

Little Squalicum Park

Site Management Plan

**Prepared for the Whatcom County Parks and
Recreation Board**

Little Squalicum Park
Site Management Plan

4/14/90

Prepared for the Whatcom County Parks and Recreation Board

Tim Wahl, Park Planner
1125 16th St Trail
Bellingham, WA 98225

Landscape concepts for Marine Drive Gate and Maryland St Entrance
prepared by Binda Colebrook, 3560 B Alm Road, Everson, WA 98264

Recognition and Thanks are extended to:

Rich Neuenfeldt and Becky Neeley at Chicago Title
David Mason
Roger DeSpain
The Squalicum Beach Committee
George Kaas
Bill Bonsen at the Soil Conservation Service

CONTENTS

INTRODUCTION; Site Definition and Management Plan Concept	1
PROPOSED SITE MANAGEMENT PLAN	
Outline of Management Plan Elements	3
The Plan at a Glimpse; A Summary of Its Major Physical Elements	3
Management Policies and Guidelines	
Short Term Site Operation by Multiple Owners	5
Access and Circulation Management	
Private Passenger Vehicles in the Ravine	8
Motor Vehicles on Site and Transit	8
Disabled Parking and Access	9
Park Entrances and Parking	10
Sidewalks Providing Park Access	12
Trail Classifications, Widths and Alignment	13
Managing Trailless Areas	14
General Management	
Plant Materials	14
IPM and Ecological Restoration	15
Public Education and Site Research	16
Wetlands and Water Quality	17
Wildlife Habitat	18
Sculptural Art	19
Management Cells System and Guidelines	19
Cell by Cell Management Recommendations	20
Short Term Action Recommendations	
Projects List	30
Preliminary Landscape Plan, Maryland St Entrance	33.1
Preliminary Landscape Plan, Marine Dr Gate	33.7
Master Plan for Maximum Development	34.1
Phasing Issues and Scenarios	35

(continued)

CONTENTS

(continued)

BACKGROUND INFORMATION

Area Land Ownership	36
Area Land Use and Shoreline Controls	40
Stormwater and Stream Flows Map	43.2
Existing Wetlands Map	43.3
The Site in a City and County Context; City Map and Western Whatcom County Map	43.5
Historical Notes on the Little Squalicum Area and its Watershed	44

APPENDICES

Excerpts: Huxley College Squalicum Beach Environmental Assessment Study; Groundwater, Soils, Winds, Water Quality. March 1988.

Excerpt: Little Squalicum Creek Watershed Water Quality Issues Summary, U.S. EPA Bellingham Bay Action Program Initial Data Document, August 1989

Little Squalicum Wild Plants List. Compiled by Al Hanners.

Trail Classifications, City of Bellingham Trail Program

Grant Proposal Maps for Washington State Inter-Agency Committee for Outdoor Recreation for Little Squalicum Trail Property Purchase, City of Bellingham, 1989.

Excerpt: Six Year Capital Improvement Plan, Whatcom County Comprehensive Park and Recreation Open Space Plan, Ordinance No. 89-71, 8/3/89, pages VIII-8,9.

LIST OF MAPS

MANAGEMENT PLAN

Site Definition and Place Names	1.1
Public Access, Circulation and Parking	10.1
Management Cells	20.1
Master Plan	3.1 & 34.1
W. Maryland Entrance Area Preliminary Landscape Plan	33.6
Marine Drive Gate Area Preliminary Landscape Plan	33.9

BACKGROUND

Area Land Ownerships	39.1
Area Land Use and Shoreline Controls	43.1
Stormwater and Stream Flows	43.2
Existing Wetlands	43.3
The Site Within Western Whatcom County	43.5
The Site in the Bellingham Urban Area	43.6

APPENDICES

IAC Grant Proposal Maps for Little Squalicum Trail,
City of Bellingham

West Meadow and Beach Area 1990 Sewer Survey Maps

INTRODUCTION

THE "SITE" DEFINED; WHY A "MANAGEMENT" PLAN?

There are two parts to this planning report, a SITE MANAGEMENT PLAN section and a BACKGROUND section, as outlined in the table of contents. They are usually bound together.

Information included in the Background section forms much of the basis for the Management Plan.

What is the "site" ?

The map on the following page defines the area described as the site. That area is made up of public lands and some private lands, all with some major or minor, existing or potential uses that involve public recreation and open space. The document goes on to examine areas within this site in greater detail, identifying the different owners and issues that are woven together to make up today's and tomorrow's recreation and open space site.

The Site as an Element of the Bellingham Area Greenways System; It is much more than an isolated park site.

