the Tecumseh Road West Subway Structures at Wellington Avenue, and associated roadway improvements. A more general description of these environments, is provided in the Tecumseh Road West Corridor Master Plan study report.

3.1 Natural Environment

There are no identified natural areas or features in the study area which may be affected, or which may affect, the Tecumseh Road West Subway Structures at Wellington Avenue, and associated roadway improvements.

Vegetation along Tecumseh Road West within the study area has been modified by development activities, generally of an industrial nature. The predominant vegetative features in the study area are grassed boulevards, and grass and weed growth on vacant lands.

3.2 Social Environment

The residential neighbourhood north of Tecumseh Road West, west of Crawford Avenue, consists mainly of 1½ storey frame homes. These homes are commonly referred to as war time housing due to their post second world war construction period. Due to the established nature of this residential area, many of the inhabitants are elderly. This is an area of family housing and is predominantly inhabited by families with children. This housing stock is generally in good condition.

The residential neighbourhood south of Tecumseh Road West, west of South Cameron Boulevard contains a mixture of frame and brick homes. The ages and condition of this housing stock varies.

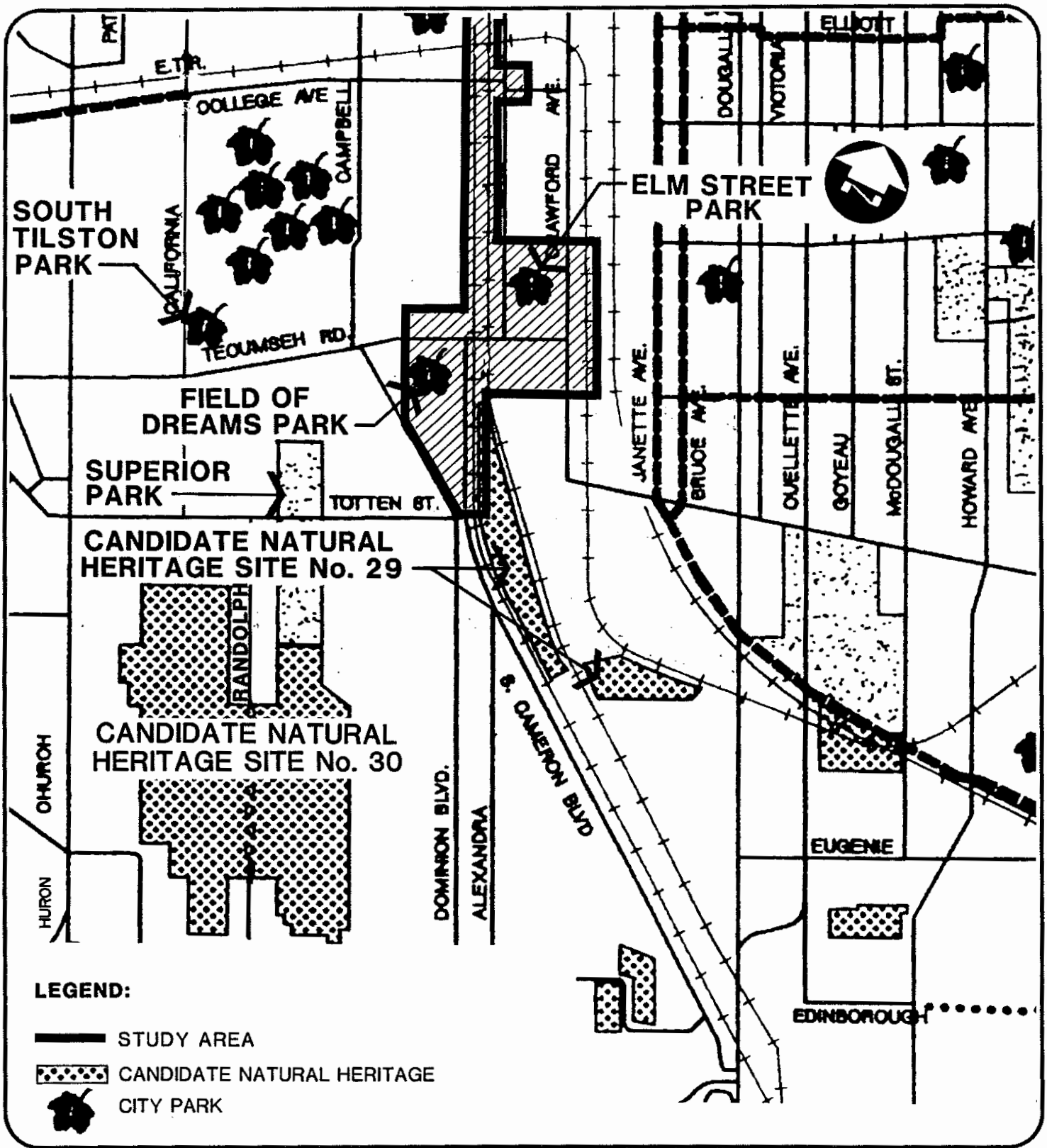
There are split-level and two storey subsidized housing units on both sides of Curry Avenue, south of Tecumseh Road West. The condition of these homes is good. The subsidized homes are in the ownership of the Ontario Housing Corporation and are administered by their agent the Windsor Housing Authority which is a not-for-profit housing organization providing social housing units for primarily economically disadvantaged persons and families.

3.2.1 Recreation

City Parks located in the study area are shown on Figure 5 of this report.

The Elm Street Park is located on Elm Street between Montrose Street and Giles Boulevard. This park has an area of 0.96 acres which was acquired circa. 1985. The neighbourhood park is equipped with a hard surface for basketball, an assortment of playground equipment, a creative play unit, and park benches. The park is the result of a cooperative venture of the Wellington/Crawford Citizens Committee and the Provincial government.

The Field of Dreams Park has an area of approximately 0.3 acres and is located on Curry Avenue south of Tecumseh Road West. This neighbourhood park was developed in 1993 to address a need in the Curry Avenue area. The park was developed as a cooperative venture with the City of Windsor which provided the land, and was funded with donations from City residents and businesses. The park is equipped with a hard surface for basketball, a creative play unit, and park benches.



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 SUBWAY STRUCTURES
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 ENVIRONMENTAL STUDY REPORT

CITY PARKS MAP
FIGURE 5

3.2.2 Public Transit

Public transit (bus service) in the Study Area is provided by Transit Windsor. The Central 3 bus route runs along Wellington Avenue and on Tecumseh Road West, west of Wellington Avenue. This bus route provides a public transportation link for the area to downtown connecting routes, as well as Windsor Western Hospital to the west and travels easterly as far as Pillette Road.

According to schedule information provided by Transit Windsor, buses run along this route daily at varying intervals ranging from every 20 minutes during weekdays to every 60 minutes on Saturdays and Sundays.

3.3 Economic Environment

The economic environment of the study area for the Tecumseh West Subway Structures at Wellington Avenue and associated road improvements consists of three components:

- 1) Railway Operations
- 2) Industrial establishments
- 3) Commercial establishments

3.3.1 Railway Operations

There are two existing bridge structures over the Tecumseh Road West Subway at Wellington Avenue. Each structure contains two sets of railway tracks. According to information provided by the Canadian National Railway Company (CN) these railway tracks are part of their current operations. These Tecumseh Road West railway crossings provide access to the Windsor - Detroit train tunnel from the CN Van de Water railway yard which is located south of Tecumseh Road West.

According to the City's municipal tax assessment roll these railway properties vest in the Canada Southern Railway Co. The lands are managed by the CN/CP Property Manager.

3.3.2 Industrial Establishments

The predominant land use in the Tecumseh Road West Subway Structures at Wellington Avenue study area is industrial. The area's industrial establishments are primarily located east of the subway structures at Wellington Avenue.

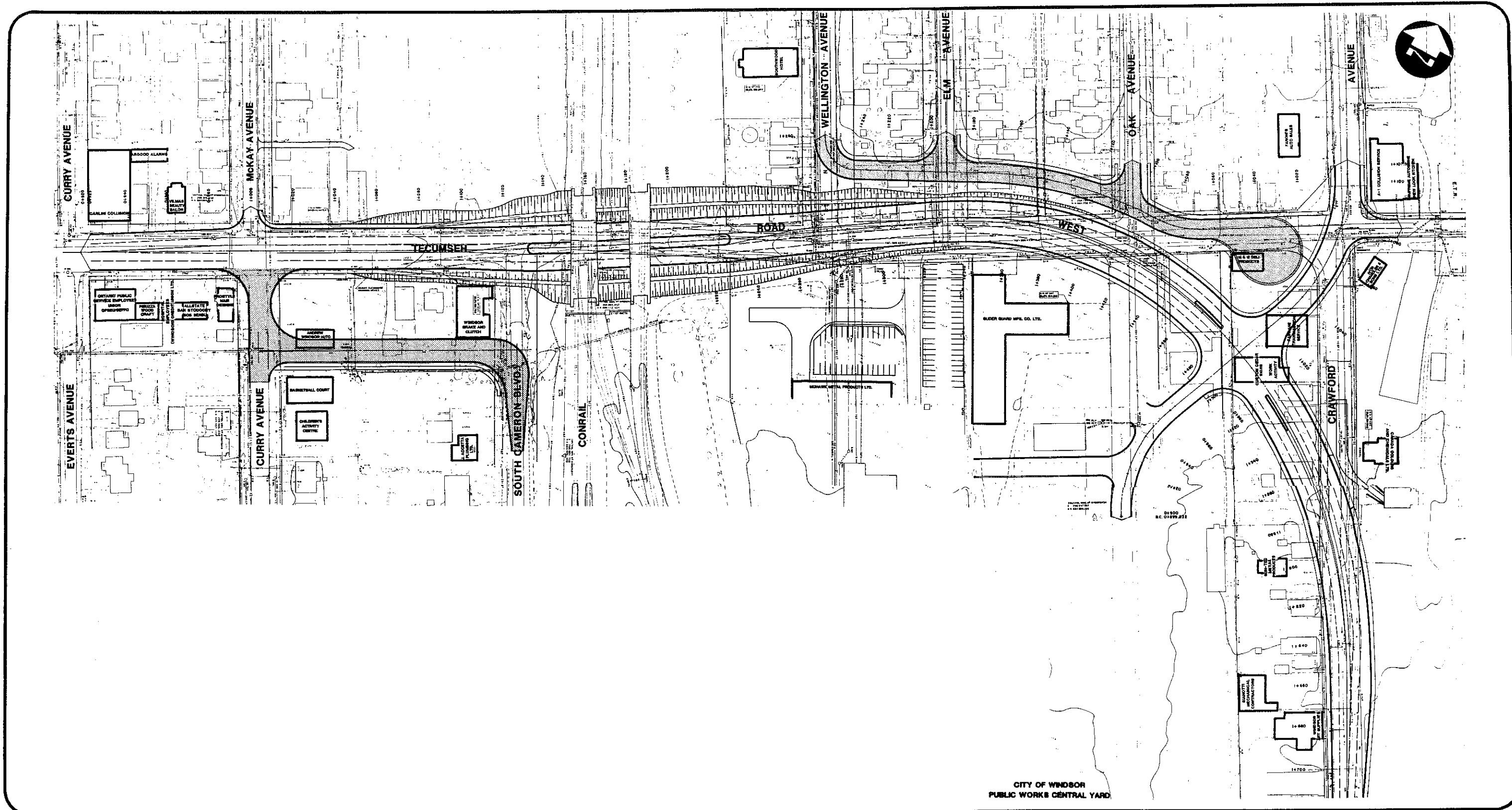
Area Industrial establishments include:

- Mohawk Metal Products Limited
- Chandler Warehousing
- Canada Colours and Chemicals Ltd.
- Sun-Tec Metal Products
- Giannotti Mechanical Contractors
- City of Windsor Public Works Yard

The locations of these industrial establishments is shown on Figure 6 of this report.

3.3.3 Commercial Establishments

The majority of the commercial establishments in the area are located on Tecumseh Road West, west of the subway structures at Wellington Avenue. Commercial establishments located east of the subway structures include retail outlets accessory to light industrial operations. There are also automobile service outlets in the area such as Al Collision,



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AT WELLINGTON AVENUE
ENVIRONMENTAL STUDY REPORT**

BUSINESS LOCATION MAP

FIGURE 6

*Tecumseh Road West
Subway Structures at Wellington Avenue
Environmental Study Report*

Faroni Auto Sales, and Fairlane Transmission Service. The Southwood Hotel is located at 1353 Wellington Avenue, six properties north of Tecumseh Road West, refer to Figure 6.

Commercial establishments located on Tecumseh Road West, west of the subway structures at Wellington Avenue include:

- Carlini Collision Ltd.
- Argood Alarms
- Vilmas Beauty Salon
- Ontario Public Service Employees Union Office
- Piruzza Woodcraft
- Hospital Employees Credit Union Ltd.
- Allstate Insurance Office
- Prostyle Hair Dressing
- Andrew Windsor Auto
- Windsor Brake and Clutch

The locations of these commercial establishments are shown on Figure 6 of this report.

3.4 Traffic and Engineering Conditions

The Tecumseh Road West roadway under the railway structures is two lane asphaltic pavement. The Tecumseh Road West roadway is four lane asphaltic pavement to the east and west of the railway structures. This condition requires that traffic approaching the subway merge to one lane to travel under the railway structures.

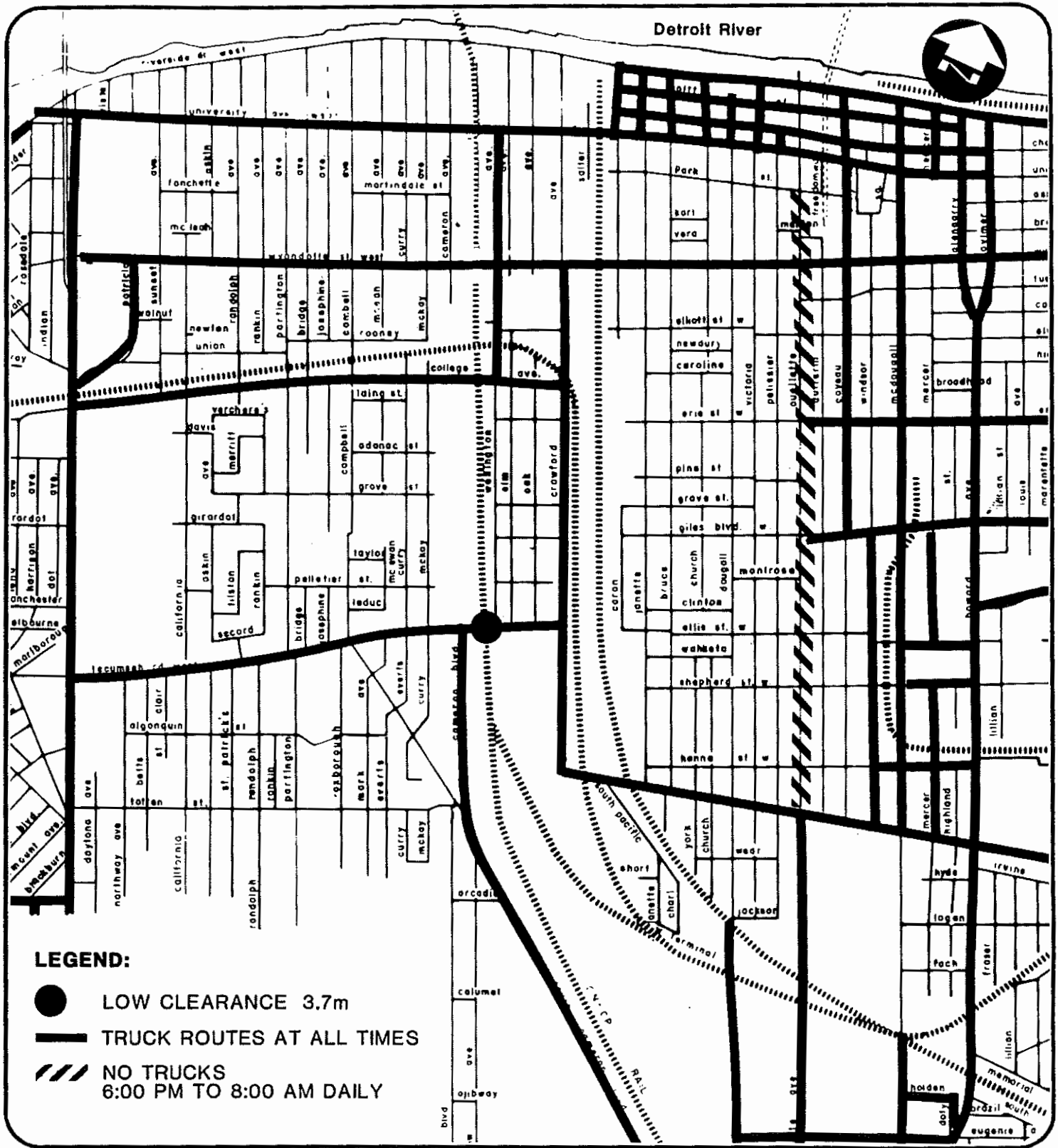
The railway structures crossing Tecumseh Road West at Wellington Avenue are in a deteriorated state. Concrete material has separated from the structures in places and is severely cracked in others.

The existing subway clearance of 3.75 m (12'4") is substandard. This is evinced by the number of trucks which sustained damage as a result of exceeding the height clearance. The Tecumseh Road West Functional Report, November 1980, notes that from 1971 to 1975, 17 trucks hit the subway structures incurring varying amounts of damage. Tecumseh Road West at the location of the subways is a designated truck route. The subway clearance is identified by signage on both sides of the subway and is augmented by flashing amber caution lights.

Average Annual Daily Traffic (AADT) information gathered by the City of Windsor in the month of April, 1993, shows that an average of approximately 15,000 vehicles per day travelled on Tecumseh Road West at the subways location.

Turning movement information gathered by the City of Windsor in June, 1992, shows that of an average 16,683 vehicles that traverse the northerly intersection of Crawford Avenue and Tecumseh Road West, 667 (4.1%) are trucks.

Truck routes in the study area are shown on Figure 7 of this report.



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**TECUMSEH ROAD WEST
 SUBWAY STRUCTURES
 AT WELLINGTON AVENUE
 ENVIRONMENTAL STUDY REPORT**

TRUCK ROUTES MAP

FIGURE 7

4.0 IDENTIFICATION AND EVALUATION OF ALTERNATIVE DESIGN CONCEPTS

To develop a preferred design for improvements to the subway structures on Tecumseh Road West at Wellington Avenue, and associated stormwater management and road works, an evaluation was undertaken considering the following project components:

- Clearance and roadway width under the subway structures at Wellington Avenue;
- Tecumseh Road West access from Wellington Avenue, Elm Avenue, and Oak Avenue;
- Tecumseh Road West access from South Cameron Boulevard; and,
- Stormwater management at the subway structures.

Alternative designs for these project components are identified in this section and are evaluated on the evaluation charts provided. Recommended designs for each project component are identified in this section.

4.1 Alternative Design Evaluation Factors

Alternative design solutions to each of the project components, except the Stormwater Management component which has its own evaluation factors, were evaluated based on the following factor groups:

- Arterial Traffic Service
- Social/Land Use Impacts
- Economic Impacts
- Property Acquisition
- Project Cost

Following is a description of how the evaluation was conducted on the basis of each of the factor groups:

Arterial Traffic Service

- Alternative designs were evaluated with respect to their impact on arterial traffic service in terms of their anticipated impact on the Level of Service and on safety improvement at the problem location.

Social/Land Use Impacts

- Social/land use impacts were evaluated by reviewing how the alternative solutions affect existing and proposed land uses, adjacent neighbourhoods, visual impacts and noise impacts on residential areas. The anticipated noise and visual impacts of the alternative solutions were addressed in a qualitative manner.

Economic Environment Impacts

- Economic impacts include disruption to existing businesses, and potential improvements to the business environment, both locally and regionally, which may result from implementation of the alternative designs. Improvements to the business environment were considered in that some alternatives are viewed as contributing to conditions that would be conducive to an improved business environment.

Property Acquisition

- Property acquisition impacts were evaluated with respect to whether or not private property was required to implement the alternative design solution.

Project Cost

- Evaluation of alternative design solutions in terms of project cost involved the consideration of projected capital cost of construction.

A comparative evaluation of the alternative designs based on the foregoing factor groups is provided for each of the project components, except for stormwater management which has specific factor groups, in Tables 1 and 2.

4.2 The Recommended Design for Tecumseh Road West Subway Structures at Wellington Avenue

The only component of the subway design for which there are alternatives is the method of stormwater management to be employed to address significant flooding problems at the subway basin. The stormwater management design alternatives are addressed in the following Sub-section 4.2.1 of this report.

This subsection addresses the design of the clearance and road width under the subway structures at Wellington Avenue, as well as the road width and number of lanes of Tecumseh Road West within the study area.

As noted previously in this report, the existing subway clearance of 3.75 m (12'-4") is substandard. As this is a matter of public safety, the primary objective of this study in regards to this issue is to determine a subway clearance that is safe.

As noted in the Tecumseh Road West Functional Report, November 1980, a vertical clearance of 4.65 m (15'-3") is in accordance with established geometric criteria for Ontario Roads. This vertical clearance is recommended for the design of the subway

structures. Clearance in excess of that recommended will result in negative impacts associated with a longer vertical curve, (ie., flooding remediation, and increased costs with no apparent benefits) therefore alternative designs other than the recommended design have not been considered.

The existing roadway width under the subway structures accommodates two lanes of traffic, one in each direction. The Tecumseh Road West roadway width on each approach to the subway structures is four lanes, two in each direction.

Tecumseh Road West is classified as a Class II Arterial road according to the Official Plan for the City of Windsor. Class II Arterials are usually four lane roadways having the primary function to provide for high volumes of traffic for longer distance intra-city travel at moderate speeds.

As noted in the Tecumseh Road West Functional Report, November 1980, the recommended solution for the roadway width under the subway structures is four lanes with a central median for the central piers of the new structures. The new structures will also accommodate pedestrian sidewalks, one on each side of the subway structures.

As significant future increases in traffic volumes are not anticipated at the location of the subway structures, the recommended design for the roadway width is to accommodate four lanes, a central median, and two pedestrian sidewalks.

4.2.1 Alternative Designs for Stormwater Management at the Subway Structures near Wellington Avenue

Reconstruction and other improvements at the subway location provide an excellent opportunity to address the flooding problems which have posed a safety hazard during and subsequent to rain events. The selected preferred design should accommodate the 50-year design flow arriving at the subway.

Stormwater management at the subway location has been the subject of previous studies. One of the most recent studies is the Tecumseh Road West/Wellington Street Subways Reconstruction, Stormwater Drainage Report, M.M. Dillon Limited, June 1986. As part of that study, hydrologic analysis were undertaken to determine the design flows arriving at the subway basin from the upstream watershed. Stormwater management alternative designs presented herein have been derived from the previously noted study.

The following three stormwater management alternative designs have been identified for evaluation:

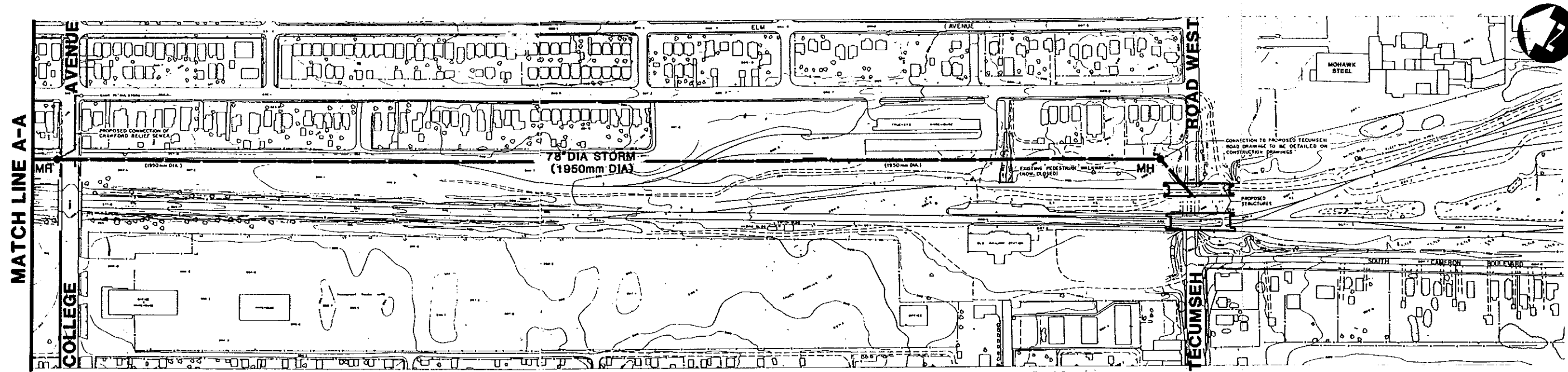
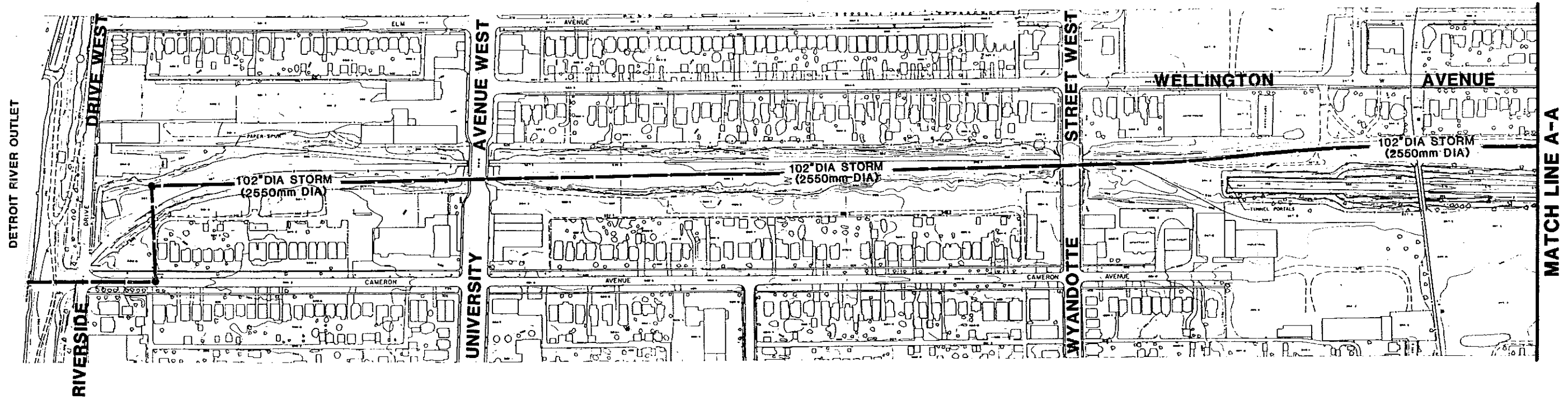
- Alternative No. 1** - A gravity sewer extending from the subway location northerly along the railway right-of-way outletting to the Detroit River, refer to Figure 8.

- Alternative No. 2** - The use of detention ponds and pumping stations with controlled outlet to existing sewers on Wellington Avenue and Campbell Avenue, refer to Figure 9.

- Alternative No. 3** - The use of detention ponds with controlled outlet to a new gravity sewer located along the railway right-of-way outletting to the Detroit River, refer to Figure 10.

4.2.1.1 Stormwater Quality Considerations

Concern regarding the quality of stormwater runoff discharged to receiving water bodies and the resulting impact on aquatic resources has increased in Ontario in recent years. Roadway drainage has traditionally been accommodated using curb and gutters and storm sewers in urban areas and open ditches in rural areas. In the past, the main objective of stormwater management was to control the quantity of stormwater runoff. Quantity control of stormwater runoff has historically been accomplished using detention ponds. Runoff from the catchment area is directed to a detention pond for temporary storage to



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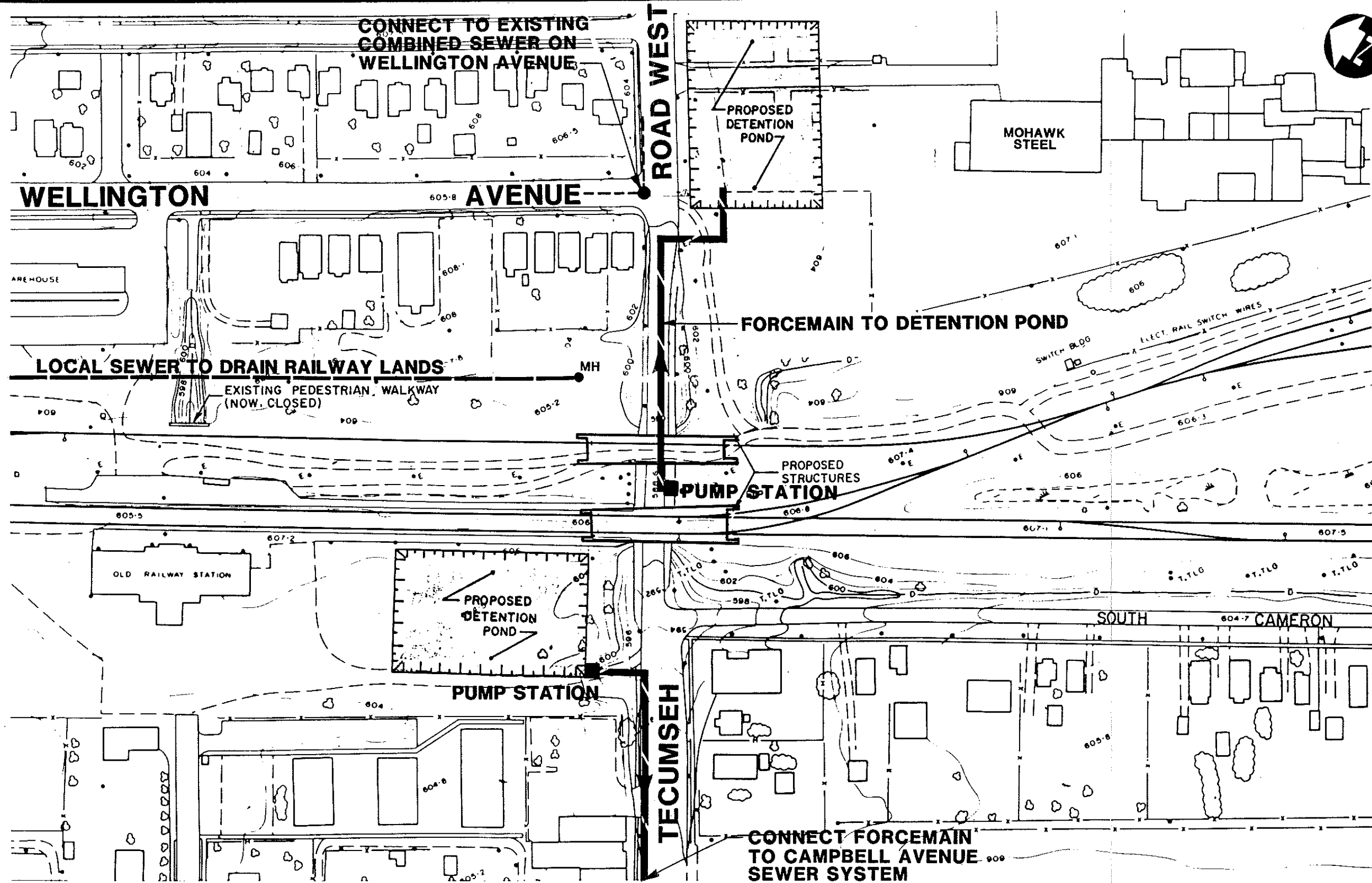