The narrow half-mile long 13 acre county park site functions more as a greenbelt than a park. Much of the site is either steep slopes or low-lying wetlands. These features combined with the relative difficulty and high impacts of moving automobiles on and off the site and the increasing scarcity of natural open space strongly indicate a greenway role for Little Squalicum Park that largely involves passive uses and trail movements. The City of Bellingham Comprehensive Plan places Little Squalicum and its beach area at the west end of a 7-mile trail corridor linking Bellingham Bay with Lake Whatcom. This Railroad Bikeway/Little Squalicum Greenway is largely comprised of publicly controlled open space and trails. It includes two abandoned railroad grades and provides numerous inland neighborhoods with shoreline access. The City of Bellingham has recently acquired the last major segment of the Greenway, the BTR railgrade between Squalicum Way and Edens Avenue.

Why a "management plan" and not just a "plan"?

1. There are four major owners of the site now used for public park and beach uses (Port of Bellingham, Whatcom County Parks, Tilbury Cement, Burlington Northern Railway). These owners need to jointly discuss operating issues and arrangements prior to formalization of public open space and prior to development of specific designs and proposals for many site elements. There are three other property owners who will or may be affected by the

site plan proposed here (Parberry, BVTI-Bellingham School District, BN-Glacier Park). These other properties all involve coordinated planning and operating arrangements by the first four owners. This joint usage and planning is at the heart of the County Shoreline Program goals for the area. The Program calls for strong encouragement and maintenance of multiple uses of the largely natural shoreline.

2. This plan proposes that site vegetation largely represent native plant materials and that principals of integrated pest management (IPM) and "hands-on" ecological restoration be encouraged and employed when practical. Applying these concepts and disciplines to the extremely "weedy" site poses a significant technical challenge to local restorationists and to County staff.

Incorporation of publicly accessible (interpretive) research projects within the park landscape and enhancement of the site for diverse bird and small animal species are also proposed. These education- and ecology-based efforts, especially combined, are new and unique in local park tradition and call for seriously examining the roles and requirements of those implementing the management plan and "fleshing out" the future design elements to ensure its success. The realization of this management plan will require the cooperation and participation of actors with a wide range of technical and organizational tools, many not normally employed in park site development and management. A special oversight or advisory body is needed. This planning document assumes such participation by identifying and integrating varied functional and aesthetic "cells" throughout the site, while broadly defining issues and elements within them, which may be addressed by individuals and groups involved with design, research, and hands-on implementation.

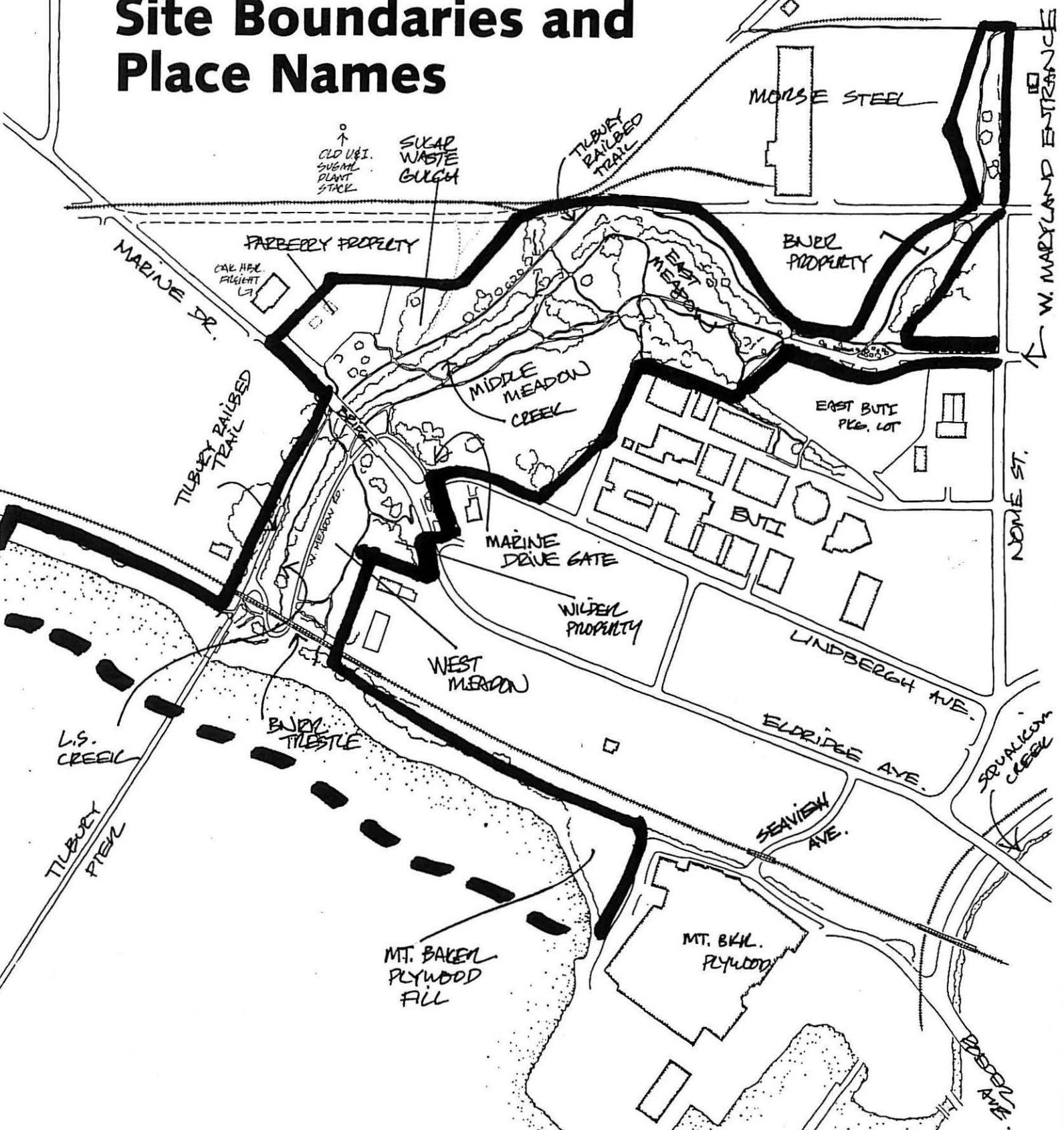
Citizen and Technical Involvement is Critical for the Ecological Restoration, Education, Landscape and Habitat Elements Proposed.