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**TECUMSEH ROAD WEST
SUBWAY STRUCTURES
AT WELLINGTON AVENUE
ENVIRONMENTAL STUDY REPORT
STORMWATER MANAGEMENT
ALTERNATIVE 1
FIGURE 8**



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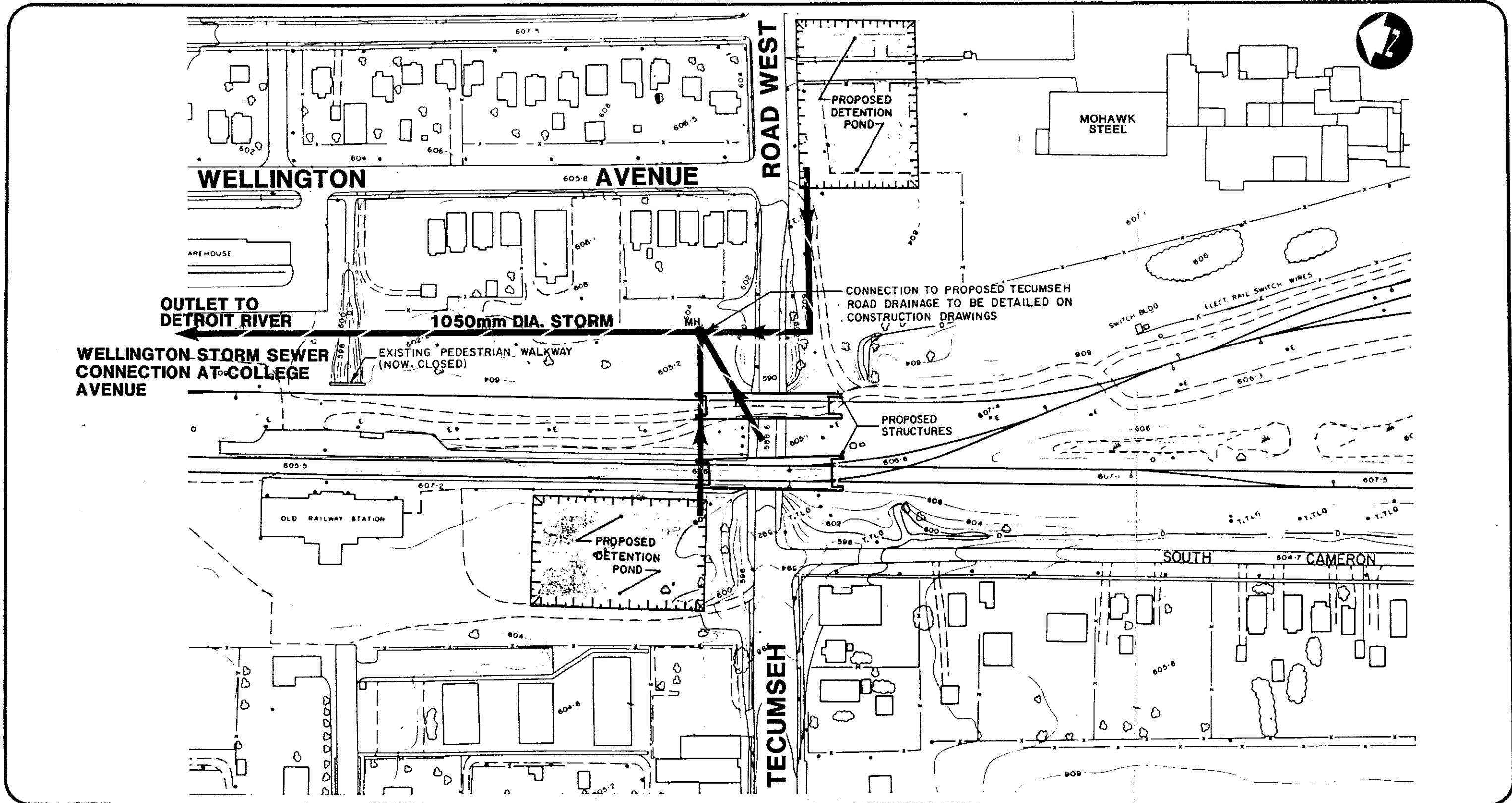


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TECUMSEH ROAD WEST
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ENVIRONMENTAL STUDY REPORT
**STORMWATER MANAGEMENT
ALTERNATIVE 2
FIGURE 9**



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TECUMSEH ROAD WEST
SUBWAY STRUCTURES
AT WELLINGTON AVENUE
ENVIRONMENTAL STUDY REPORT
**STORMWATER MANAGEMENT
ALTERNATIVE 3**
FIGURE 10

reduce the peak storm runoff rate. The stored water is gradually released in a few hours back to the receiving watercourse.

Recognizing that the quality of stormwater runoff is an important component of effective stormwater management, this issue will factor into the evaluation of the alternative designs. However, it should be noted that the majority of the subway catchment area consists of railway lands which drain by the use of open ditches and swales that can have a positive effect on the quality of stormwater that reaches the subway basin.

4.2.1.2 Alternative Design Evaluation Factors for Stormwater Management

Alternative design solutions for stormwater management at the subway basin were evaluated based on the following factor groups:

- Stormwater management effectiveness
- Natural Environmental Impacts
- Social Environment Impacts
- Economic Environment Impacts
- Project Cost

Following is a description of how the evaluation was conducted on the basis of each of the factor groups:

Stormwater Management Effectiveness

- The effectiveness of the alternative designs were evaluated in their ability to address the flooding problem at the subway basin, and other areas enroute to outlet at the Detroit River.

Natural Environmental Impacts

- Natural environmental impacts were evaluated in terms of the outlet to the Detroit River and the receiving rate of the outlet.

Social Environmental Impacts

- Social environmental impacts were evaluated by reviewing the effects that the design would have on residential areas between the basin and the outlet at the Detroit River.

Economic Environmental Impacts

- Economic environmental impacts were evaluated with regard to the effect on existing businesses, and on the effect on long term operational costs which would be incurred by the City of Windsor.

Project Cost

- Project cost evaluation is based on estimated capital cost of construction. The capital costs include works necessary to accommodate other storm systems enroute to the Detroit River for comparison purposes.

4.2.1.3 Assessment and Evaluation of Alternative Designs for Stormwater Management at the Subway Structures at Wellington Avenue

Alternative No. 1

The gravity sewer design extending from the subway location along the railway right-of-way can effectively provide drainage to the subway basin, as well as intercept other sewers along the route to the Detroit River.

Alternative No. 2

Alternative Design No. 2 consists of two detention ponds, two pumping stations and controlled flow to the existing Wellington and Campbell Avenue sewers. Runoff stored in the west pond is pumped to the Campbell Avenue sewer at Tecumseh Road. Runoff stored in the east pond drains by gravity to the Wellington Avenue sewer. An additional pumping station is required to lift the flow from the Underpass drainage area which is below the detention pond floors and convey it to the east pond.

Alternative No. 3

Alternative Design No. 3 consists of two detention ponds and controlled flow to a new gravity outlet sewer constructed in the railway right-of-way from Tecumseh Road to the Detroit River. The storm runoff from the Wellington Avenue trunk sewer would be introduced to this sewer at College Avenue and the downstream sewer sized for the combined flows.

Alternative Designs 2 and 3 would require the following:

- extensive Underpass flow diversions (catchbasins, curb inlets, ditch inlets, grating, etc.) to intercept and direct overland flow to the detention ponds, directing runoff away from the subway.
- installation of storm sewers sized to convey the 50-year design flow to the detention ponds from the flow diversions.

These storm sewers would generally be required along Tecumseh Road from Crawford Avenue to the east pond and from Everts/Curry to the west pond. A storm sewer would also be necessary to convey runoff intercepted by ditch inlets located at the railway culverts south of the subway to the ponds.

An evaluation of the three alternative designs, in terms of their stormwater management effectiveness, and effects on social and economic environments, and cost is provided in Table 1.

ALTERNATIVE DESIGNS	1. GRAVITY SEWER ALONG RAILWAY RIGHT-OF-WAY OUTLETTING TO THE DETROIT RIVER	2. DETENTION PONDS AND PUMPING STATIONS TO EXISTING SEWERS ON WELLINGTON AVENUE AND CAMPBELL AVENUE	3. GRAVITY SEWER AND DETENTION PONDS OUTLETTING TO THE DETROIT RIVER.
FACTOR GROUPS/ FACTORS			
Stormwater Management • Effectiveness	<ul style="list-style-type: none"> Can effectively handle the 50 year design storm at the subway, the 50 year design storm in the railway right-of-way and the 5 year design storm from the Wellington-Crawford area storm relief sewers. 	<ul style="list-style-type: none"> Can effectively handle the 50 year design storm at the subway. Does not provide additional drainage capacity to the railway right-of-way north of Tecumseh Road West or the Wellington Crawford area storm relief sewer. 	<ul style="list-style-type: none"> Can effectively handle the 50 year design storm at the subway, the 50 year design storm in the railway right-of-way and the 5 year design storm from the Wellington-Crawford area storm relief sewers.
Natural Environment Impacts • Effect on Detroit River receiving outlet	<ul style="list-style-type: none"> Maintains outlet to Detroit River as per the existing condition. Peak flow will be higher and duration shorter than for existing condition. 	<ul style="list-style-type: none"> Directs flow to different outlets than that for the existing condition. Flow from the subway system will now influence other existing drainage systems. 	<ul style="list-style-type: none"> Maintains outlet to Detroit River as per the existing condition. Peak flow will be lower and duration longer than for Alternative 1.
Social Environment Impacts • Effect on drainage area basement flooding	<ul style="list-style-type: none"> Provides an outlet for the Wellington - Crawford area storm relief sewer thus improving that system. 	<ul style="list-style-type: none"> Minimal affect on existing area sewers as flows can be introduced gradually. Does not improve the Wellington-Crawford area storm relief sewer. 	<ul style="list-style-type: none"> Provides an outlet for the Wellington - Crawford area storm relief sewer thus improving that system.
Economic Environment Impacts • Effect on existing businesses • Effects on long term operational costs.	<ul style="list-style-type: none"> Has a positive impact on area businesses as the need to close the Wellington Avenue Subway resulting from flooding is removed. Will improve drainage of the railway right-of-way. 	<ul style="list-style-type: none"> Has a positive impact on area businesses as the need to close the Wellington Avenue Subway resulting from flooding is removed. Additional cost for property acquisition and maintenance of the detention ponds and pumping stations. 	<ul style="list-style-type: none"> Has a positive impact on area businesses as the need to close the Wellington Avenue Subway resulting from flooding is removed. Additional cost for property acquisition and maintenance of the detention ponds. Will improve drainage of the railway right-of-way.
Project Cost • Capital cost	<ul style="list-style-type: none"> \$4,700,000 (includes cost of oversizing to accommodate Wellington/Crawford storm relief system for comparison purposes) 	<ul style="list-style-type: none"> \$5,255,000 (includes cost of separate outlet for Wellington-Crawford storm relief system for comparison purposes). 	<ul style="list-style-type: none"> \$4,850,000 (includes cost of oversizing to accommodate Wellington/Crawford storm relief system for comparison purposes)
SUMMARY	<ul style="list-style-type: none"> Provides for cost effective solution to the Tecumseh Road West flooding problem and provides outlet for the Wellington-Crawford storm relief system. This is the Recommended Alternative Design. 	<ul style="list-style-type: none"> When combined with the cost of constructing a separate outlet for the Wellington-Crawford storm relief system, this option is the most expensive. Long term maintenance and operating costs. 	<ul style="list-style-type: none"> Slightly more expensive solution to the Tecumseh Road West flooding problem. Long-term maintenance and operating costs.

TABLE 1
TECUMSEH ROAD WEST SUBWAY STRUCTURES
AT WELLINGTON AVENUE
CLASS ENVIRONMENTAL ASSESSMENT
STORMWATER MANAGEMENT
EVALUATION OF ALTERNATIVE DESIGNS



4.2.1.4 The Recommended Design for Stormwater Management at the Subway Structures near Wellington Avenue

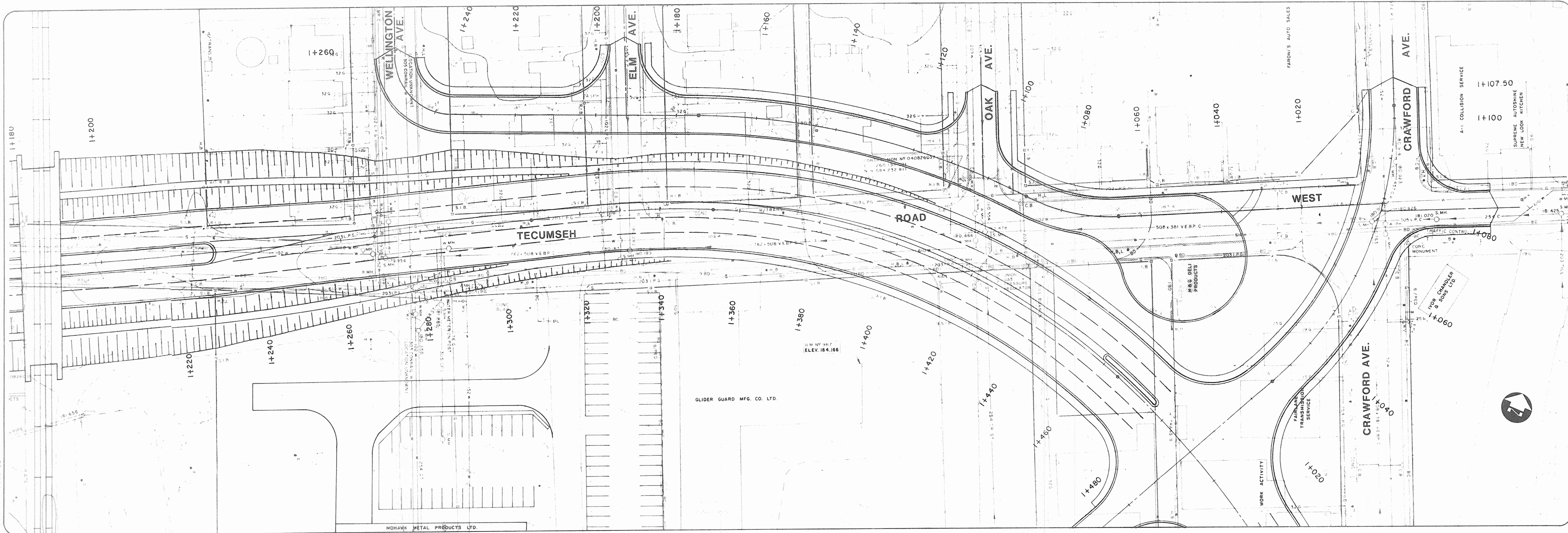
The recommended design for stormwater management at the subway near Wellington Avenue is Alternative Design No. 1. This alternative design is recommended as it provides a cost effective solution to the flooding problem, without the need for property acquisition or pumps which add initial capital costs and long term maintenance costs.

4.3 Alternative Designs for access to Tecumseh Road West from Wellington/Elm/Oak Avenues

Currently Wellington Avenue, Elm Avenue, and Oak Avenue all intersect with the northerly limit of Tecumseh Road West. The volume of traffic on Tecumseh Road West at these "T" intersections, and the proximity of these intersections to each other make for difficult turning movements at these locations. Access onto Tecumseh Road West from Wellington Avenue is especially difficult as this intersection is located partially on the decent of the Tecumseh Road West subway to the west. The distance between Wellington Avenue and Elm Avenue is approximately 120 feet, accommodating a single tier of lots between the two streets.

To provide for safe, efficient traffic movements on Tecumseh Road West at the three intersections, three alternative Design Concepts have been identified for evaluation as follows:

Alternative No. 1 - Remove direct access to Tecumseh Road West from the three streets, connecting the streets with a service road north of the realigned Tecumseh Road West and terminating the service road in a cul-de-sac east of Oak Avenue, refer to Figure 11. This alternative requires that traffic from the residential neighbourhood north of Tecumseh Road West and west of Crawford Avenue, access Tecumseh Road West via Crawford Avenue using Giles Boulevard West as the area's outlet.



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SCALE: 1:500

TECUMSEH ROAD WEST
SUBWAY STRUCTURES
AT WELLINGTON AVENUE
ENVIRONMENTAL STUDY REPORT

**WELLINGTON/ELM/OAK ACCESS
ALTERNATIVE 1**

FIGURE 11

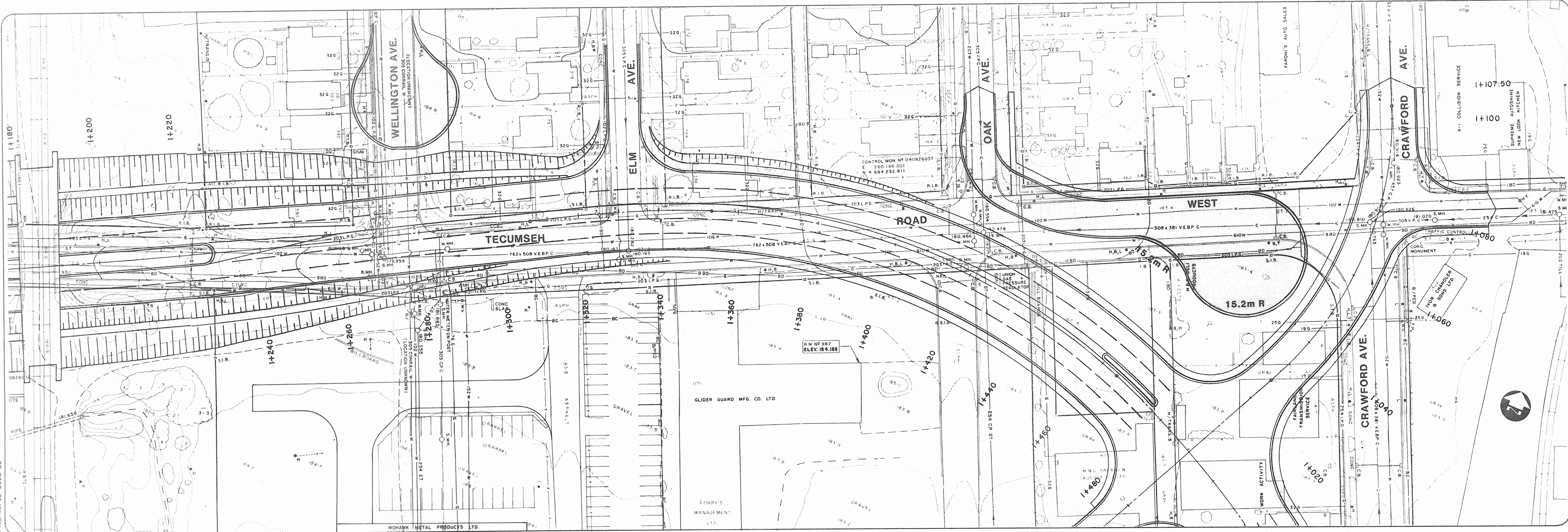
Alternative No. 2 - Remove direct access to Tecumseh Road West from the three streets, connecting the streets with a service road north of the realigned Tecumseh Road West, and intersecting the service road with Crawford Avenue, refer to Figure 12.

Alternative No. 3 - Terminating Wellington Avenue and Oak Avenue with cul-de-sacs north of Tecumseh Road West. The cul-de-sac on Oak Avenue would be extended easterly to provide frontage for existing properties on the north side of Tecumseh Road between Oak Avenue and Crawford Avenue. Elm Avenue continues to have direct access onto Tecumseh Road West refer to Figure 13. This alternative requires that traffic on Wellington Avenue and Oak Avenue access Tecumseh Road West from Elm Avenue using Montrose Street.

4.3.1 Assessment and Evaluation of Alternative Designs for Tecumseh Road West Access from Wellington/Elm/Oak Avenues

Although the alternative designs for Tecumseh Road West access from Wellington/Elm/Oak Avenues are intended to positively affect the arterial road function of Tecumseh Road West, there are impacts predicted for the residential neighbourhood, and the Southwood Hotel located on Wellington Avenue, north of Tecumseh Road West. The predicted impacts are primarily to that portion of the residential neighbourhood south of Giles Boulevard.

An evaluation of the three alternative designs, in terms of their effects on arterial traffic service, social and economic environments, property acquisition, and cost, is provided in Table 2.



TECUMSEH ROAD WEST
SUBWAY STRUCTURES
AT WELLINGTON AVENUE
ENVIRONMENTAL STUDY REPORT

**WELLINGTON/ELM/OAK ACCESS
ALTERNATIVE 3**

FIGURE 13

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SCALE: 1:500

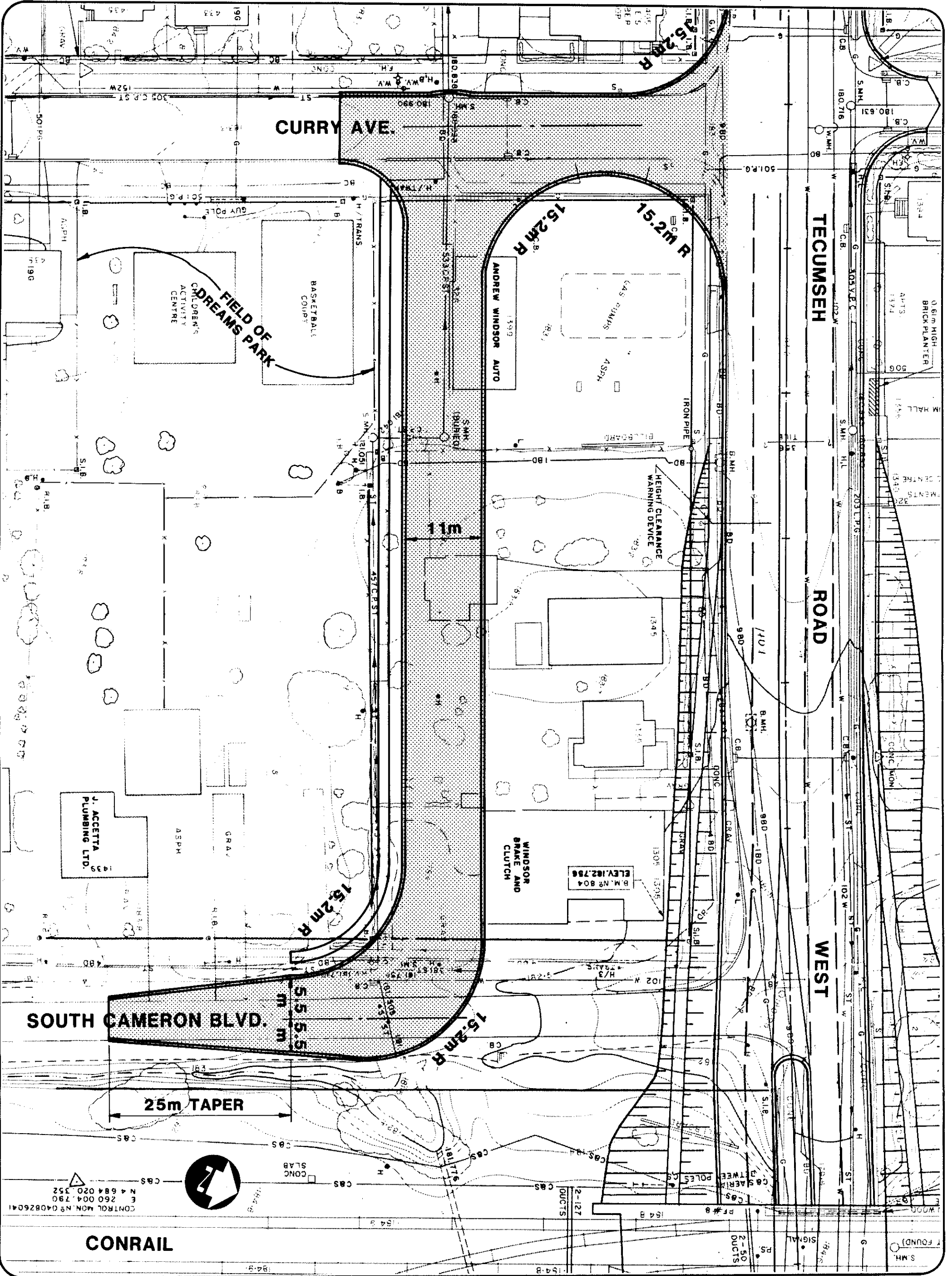
ALTERNATIVE DESIGNS	1. REMOVAL OF DIRECT ACCESS TO TECUMSEH ROAD WEST WITH A SERVICE ROAD - ACCESS VIA GILES BLVD. AND CRAWFORD AVENUE.	2. REMOVAL OF DIRECT ACCESS TO TECUMSEH ROAD WEST WITH A SERVICE ROAD ACCESSING CRAWFORD AVENUE	3. REMOVAL OF DIRECT ACCESS TO TECUMSEH ROAD WEST FROM WELLINGTON AND OAK AVENUES. DIRECT ACCESS REMAINING FROM ELM AVENUE.
FACTOR GROUPS/FACTORS			
Arterial Traffic Service <ul style="list-style-type: none"> Level of Service Safety 	<ul style="list-style-type: none"> Increased level of service and safety for the Tecumseh Road West arterial with intersections removed. 	<ul style="list-style-type: none"> Increased level of service and safety for the Tecumseh Road West arterial with intersections removed. Service road intersection with Crawford Avenue is not desirable due to proximity to signalized intersection at Tecumseh Road West and Crawford Avenue. 	<ul style="list-style-type: none"> Increased level of service and safety for the Tecumseh Road West arterial. The location of the Elm Avenue intersection with Tecumseh Road West, may negatively impact driver safety.
Social/Land Use Impacts <ul style="list-style-type: none"> Impact on Existing and Proposed Land Uses Impacts on Residential Neighbourhood traffic Visual Impacts Noise Impacts 	<ul style="list-style-type: none"> A negative impact for the residential area is that traffic is forced to access Tecumseh Road West via Crawford Avenue from Giles Blvd. A positive impact is that the reduced traffic volumes in the area will result in decreased noise levels. Roadway and landscaping improvements will be a positive visual impact. 	<ul style="list-style-type: none"> Convenient access to Tecumseh Road West is maintained using a consolidated intersection of the connecting service road with Crawford Avenue. A positive impact is that the reduced traffic volumes in the area will result in decreased noise levels. Roadway and landscaping improvements will be a positive visual impact. 	<ul style="list-style-type: none"> Wellington Avenue and Oak Avenue traffic may access Tecumseh Road West using Elm Avenue. Negative impacts in terms of noise and visual affects, may be realized on Elm Avenue as it would provide a single point of access to Tecumseh Road West for the residential area. Roadway and landscape improvements will be a positive visual impact.
Economic Environment Impacts <ul style="list-style-type: none"> Impacts on existing businesses, local and regional. 	<ul style="list-style-type: none"> Negatively impacts local businesses such as the Southwood Hotel as direct access to Tecumseh Road West from Wellington Avenue is removed. Positive impacts for regional businesses may result due to the increased traffic efficiency on Tecumseh Road West. 	<ul style="list-style-type: none"> No negative impacts to local businesses as new access to Tecumseh Road West is located in proximity to the existing access points. Positive impacts for regional businesses may result due to the increased traffic efficiency on Tecumseh Road West. 	<ul style="list-style-type: none"> Negatively impacts local businesses such as the Southwood Hotel as direct access to Tecumseh Road West from Wellington Avenue is removed. Positive impacts for regional businesses may result due to the increased traffic efficiency on Tecumseh Road West.
Property Acquisition <ul style="list-style-type: none"> Property requirements 	<ul style="list-style-type: none"> Eight individual properties as well as two partial properties are required to facilitate this alternative. 	<ul style="list-style-type: none"> Eight individual properties as well as two partial properties are required to facilitate this alternative. 	<ul style="list-style-type: none"> Five individual properties as well as three partial properties are required to facilitate this alternative.
Project Cost <ul style="list-style-type: none"> Capital Costs of Construction 	<ul style="list-style-type: none"> \$255,000 	<ul style="list-style-type: none"> \$285,000 	<ul style="list-style-type: none"> \$220,000
SUMMARY	<ul style="list-style-type: none"> This alternative has positive impacts on the arterial function and safety of Tecumseh Road West. This alternative includes negative impacts for the adjacent residential area and to local businesses. This alternative is demanding in terms of property acquisition. Due to the positive impacts on the arterial function of Tecumseh Road West, and the minor negative impacts to the adjacent residential neighbourhood this is the Recommended Alternative Design 	<ul style="list-style-type: none"> This alternative has positive impacts on the arterial function and safety of Tecumseh Road West. This alternative has the least negative impacts on the adjacent residential neighbourhood and local businesses. This alternative is demanding in terms of property acquisition. The location of the service road intersection with Crawford Avenue is a negative impact. This alternative has the highest cost. 	<ul style="list-style-type: none"> The positive impacts on the arterial function and safety of Tecumseh Road West are not as great as those associated with alternative designs 1 and 2. Additionally negative impacts to the adjacent residential area will be concentrated along Elm Avenue which maintains direct access to Tecumseh Road West. This alternative has the lowest cost. The location of the Elm Avenue access is not desirable due to its proximity to the Tecumseh Road West/Crawford Avenue intersection and potential sight line problems.