Except for the following sentences this study does not address how implementation of this management plan might be coordinated or overseen by a body such as that alluded to above. A technically and educationally oriented group of citizens advising the County appears essential during the next few years. It will also be necessary to employ qualified designers and researchers and County staff to assist such a group.

CEDARWOOD AVE

Little Squalicum Park

Site Boundaries and Place Names



NOMIA

MORSE STEEL

BJER PROPERTY

FARBERRY PROPERTY

MIDDLE MEADOW CREEK

EAST BUTE PKE. LOT

BUTI

MARINE DRIVE GATE

WILFEN PROPERTY

WEST MEADOW

LINDBERGH AVE.

ELDRIDGE AVE.

SEAVIEW AVE.

MT. BAKEL PLYWOOD

MT. BAKEL PLYWOOD FILL

SQUALICUM CREEK

ROSSER AVE.

MARINE DR.

CAR. HBL. FLIGHT LT.

TILBURY RAILBED TRAIL

TILBURY RAILBED TRAIL

SUGAR WASTE GULCH

OLD U.S.I. SUGAR PLANT STACK

W. MARYLAND ENTRANCE

NOME ST.

L.S. CREEK

TILBURY PIER

SITE MANAGEMENT PLAN (Draft Proposal 4/14/90)

OUTLINE OF THE SITE MANAGEMENT PLAN

An opening section titled MANAGEMENT POLICIES AND GUIDELINES contains three parts which establish how the site will be developed and operated. A Short Term Site Operation by Multiple Owners section introduces the Management Plan by proposing some basic roles and responsibilities for owners of the main park site. An Access and Circulation Management section examines off-site, peripheral and on-site access provisions and opportunities that are functionally important and often integral to the Little Squalicum Park site. If these access elements involve numbered management cells within the park site they may also be discussed in greater detail under the following sections, General Management and Cell by Cell Management. The Management Cells Map divides the Little Squalicum site into a series of cells or zones for the purpose of discussing, inter-relating and proposing a varied but coordinated series of design and management guidelines and policies for different subareas.

A SHORT TERM ACTION RECOMMENDATIONS section outlines several landscape and access actions that may be undertaken immediately to enhance aesthetics and ease liability, safety and dumping problems in the upland portion of the site.

A summary of maximum allowable development or maximum alteration inherent in the recommended and combined management guidelines is presented in a MASTER PLAN section. The Master Plan Map provides a longer term glimpse at what the Management Plan text envisions. The Master Plan will inevitably be modified as planning and design proceed and it is purposely general, especially at the level of species and design details.