TABLE 2
TECUMSEH ROAD WEST SUBWAY STRUCTURES
AT WELLINGTON AVENUE
CLASS ENVIRONMENTAL ASSESSMENT
WELLINGTON/ELM/OAK AVENUES ACCESS
EVALUATION OF ALTERNATIVE DESIGNS



THE CORPORATION OF THE
CITY OF WINDSOR

DILLON
Consulting Engineers - Planners
Environmental Scientists



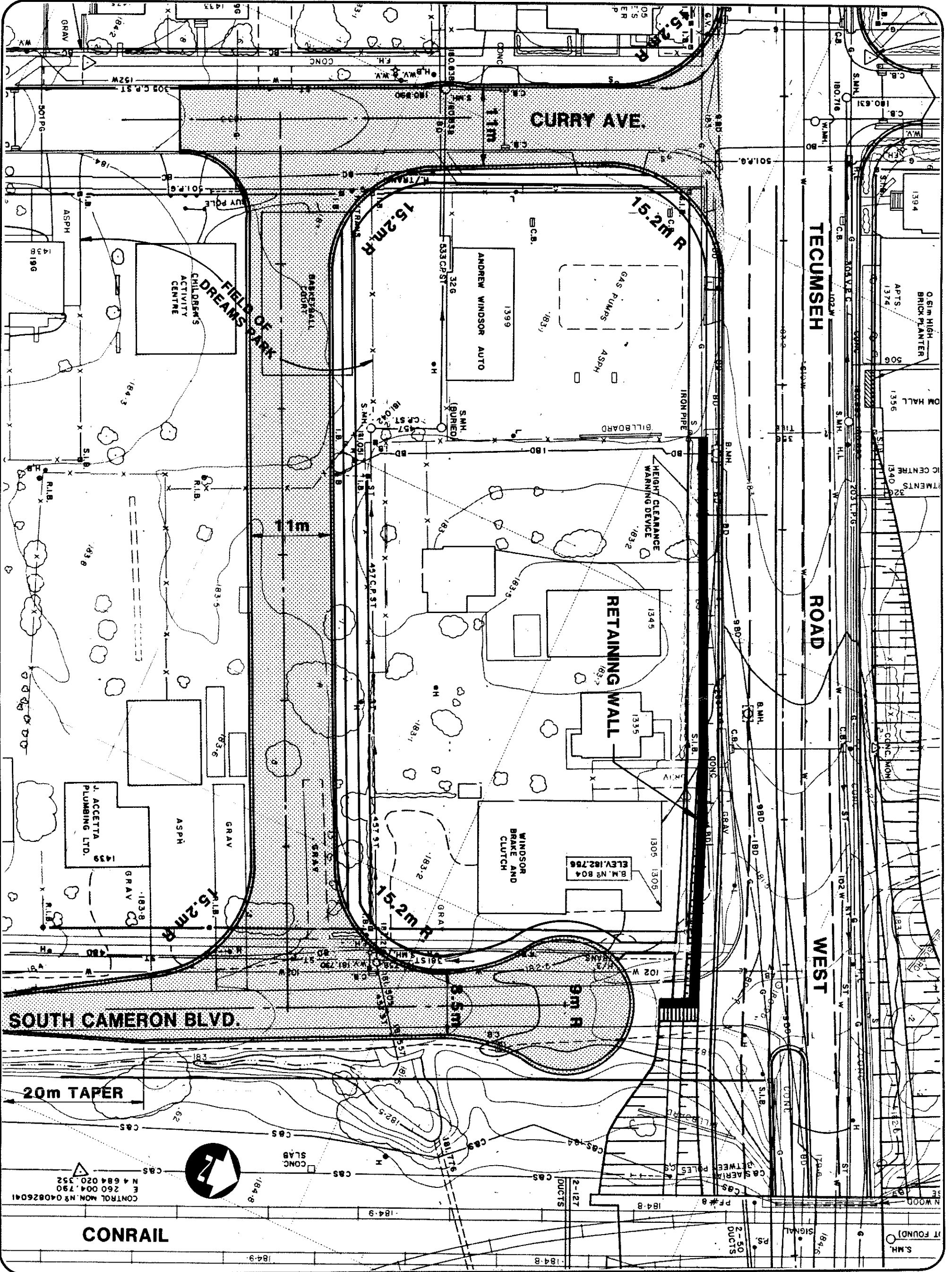
DILLON
 Consulting Engineers - Planners
 Environmental Scientists

**TECUMSEH ROAD WEST
 SUBWAY STRUCTURES
 AT WELLINGTON AVENUE
 ENVIRONMENTAL STUDY REPORT**

**SOUTH CAMERON BLVD. ACCESS
 ALTERNATIVE 1**

SCALE: 1:500

FIGURE 14



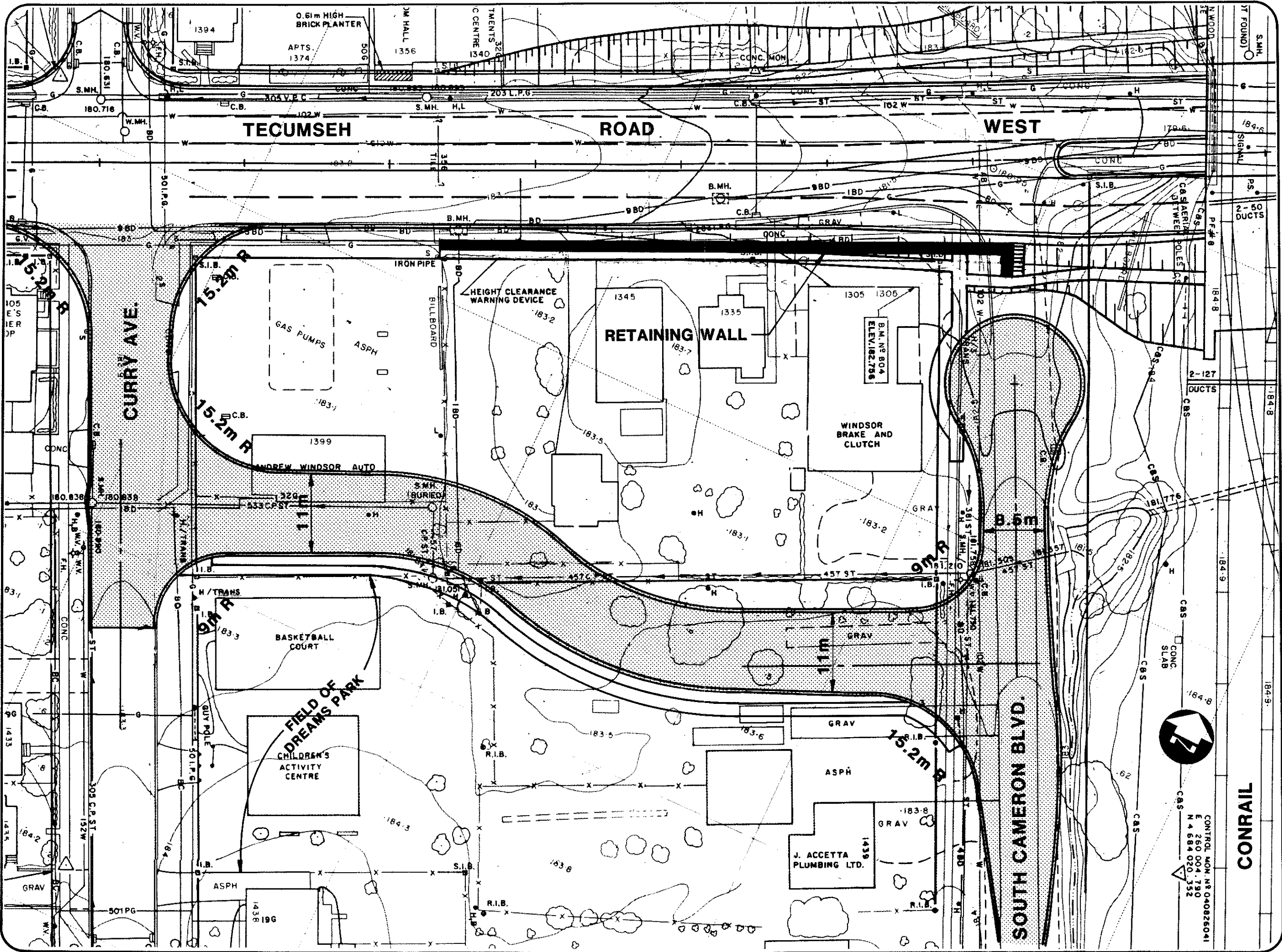
DILLON
 Consulting Engineers - Planners
 Environmental Scientists

**TECUMSEH ROAD WEST
 SUBWAY STRUCTURES
 AT WELLINGTON AVENUE
 ENVIRONMENTAL STUDY REPORT**

**SOUTH CAMERON BLVD. ACCESS
 ALTERNATIVE 2**

SCALE: 1:500

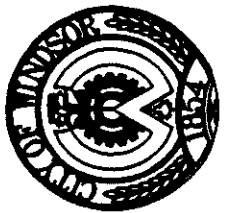
FIGURE 15



TECUMSEH ROAD WEST
 SUBWAY STRUCTURES
 AT WELLINGTON AVENUE
 ENVIRONMENTAL STUDY REPORT

**SOUTH CAMERON BLVD. ACCESS
 ALTERNATIVE 3**

FIGURE 16



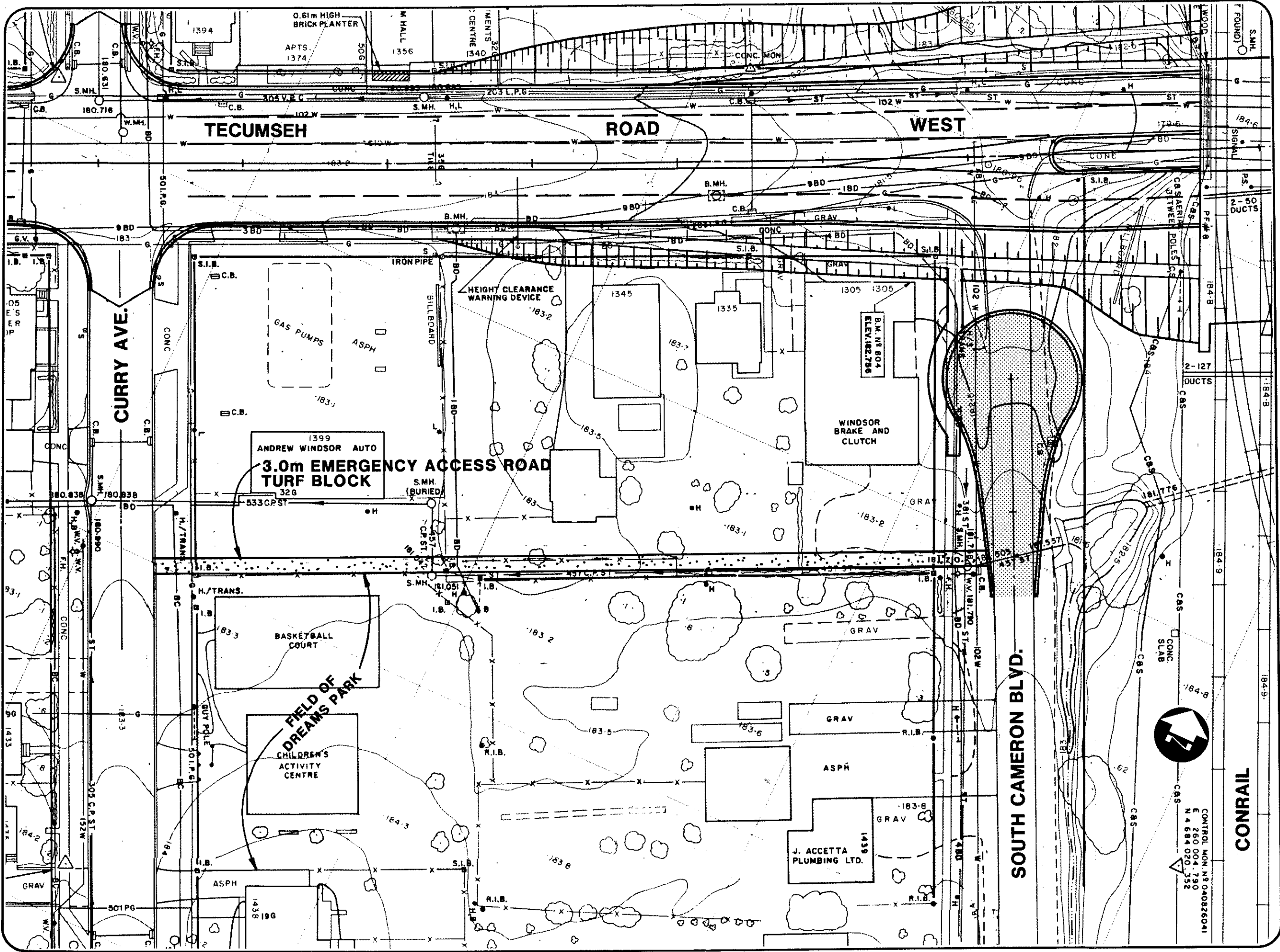
DILLON
 Consulting Engineers - Planners
 Environmental Scientists

SCALE: 1:600

CONRAIL



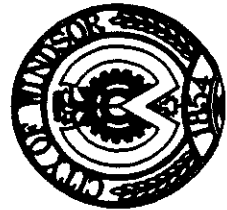
CONTROL MON. N^o 040826041
 E 260 004 790
 N 4 684 020 352



TECUMSEH ROAD WEST
SUBWAY STRUCTURES
AT WELLINGTON AVENUE
ENVIRONMENTAL STUDY REPORT

SOUTH CAMERON BLVD. ACCESS
ALTERNATIVE 4

FIGURE 17

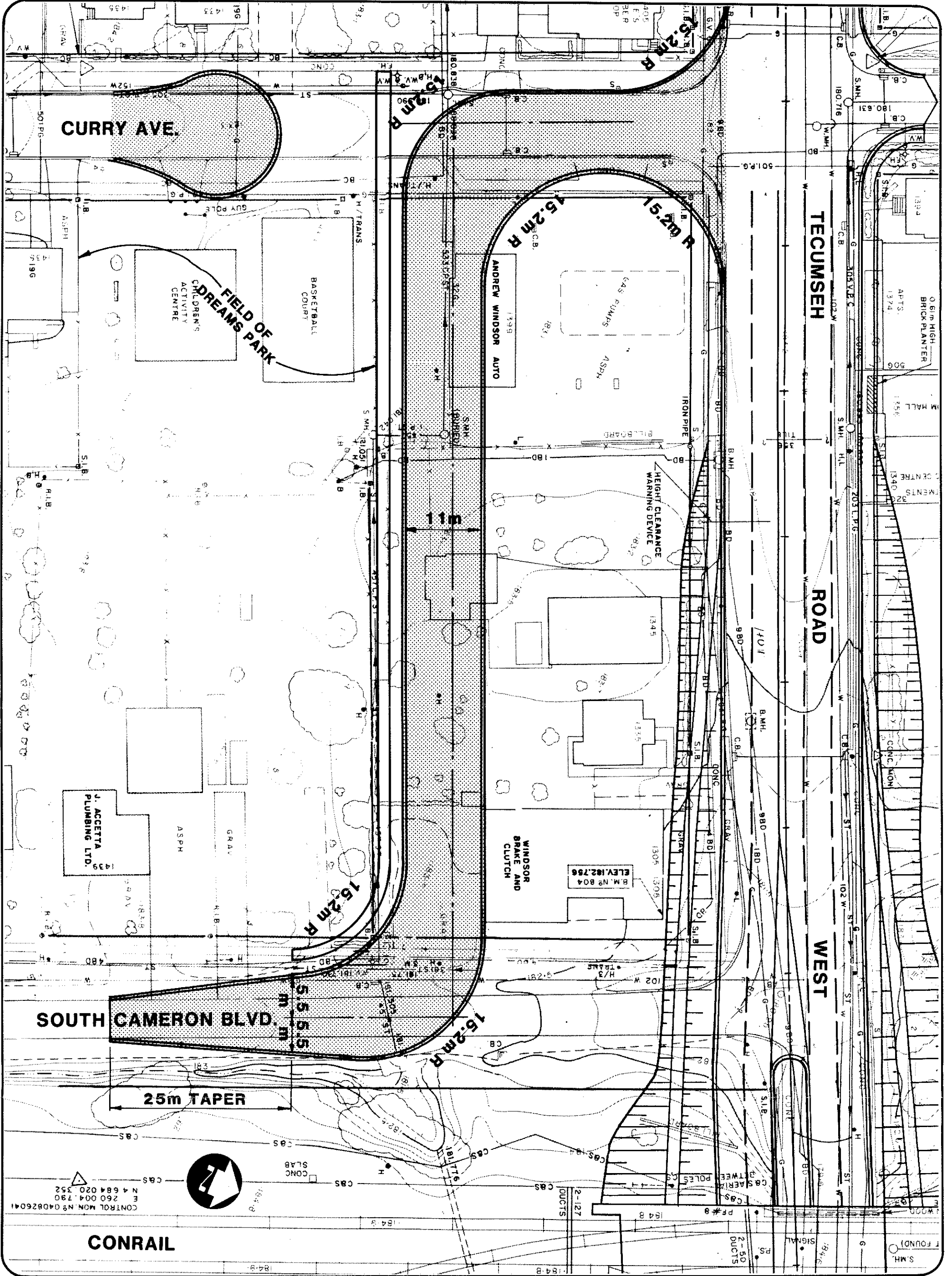


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Environmental Scientists

SCALE: 1:500

CONRAIL

CONTROL MON. NO. 040826041
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 Environmental Scientists

SCALE: 1:500

**TECUMSEH ROAD WEST
 SUBWAY STRUCTURES
 AT WELLINGTON AVENUE
 ENVIRONMENTAL STUDY REPORT**

**SOUTH CAMERON BLVD. ACCESS
 ALTERNATIVE 1A**

FIGURE 18

4.3.2 The Recommended Design for Tecumseh Road West Access from Wellington/Elm/Oak Avenues

Due to the positive impacts on the arterial function of Tecumseh Road West, and the minor negative impacts to the adjacent residential neighbourhood, Alternative No. 1 which is Figure 11 of this report is the recommended design.

Due to the intersection grades and sight lines resulting from increasing the height and road width under the subway structures, it is preferable that direct access to Tecumseh Road West not be permitted for Wellington/Elm/Oak Avenues. Access to Tecumseh Road West, using Giles Boulevard West and Crawford Avenue, is a reasonable distance and is preferred from a traffic safety perspective.

Alternative No. 2 (Figure 12) which includes the intersection of the service road with Crawford Avenue, was identified as having the potential for turning movement conflicts associated with the proximity of this intersection with the new Tecumseh Road West/Crawford Avenue intersection.

As this recommended design would change the existing bus route, roadway improvements to accommodate buses may be required at the Wellington Avenue and Crawford Avenue intersections with Giles Boulevard West.

4.4 Alternative Designs for access to Tecumseh Road West from South Cameron Boulevard

Currently South Cameron Boulevard intersects with the south limit of Tecumseh Road West in a "T" intersection just west of the subway structure at Wellington Avenue. The existing intersection is situated on the Tecumseh Road West incline near the subway structures. South Cameron Boulevard also has a sharp incline southerly from Tecumseh Road West.

*Tecumseh Road West
Subway Structures at Wellington Avenue
Environmental Study Report*

The proposed increase in height under the subway structures will further exasperate the existing poor intersection condition of South Cameron Boulevard, necessitating removal of the intersection.

South Cameron Boulevard is currently a designated truck route. To service the industrial businesses on South Cameron Boulevard the alternative access route would likely become a designated truck route.

The following alternative design concepts have been identified for evaluation to provide alternative access to Tecumseh Road West from South Cameron Boulevard:

Alternative No. 1 - Terminate South Cameron Boulevard in a cul-de-sac south of Tecumseh Road West. Provide a connecting road westerly from South Cameron Boulevard to Curry Avenue which has direct access to Tecumseh Road West, refer to Figure 14.

This alternative design requires the acquisition of existing properties fronting on Tecumseh Road West between South Cameron Boulevard and Curry Avenue. There is a possibility of selling the remnant parcel created which fronts on Tecumseh Road West. However, access to this parcel would be from the connecting road to the rear.

Alternative No. 2 - Terminate South Cameron Boulevard in a cul-de-sac south of Tecumseh Road West. Provide a connecting Road westerly from South Cameron Boulevard to Curry Avenue which has direct access to Tecumseh Road West, refer to Figure 15.

This alternative design provides for the existing properties fronting on Tecumseh Road West to remain. However access to these properties would be removed from Tecumseh Road West and be reoriented to the proposed connecting roadway to the rear. This alternative requires the construction of a retaining wall along a portion of Tecumseh Road West. This alternative also reduces the

area of the Field of Dreams park.

Alternative No. 3 - Terminate South Cameron Boulevard in a cul-de-sac south of Tecumseh Road West. Provide a connecting road westerly from South Cameron Boulevard to Curry Avenue which has direct access to Tecumseh Road West, refer to Figure 16.

This alternative requires the acquisition of the commercial site at the south east corner of Tecumseh Road West and Curry Avenue, and a portion of the rear of the lands at 1345 Tecumseh Road West. The remaining properties would have their access reoriented to the connecting road to the rear. This alternative requires the construction of a retaining wall along a portion of Tecumseh Road West.

Alternative No. 4 - Terminate South Cameron Boulevard in a cul-de-sac south of Tecumseh Road West, refer to Figure 17. Provide an emergency access road westerly from South Cameron Boulevard to Curry Avenue.

This alternative requires that Tecumseh Road West access from South Cameron Boulevard north of Totten Street be obtained using Campbell Avenue to the south. This alternative requires the acquisition of the Windsor Brake and Clutch property on the south-west corner of Tecumseh Road West and South Cameron Boulevard, and the two existing residential properties west of the Windsor Brake and Clutch property.

As mentioned previously, the alternative access to Tecumseh Road West will be a designated truck route to service the industrial establishments on South Cameron Boulevard. To separate the truck route from the Curry Avenue residential area, the termination of Curry Avenue in a cul-de-sac south of the connecting road is possible for alternatives 1,2 and 3, refer to Figure 18. For discussion purposes we have labelled this option as Alternative No. 1A.

4.4.1 Assessment and Evaluation of Alternative Designs for Tecumseh Road West Access from South Cameron Boulevard

To address the traffic problem associated with the intersection of Tecumseh Road West and South Cameron Boulevard, all of the alternative designs presented herein have social and economic impacts to the area. More particularly the alternative designs impact the existing Field of Dreams park and the Curry Avenue residential area, and the Andrew Windsor Auto property and the Windsor Brake and Clutch property, both of which front onto Tecumseh Road West. The selected preferred alternative design should be a best fit solution to the problem while recognizing the difficulty in alleviating all negative impacts.

An evaluation of the four alternative designs, in terms of their effects on arterial traffic service, social and economic environments, property acquisition, and cost, is provided in Table 3.

4.4.2 The Recommended Design for Tecumseh Road West Access from South Cameron Boulevard

The recommended alternative design for Tecumseh Road West access from South Cameron Boulevard is Alternative No. 1.

The selection of Alternative No. 1 as the recommended alternative design is based on the following reasons:

- provides vehicular access to/from South Cameron Boulevard and Tecumseh Road West;
- Does not impact the Field of Dreams park;

ALTERNATIVE DESIGNS	1. CONNECTING ROAD TO CURRY AVENUE ON PRIVATE PROPERTY	2. CONNECTING ROAD TO CURRY AVENUE ON CITY PROPERTY	3. CONNECTING ROAD TO CURRY AVENUE ON CITY AND PRIVATE PROPERTY	4. TERMINATION OF SOUTH CAMERON BLVD. AT A CUL-DE-SAC
FACTOR GROUPS/FACTORS <u>Arterial Traffic Service</u> <ul style="list-style-type: none"> Level of Service Safety 	<ul style="list-style-type: none"> Increased level of service and safety for Tecumseh Road West with intersection at South Cameron Blvd. removed. Provides for vehicular access including truck access to/from South Cameron and Tecumseh Road West. 	<ul style="list-style-type: none"> Increased level of service and safety for Tecumseh Road West with the intersection at South Cameron Blvd. removed. Provides for vehicular access including truck access to/from South Cameron and Tecumseh Road West. 	<ul style="list-style-type: none"> Increased level of service and safety for Tecumseh Road West with the intersection at South Cameron Blvd. removed. Provides for vehicular access including truck access to/from South Cameron and Tecumseh Road West. 	<ul style="list-style-type: none"> Increased level of service and safety for Tecumseh Road West with the intersection at South Cameron Blvd. removed. Does not provide for vehicular access to/from South Cameron and Tecumseh Road West.
<u>Social/Land Use Impacts</u> <ul style="list-style-type: none"> Impact on Existing and Proposed Land Uses Impact on Residential Neighbourhood traffic Visual Impact Noise Impact Recreation area impact 	<ul style="list-style-type: none"> Additional traffic, including trucks, is a negative impact to the Curry Avenue residential neighbourhood in terms of noise and visual aspects. This alternative does not affect the Field of Dreams Park which is a positive neighbourhood impact. 	<ul style="list-style-type: none"> Additional traffic, including trucks, is a negative impact to the Curry Avenue residential neighbourhood in terms of noise and visual aspects. This alternative reduces the area of the Field of Dreams Park which is a negative neighbourhood impact. Direct access to Tecumseh Road West is removed from certain properties west of South Cameron Blvd. Due to the construction of a required retaining wall on Tecumseh Road West, access to these properties is afforded by the new road connecting South Cameron Blvd. and Curry Avenue. 	<ul style="list-style-type: none"> Additional traffic, including trucks, is a negative impact to the Curry Avenue residential neighbourhood in terms of noise and visual aspects. This alternative does not affect the Field of Dreams Park which is a positive neighbourhood impact. Direct access to Tecumseh Road West is removed from certain properties west of South Cameron Blvd. Due to the construction of a required retaining wall on Tecumseh Road West, access to these properties is afforded by the new road connecting South Cameron Blvd. and Curry Avenue. 	<ul style="list-style-type: none"> A negative impact for those properties on South Cameron Blvd. is that access to Tecumseh Road West would be obtained by an alternate route using Campbell Avenue. This alternative does not affect the Field of Dreams Park which is a positive neighbourhood impact. The alternate route to access Tecumseh Road West from South Cameron Boulevard is inconvenient. Emergency access is proposed from South Cameron Boulevard westerly to Curry Avenue.
<u>Economic Environment Impacts</u> <ul style="list-style-type: none"> Impact on existing businesses, local and regional. 	<ul style="list-style-type: none"> This alternative requires the acquisition of the Windsor Brake and Clutch business located on the south-west corner of the intersection of Tecumseh Road West and South Cameron Blvd. This alternative requires the acquisition of the Andrew Windsor Auto business located on the south-east corner of Tecumseh Road West and Curry Avenue. 	<ul style="list-style-type: none"> This alternative requires that customers of Windsor Brake and Clutch located on the south-west corner of the intersection of Tecumseh Road West and South Cameron Blvd., access that business from Curry Avenue using the proposed connecting road. 	<ul style="list-style-type: none"> This alternative requires that customers of Windsor Brake and Clutch located on the south-west corner of the intersection of Tecumseh Road West and South Cameron Blvd., access that business from Curry Avenue using the proposed connecting road. This alternative requires the acquisition of the Andrew Windsor Auto business located on the south-east corner of Tecumseh Road West and Curry Avenue. 	<ul style="list-style-type: none"> Staff and customers of J. Accetta Plumbing Ltd. at 1439 Cameron Blvd., would access Tecumseh Road West using Campbell Avenue. This is a negative impact to that business.
<u>Property Acquisition</u> <ul style="list-style-type: none"> Property requirements 	<ul style="list-style-type: none"> This alternative requires the acquisition of four properties fronting on Tecumseh Road West, including two businesses and two homes. This alternative also requires two small vacant properties fronting on Curry Avenue. 	<ul style="list-style-type: none"> This alternative requires the partial purchase of Andrew Windsor Auto and Windsor Brake and Clutch. This alternative also requires two small vacant properties fronting on Curry Avenue. 	<ul style="list-style-type: none"> This alternative requires the acquisition of the Andrew Windsor Auto property at the south-east corner of Tecumseh Road West and Curry Avenue and the residential property at 1345 Tecumseh Road West. This alternative also requires two small vacant properties fronting on Curry Avenue. This alternative also requires the partial purchase of the Windsor Brake and Clutch property. 	<ul style="list-style-type: none"> This alternative requires the acquisition of two small vacant properties fronting on Curry Avenue. This alternative requires the acquisition of two residential properties fronting on Tecumseh Road West and the Windsor Brake and Clutch property. Access to the residential properties would be eliminated due to the lowering of Tecumseh Road.
<u>Project Cost</u> <ul style="list-style-type: none"> Capital Costs of Construction 	<ul style="list-style-type: none"> \$250,000 	<ul style="list-style-type: none"> \$515,000 	<ul style="list-style-type: none"> \$500,000 	<ul style="list-style-type: none"> \$65,000
<u>SUMMARY</u>	<ul style="list-style-type: none"> Provides vehicular access to/from South Cameron and Tecumseh Road West. Does not impact the Field of Dreams park. Requires the purchase of four properties but property can be re-sold for other uses. Relatively low cost in comparison to other alternative designs involving a connecting road. This is the Recommended Alternative Design 	<ul style="list-style-type: none"> Provides vehicular access to/from South Cameron and Tecumseh Road West. Negatively impacts the Field of Dreams park. The properties fronting Tecumseh Road be re-oriented to the new connecting road. High cost. 	<ul style="list-style-type: none"> Provides vehicular access to/from South Cameron and Tecumseh Road West. Does not impact the Field of Dreams park. Requires the purchase of four properties, partial purchases of Windsor Brake and Clutch, and the re-orientation of access from Tecumseh Road to the new connecting road for two properties. High cost. 	<ul style="list-style-type: none"> Does not provide for vehicular access to/from South Cameron and Tecumseh Road West. Lowest cost. Although considered as an alternative, it was determined through this evaluation that alternative access to/from South Cameron and Tecumseh Road West is required.

TABLE 3
TECUMSEH ROAD WEST SUBWAY STRUCTURES
AT WELLINGTON AVENUE
CLASS ENVIRONMENTAL ASSESSMENT
SOUTH CAMERON BLVD. ACCESS
EVALUATION OF ALTERNATIVE DESIGNS

*Tecumseh Road West
Subway Structures at Wellington Avenue
Environmental Study Report*

- Provides commercial truck traffic access to industrial businesses on South Cameron Boulevard;
- required property acquisitions can be re-sold; and,
- lowest net capital costs of construction for alternatives providing a connecting road from South Cameron Boulevard to Curry Avenue. This net capital cost includes the resale of surplus property acquisitions.

4.5 Public and Agency Input

For the purposes of this section, the public is defined as those persons, businesses and corporations who are considered by the proponent to have, or have expressed an interest in the Tecumseh Road West Subway Structures at Wellington Avenue Class Environmental Assessment. Agencies are defined as those governmental departments, utility companies, railway companies and environmental interest groups, which are considered by the proponent to have an interest in the Tecumseh Road West Subway Structures at Wellington Avenue Class Environmental Assessment.

This section documents the results of the public and agency consultation program for Phase 3 of the Class Environmental Assessment process for alternative designs for Tecumseh Road West Subway Structures at Wellington Avenue. Public and agency consultation results for Phase 1 and 2 of the Class EA process are documented in the Tecumseh Road West Corridor Master Plan which constitutes part of this Class EA.