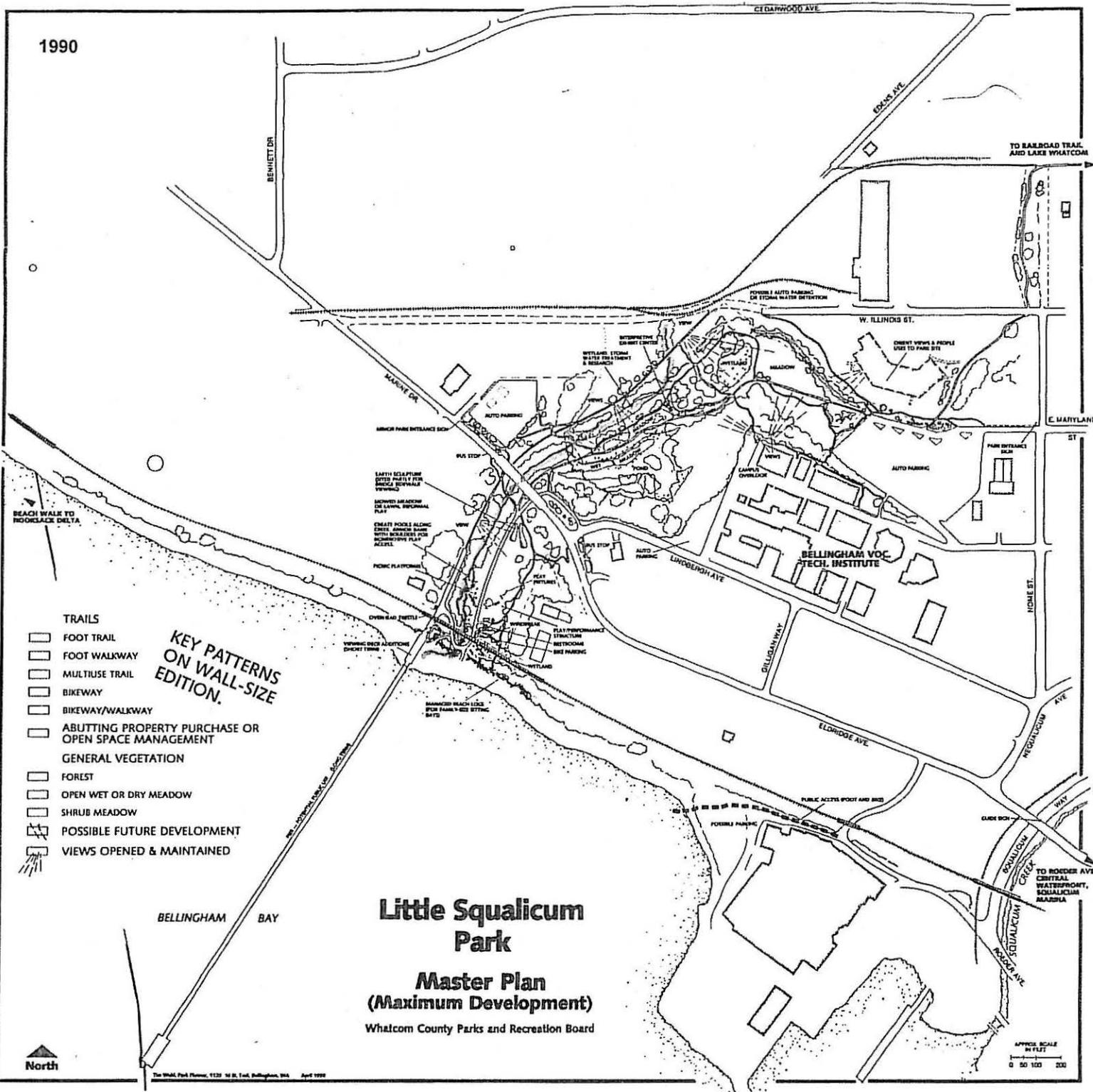
A final PHASING ISSUES AND SCENARIOS section discusses some of the possible ways in which the Master Plan might be implemented in phases and what alternative combinations of site actions imply for related and later actions.

THE SITE CONCEPT AT A GLIMPSE-- A SUMMARY OF ITS MAJOR PHYSICAL ELEMENTS

Those readers desiring a quick overview of the what is physically proposed for the site should read the following paragraphs and turn to the map on the next page.