4.5.1 Public Input

The primary initiative for public consultation in Phase 3 of the Class EA process was Public Information Centre No. 2. Notice of the information centre was provided by the

*Tecumseh Road West
Subway Structures at Wellington Avenue
Environmental Study Report*

publication of a notice in the Windsor Star on two separate occasions, February 11 and 18, 1995. Notice of the public information centre was also hand delivered to homes and businesses in the study area on February 11, 1995.

Copies of the above noted newspaper notices and the hand delivered notice are included as Appendix "A" of this report.

The public information centre to present and receive public input regarding the alternative designs was held on February 21, 1995, from 4:00 p.m. to 8:00 p.m. at the Moose Lodge, 777 Tecumseh Road West.

The following individuals were in attendance to provide information and obtain public input:

Mr. T.W. Szalay	-	City of Windsor, Public Works Department
Mr. Glen Adams	-	City of Windsor, Public Works Department
Mr. Wes Hicks	-	City of Windsor, Traffic Engineering Department
Mr. Mike Stamp	-	City of Windsor, Property Department
Mr. Raj Varma	-	City of Windsor, Planning Department
Mr. John Zangari	-	M.M. Dillon Limited, Consultant
Mr. Harold Kersey	-	M.M. Dillon Limited, Consultant

The following presentation materials were on display for public information:

- A Project Status Report board which provided a brief history of the project.
- A Class Environmental Assessment process flow chart which identified where the project was relative to the five phase class environmental assessment process.
- A Location Map which illustrated the boundaries of the Tecumseh Road West Subway Structures at Wellington Avenue project study area.

*Tecumseh Road West
Subway Structures at Wellington Avenue
Environmental Study Report*

- A board showing the Tecumseh Road West Subway Structures at Wellington Avenue Recommended Design.
- Boards showing each of the three alternative designs for Tecumseh Road West access from Wellington/Elm/Oak Avenues.
- A board containing the evaluation chart for the three alternative designs for Tecumseh Road West access from Wellington/Elm/Oak Avenues.
- Boards showing each of the four alternative designs for Tecumseh Road West access from South Cameron Boulevard.
- A board containing the evaluation chart for the four alternative designs for Tecumseh Road West access from South Cameron Boulevard.
- A board showing the three alternative designs for Stormwater Management at the subway at Wellington Avenue.
- A board containing the evaluation chart for the three alternative designs for Stormwater Management at the subway at Wellington Avenue.

Each evaluation chart identified the recommended design and provided summary comments in support of the recommendation.

Attendees were asked to sign the record of attendance upon entering the display area. The record shows eighty-three persons signed the attendance sheet. We estimate that the actual attendance was somewhat higher (possible 100 to 125 persons) given that some people did not sign in, and often one signature represented multiple attendees.

*Tecumseh Road West
Subway Structures at Wellington Avenue
Environmental Study Report*

Attendees were greeted upon arrival and informed that the centre was a walk-through format with City and consultant representatives available to address questions and record comments.

Individual comment sheets were made available to attendees. Twenty-five individual comment sheets were filled out. The following is a summary of the comments received:

- Removing access to Tecumseh Road West from Wellington/Elm/Oak Avenues will be a positive impact as it improves the neighbourhood traffic situation (five responses).
- Removing access to Tecumseh Road West from Wellington/Elm/Oak Avenues will be a negative neighbourhood impact (three responses).
- Concerned about relocation of the existing bus route.
- Cutting of access to Tecumseh Road West from South Cameron Boulevard is not acceptable (three responses - same address).
- Ensure that proper guard rails are placed along the sidewalks under the subway structures.
- Any efforts to alleviate basement flooding in the area is welcome.
- Use concrete not asphalt pavement on Tecumseh Road West.
- Long awaited plan, looks good, very functional (two responses).

Verbal comments made included:

- "This project has been studied for decades, its time to take action".

***Tecumseh Road West
Subway Structures at Wellington Avenue
Environmental Study Report***

- A representative of the Curry Avenue residential neighbourhood south of Tecumseh Road West, commented that the connecting road from South Cameron Boulevard to Curry Avenue introduces additional traffic to the neighbourhood which is a negative impact. In particular, this individual expressed concern that the connecting road would be a truck route which is not acceptable in a residential neighbourhood, let alone adjacent to the Field of Dreams park. The representative's main concern was for child safety.

The public comment sheets made available to attendees included a section where one could indicate their preferred design among the alternative designs presented.

Following are the results of tabulation of the selections submitted.

	ALTERNATIVE DESIGNS RESPONSES				TOTAL RESPONSES
	No. 1	No. 2	No. 3	No. 4	
• Tecumseh Road West Access from Wellington/Elm/Oak Avenues	12	3	0		15
• Tecumseh Road West Access from South Cameron Boulevard	11	0	0	0	11
• Stormwater Management at the Subway	8	0	0		8

*Tecumseh Road West
Subway Structures at Wellington Avenue
Environmental Study Report*

The relative number of responses to the selection questionnaire clearly indicates that there is public support of Alternative Design No. 1 in all cases. Alternative No. 1 is the recommended design in all cases.

Seven individuals who attended the public information centre requested copies of the alternative designs. The requested copies were issued on or about February 22, 1995.

Copies of the Record of Attendance and Public Comment sheets are included in Appendix "B" of this report.

4.5.2 Agency Input

A list of agencies consulted is included in Appendix "A" of this report.

Agencies on the list were mailed notice of the public information centre on February 10, 1995. This notice was also mailed to persons and agencies who had requested direct notification of future phases of the project during the Tecumseh Road West Corridor Master Planning process.

No agency input or response was received regarding the alternative designs as a result of the notice or the public information centre.

5.0 THE SELECTED PREFERRED DESIGN

This section describes the selected preferred design for the following:

- the height and road width under the subway structures at Wellington Avenue and associated road works;
- Stormwater Management at the Subway Structures near Wellington Avenue.
- Tecumseh Road West Access from Wellington/Elm/Oak Avenues;
- Tecumseh Road West Access from South Cameron Boulevard; and

The selected preferred design for the Subway Structures at Wellington Avenue, which includes the selected preferred designs for the project components noted above, except the preferred design for Stormwater Management at the subway basin, is shown on Figure 19 which is inserted in the sleeve attached to this report. The preferred design for each of the project components is described in more detail in the report sections that follow.

5.1 The Preferred Design for Tecumseh Road West Subway Structures at Wellington Avenue

This subsection addresses the preferred design of the clearance and road width under the subway structures at Wellington Avenue, as well as the road width and number of lanes of Tecumseh Road West within the study area.

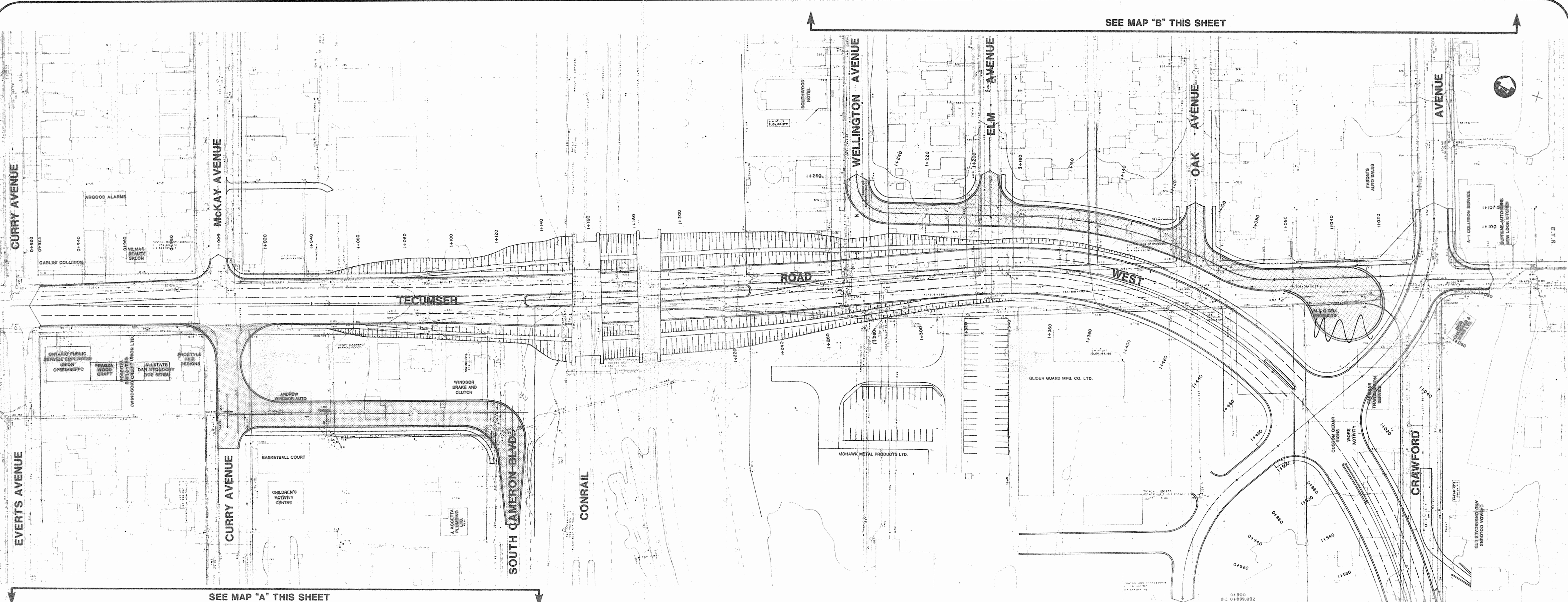
As identified in subsection 4.1 of this report the recommended design for Tecumseh Road West Subway Structures at Wellington Avenue are:

- increase the vertical clearance under the subway structures from 3.75 m (12'-4") to 4.65 m (15'-3") which is in accordance with established geometric criteria for Ontario Roads;
- increase the road width under the subway structures to accommodate four lanes of traffic, two in each direction; and
- maintain four lanes of traffic on Tecumseh Road West within the study area, and improve the geometrics of the northerly intersection of Tecumseh Road West and Crawford Avenue.
- provide safe pedestrian passage under the subway with sidewalks on each side of Tecumseh Road West.

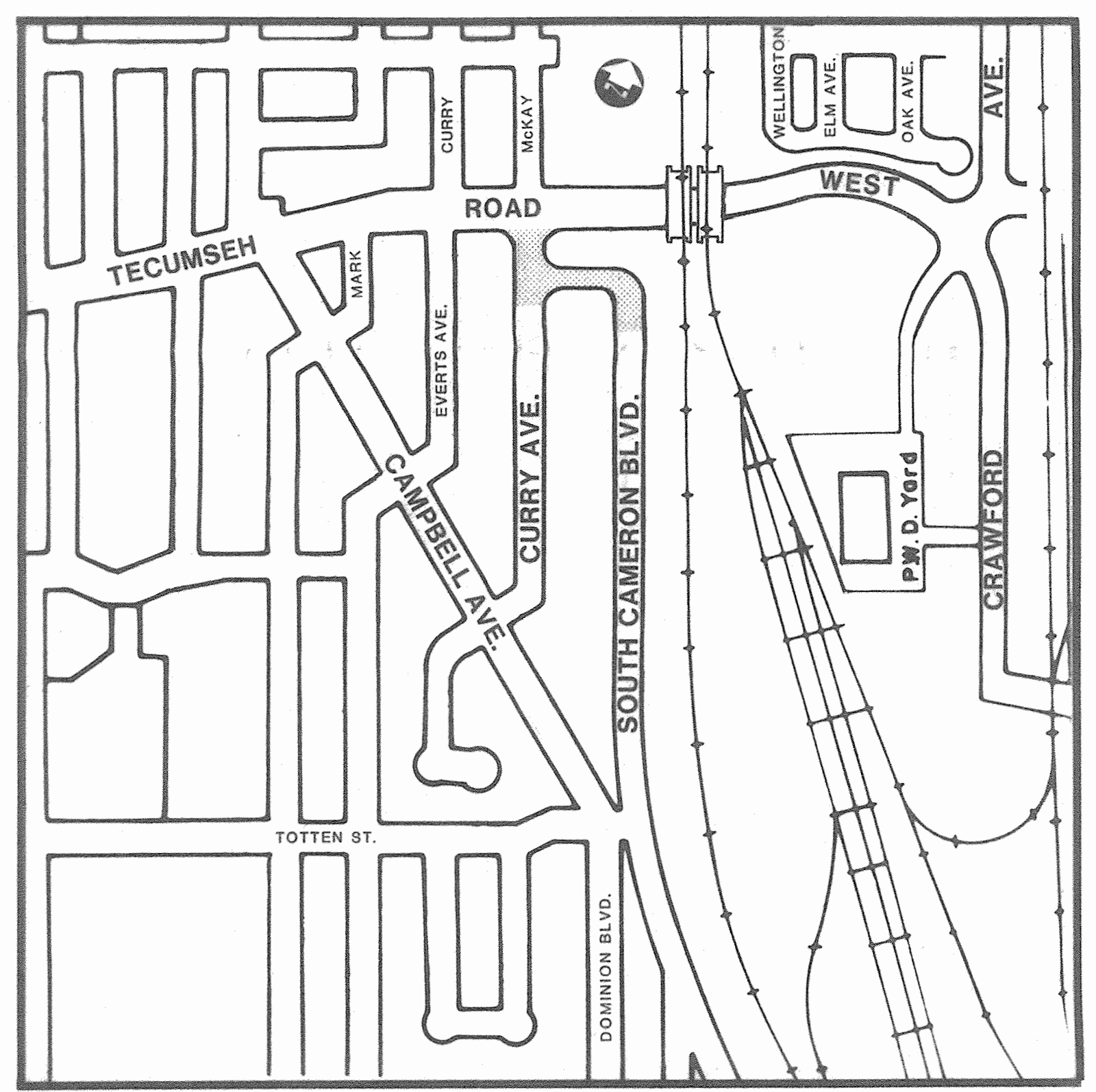
The aforementioned recommended designs were presented at Public Information Centre No. 2 and were supported by the information centre attendees. As these designs are endorsed by the public and are recommended by the proponent, they are the selected preferred designs.

5.2 The Preferred Design for Stormwater Management at the Subway Structures near Wellington Avenue

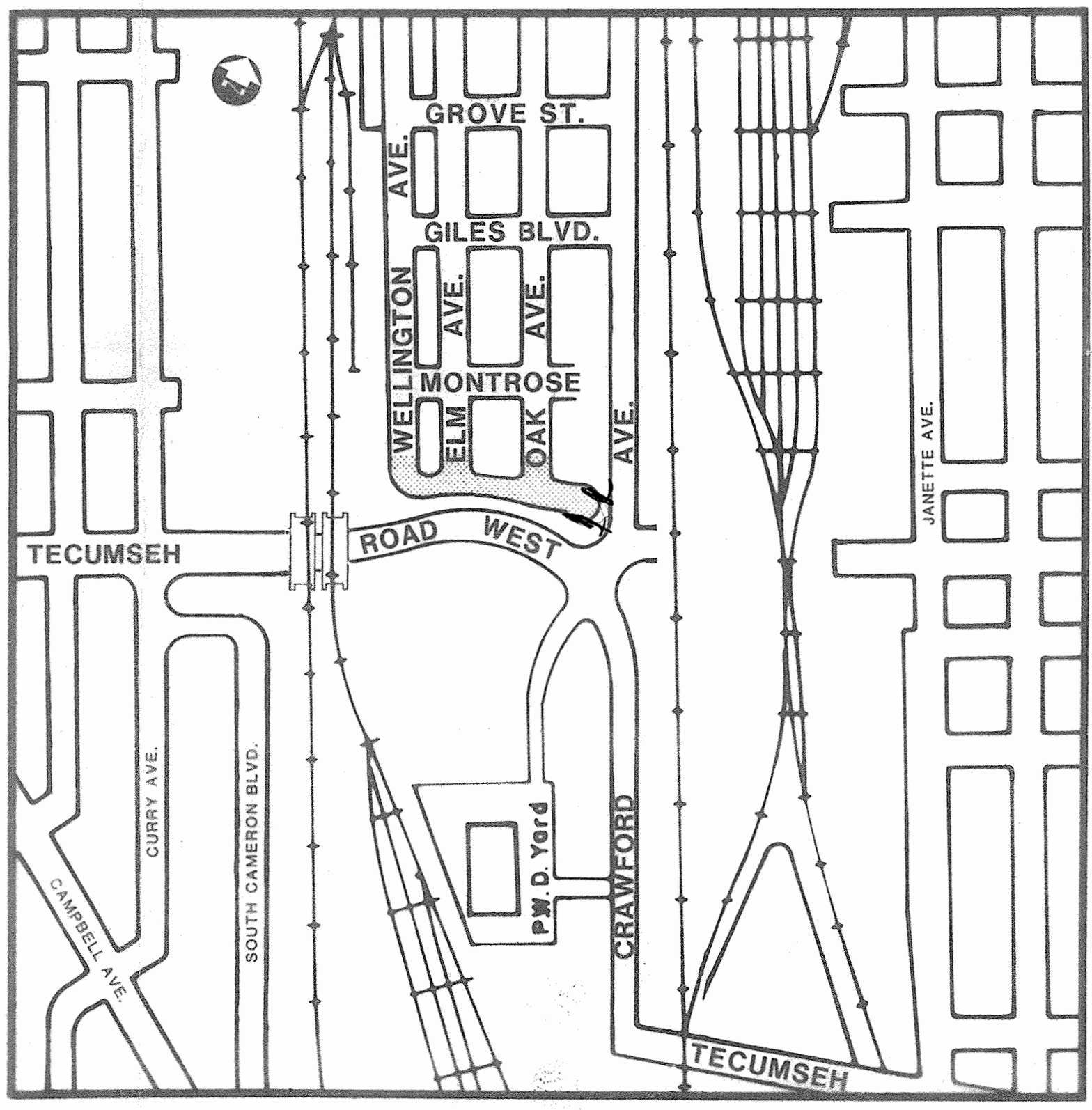
The preferred design for stormwater management at the subway structures near Wellington Avenue is a gravity sewer extending from the subway location northerly along the railway right-of-way outletting to the Detroit River. This alternative design is preferred as it provides a cost effective solution to the flooding problem, without the need for property acquisition for detention ponds or pumps which add initial capital costs and long term maintenance costs.



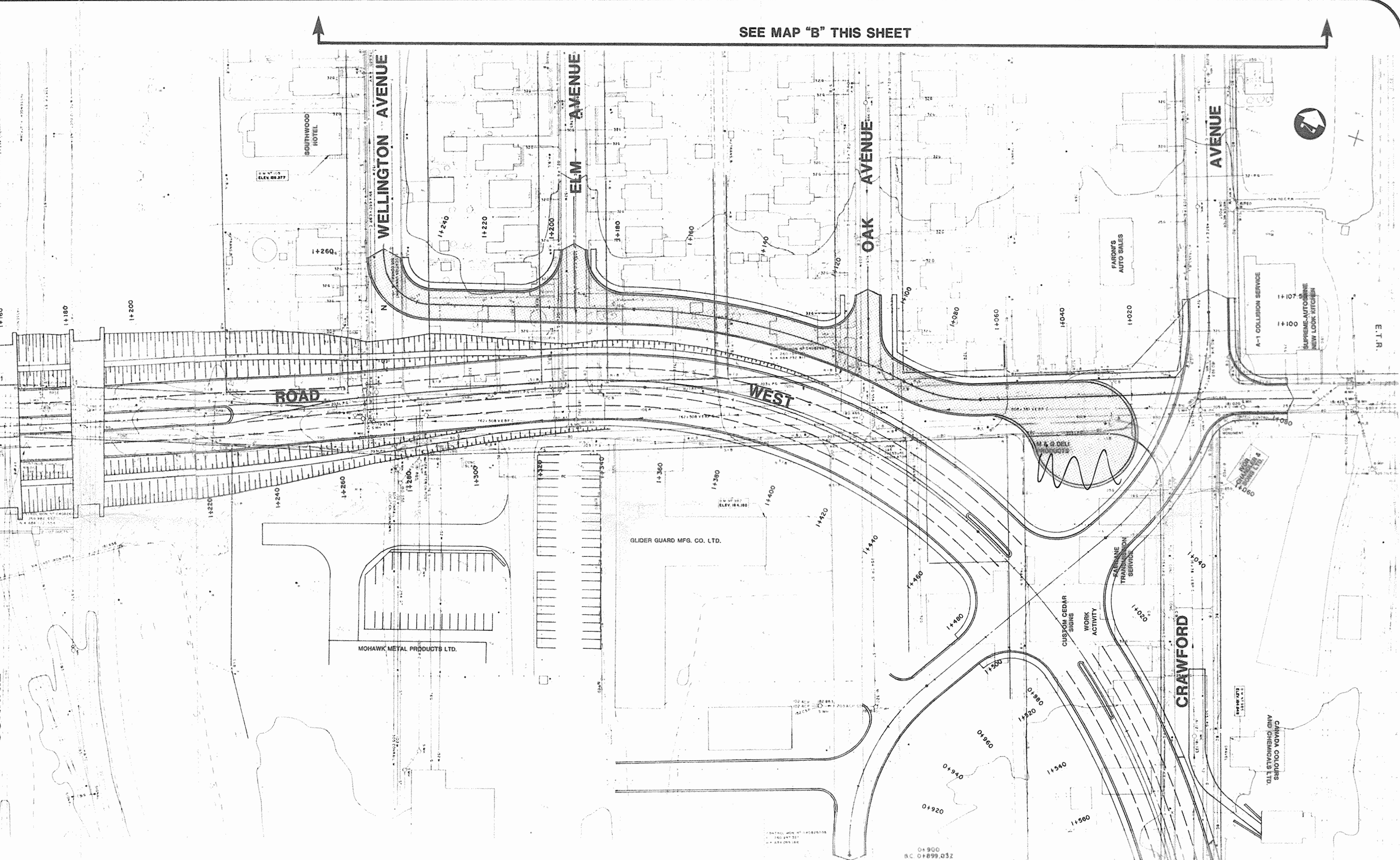
SEE MAP "A" THIS SHEET



MAP "A"



MAP "B"



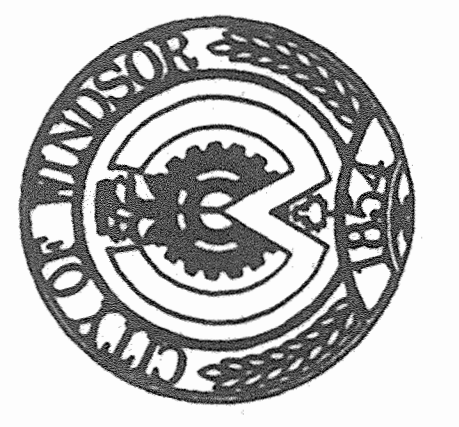
CITY OF WINDSOR
PUBLIC WORKS DEPARTMENT

WORLD WIDE CONVERTERS INC.

TECUMSEH ROAD WEST
SUBWAY STRUCTURES
AT WELLINGTON AVENUE
ENVIRONMENTAL STUDY REPORT

SELECTED PREFERRED DESIGN

FIGURE 19



DILLON
Consulting Engineers • Planners
Environmental Scientists

5.3 The Preferred Design for Tecumseh Road West Access from Wellington/Elm/Oak Avenues

The preferred design for Tecumseh Road West access from Wellington/Elm/Oak Avenues is to remove direct access to Tecumseh Road West from the three streets, connecting the streets with a service road north of the realigned Tecumseh Road West and terminating the service road in a cul-de-sac east of Oak Avenue. As shown on Figure 19 this design requires that traffic from the residential neighbourhood north of Tecumseh Road West and west of Crawford Avenue, access Tecumseh Road West via Crawford Avenue using Giles Boulevard West as the area's outlet.

This preferred design was presented as Alternative Design No. 1, the recommended design, at Public Information Centre No. 2. This design was selected by twelve of the fifteen attendees that responded to the questionnaire section included on the Public Comment sheet available at the information centre. According to comments received, many indicated that removing direct access to Tecumseh Road West from Wellington/Elm/Oak Avenues would result in a more isolated residential neighbourhood, which is seen as a positive impact in terms of traffic and nuisance.

As the preferred design will change the existing bus route, roadway improvements to accommodate buses may be required at the Wellington Avenue and Crawford Avenue intersections with Giles Boulevard West.

A negative impact of this preferred design alternative is that the removal of direct access to Tecumseh Road West from Wellington Avenue may affect the business of the Southwood Hotel located at 1353 Wellington Avenue. However, vehicular access for patrons to the north is unchanged. Patrons accessing the Southwood Hotel from south of Tecumseh Road West must use Crawford Avenue then Giles Boulevard West to get to Wellington Avenue. Pedestrian access will not change.

5.4 The Preferred Design for Tecumseh Road West Access from South Cameron Boulevard

The preferred design for Tecumseh Road West access from South Cameron Boulevard is to remove direct access to Tecumseh Road West by terminating South Cameron Boulevard in a cul-de-sac south of Tecumseh Road West, provide a connecting road westerly from South Cameron Boulevard to Curry Avenue which has direct access to Tecumseh Road West.

This preferred design was presented as Alternative No. 1, the recommended design at Public Information Centre No. 2. This design was selected unanimously by the eleven attendees that responded to the questionnaire section included on the Public Comment sheet available at the information centre.

This preferred design which provides vehicular access to/from South Cameron Boulevard and Tecumseh Road West, does not impact the Field of Dreams Park.

Although few Curry Avenue residents attended Public Information Centre No. 2 or submitted written comments, one area resident commented that this alternative design is not in the best interests of area residents. Concern was expressed by this individual that the connecting road would introduce additional traffic to the neighbourhood including trucks which is of particular concern. To alleviate this concern the proponent has introduced a variance to the preferred design that disconnects the new truck route from Curry Avenue, refer to Figure 18 of this report. This alternative was identified as Alternative No. 1A at Public Information Centre No. 2. This alternative can be implemented as part of the implementation of the selected preferred design or can be constructed at a later date if suspected conflicts are realized.

5.5 Property Acquisition

The Class EA for the Subway Structures at Wellington Avenue, resulted in a selected preferred design that is similar to the design that was presented in the Tecumseh Road West Functional Report, November 1980. The Functional Report identified general property requirements to implement the improvements to Tecumseh Road West. Subsequent to that study the City had initiated a property acquisition program and have since purchased many of the properties identified in that study.

Included in a sleeve at the rear of this report is Figure 20, a property acquisition plan which shows the property acquisition status as of the completion of the Tecumseh Road West Subway Structures at Wellington Avenue Class Environmental Study Report.

5.6 Cost Sharing

The Tecumseh Road West Grade Separation at Wellington Avenue has been studied for in excess of twenty years, but has not proceeded to construction largely as a result of a lack of funding.










The City of Windsor was advised in the Fall of 1993, that funding for this project had been approved as part of the Strategic Transportation Program (STIP) which is financed through the federal government's Strategic Capital Investment Initiative (SCII) for transportation infrastructure.

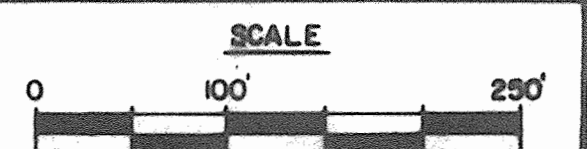
Under STIP, the federal and provincial governments have agreed to fund this project based on estimated shareable expenditures of \$10,300,000.

Railway contributions are as defined in the National Transportation Agency of Canada "Guidelines for Apportionment of Costs of Grade Separations". For projects due primarily to highway development, 15% of the eligible costs (costs associated with the basic grade separation) are attributable to the Railway Company.



LEGEND

-  LANDS WITHIN BOUNDED AREA TO BE ACQUIRED
-  LANDS ACQUIRED
-  LANDS NOT ACQUIRED AS AT 16 MARCH 1986
- PHASE
 -  RESIDENTIAL
 -  COMMERCIAL
 -  INDUSTRIAL
 -  VACANT
-  PARTIAL TAKING
-  COMPLETE TAKING
- IDENTIFICATION NUMBER



**TECUMSEH ROAD WEST
SUBWAY STRUCTURES
AT WELLINGTON AVENUE
ENVIRONMENTAL STUDY REPORT**

**PROPERTY ACQUISITION PLAN
FIGURE 20**

DILLON
Consulting Engineers • Planners
Environmental Scientists

*Tecumseh Road West
Subway Structures at Wellington Avenue
Environmental Study Report*

Cost sharing is also attributable to a number of utility companies who will be upgrading their facilities as part of the project.

Cost sharing for this project is as estimated in the following:

GROSS COST	STIP FUNDING	RAILWAY FUNDING		OTHER (UTILITIES)	CITY SHARE
		ELIGIBLE	SUBSIDY		
\$17,100,000	\$8,690,000	\$11,270,000	\$1,690,000	\$930,000	\$5,790,000

Preliminary cost estimates, including preliminary cost sharing are based on typical unit prices being tendered for similar work as at December 1994.

The cost estimate provided does not include the following:

- on-site soils investigations and quality control testing
- financing costs
- legal costs
- Goods and Services Tax

6.0 MONITORING AND MITIGATION

6.1 Monitoring

As part of the detailed design for improvements on Tecumseh Road West Subway Structures at Wellington Avenue, the City of Windsor will ensure that the following work will be completed:

- develop detailed plans for the gravity sewer to be constructed along the railway lands, outletting to the Detroit River. This stormwater management strategy is to be reviewed and approved by MOEE, MNR and ERCA;
- develop a streetscape plan for improvements on Tecumseh Road West;
- develop detailed plans for the replacement of the existing deteriorated subway structures on Tecumseh Road West at Wellington Avenue;
- coordinate required utility relocations with utility companies;
- conduct negotiations with affected property owners for property acquisition;
- conduct negotiations with affected railways to agree on cost sharing of mutually beneficial works; and
- consultation with affected property owners in the Curry Street neighbourhood regarding the alternative design which could cul-de-sac Curry Avenue.

The construction of works that comprise the Tecumseh Road West Subway Structures at Wellington Avenue project, will be monitored by competent full time inspection staff to ensure that standard construction practices are being implemented by the Project Contractor. This inspection will ensure that the project site will be safe, and that negative aspects associated with construction projects, such as noise and dust, will be mitigated to the greatest extent possible. This inspection will also provide a monitoring function to ensure that measures are taken to address any archaeological and/or heritage concerns that may be encountered during construction.

6.2 Mitigation

To mitigate negative impacts to traffic associated with the temporary closing of Tecumseh Road West at the location of the subway structures, the City will formulate an appropriate detour plan complete with signage in accordance with Provincial Ministry of Transportation standards.

Emergency services providers and selected others will be given advance notice of the temporary closing and recommended detour route.

With respect to mitigating negative impacts to pedestrian movements during the temporary closing of Tecumseh Road West at the subway structures, during construction, the City will investigate the possibility of providing temporary guarded passage.

Alternatives for school children passage during construction at the subway structures will be investigated with school board representatives. Potential mitigation methods such as busing, alternative pedestrian access, etc. must be evaluated once more information regarding timing and duration are more clearly defined.