This plan calls for maintaining the majority of the site, east of the Marine Drive bridge, in "natural" state, while improving the

1990



- KEY PATTERNS ON WALL-SIZE EDITION.**
- TRAILS
 - FOOT TRAIL
 - FOOT WALKWAY
 - MULTIUSE TRAIL
 - BIKEWAY
 - BIKEWAY/WALKWAY
 - ABUTTING PROPERTY PURCHASE OR OPEN SPACE MANAGEMENT
 - GENERAL VEGETATION
 - FOREST
 - OPEN WET OR DRY MEADOW
 - SHRUB MEADOW
 - POSSIBLE FUTURE DEVELOPMENT
 - VIEWS OPENED & MAINTAINED

Little Squalicum Park
Master Plan
(Maximum Development)
 Whatcom County Parks and Recreation Board



The Small Park Plan, 1120 16 St. East, Bellingham, WA April 1990

APPROX SCALE IN FEET
 0 50 100 200

west meadow portion of the site west of the Marine Drive bridge for more intense human uses involving more traditional park improvements.

Motor vehicles and auto parking would be virtually kept out of the ravine area with the exception of some "working" industrial traffic. Peripheral auto parking would be provided at several upland locations to reduce noise, safety conflicts and other negative impacts in a very confined park area sought by many users.

The human use facilities provided emphasize passive and informal uses rather than organized activities or sports. In the eastern portion of the site the primary human activity will be walking and bicycling on trails that largely avoid forest, meadow and wetland areas enhanced for wildlife habitat. Exhibit fixtures and some "ornamental" landscape elements would occur along the trails. In the west part of the site picnicking, play activity and beach sitting and walking and trail use would add up to a busier park environment. A restroom and some sitting and play fixtures would be provided.

No lasting or major physical alterations to the beach area are proposed. While the beach is recognized as the major attraction for most of the park's users the management plan calls for keeping it informal, free of clutter at its most popular "center" and affected more by winter storms than by structures or fixtures. However, the plan does anticipate much greater beach visitation, especially if the Tilbury Pier were to become accessible by the public.

While the plan seeks a "natural" character for most of the site many changes are proposed. These involve controlling and eliminating certain plants, adding new plant species, improving trails and excavating new wetlands.

A key difference envisioned for this site is that changes in vegetation and character would occur more gradually using careful research and monitoring suited to the varied environments within the site. (See the discussion of IPM, and ecological restoration.) Several "development phases" would evolve through these carefully conceived actions; in actuality such phases would continue and cannot really be called "development", since the animals and plants on the site seldom use such words. Thus a "park" resembling something like the Master Plan would grow into existence appearing more natural and far less "managed" than most parks, and certainly more natural and gradual than the mining and industrial operations that have heavily altered the current site.

MANAGEMENT POLICIES AND GUIDELINES

TEXT NOTATIONS

P/O boldface text indicates proposed Policies or defined Objectives which serve as the basis for the Management Plan.

G text indicates proposed Guidelines directing further site planning, design and construction activities in the policy area being discussed.

D indicates Discussion text that elaborates policy or guideline issues or which may be used in development of future policy or guidelines.

I. Short Term Site Operation by Multiple Owners

P/O Consistent with the intent of the County Shorelines Program the Port of Bellingham, Whatcom County and Tilbury Cement should coordinate their activities and jointly permit defined public uses that are consistent with an overall Little Squalicum Site Management Plan. These agencies would develop operating procedures for the ongoing implementation of the Management Plan. Burlington Northern Railroad should also be a participant in several aspects of the Plan.

P/O To reduce their liability for traditional recreational uses now occurring and which are steadily increasing Tilbury and the Port should grant recreational easements to the County for the public uses defined in this Management Plan. The County would then assume the role of lead operator with respect to recreational uses. As part of such a plan the County would grant easements to the Port and Tilbury for current and planned uses involving the park property.

D The County Shoreline Program calls for multiple uses of Little Squalicum Beach and limiting industrial and development activity along the majority of it to preserve natural resources and natural qualities. Development of the tidelands below the Ordinary High Water Mark is "sharply limited" by County shoreline regulations to uses which are compatible with fish and wildlife resources and with recreation activities such as beach walking and play in the intertidal zone. The regulations clearly state that uses incompatible with shared resource conservation and recreation should be located elsewhere in the County. Development consistent with this multiuse/resource policy might incorporate landfills in limited instances, breakwaters, piers, jetties etc., all as conditional uses.

Under current Shoreline regulations development of the uplands at southeast corner of Little Squalicum Beach (the north corner of the Mt Baker Plywood Lease above the Ordinary High Water Mark, Management Cell W1B) would require 50 to 75' setbacks from the OHWM. Shoreline policies addressing the remaining approximately 1-1.5 acre portion of this area state that public access to the shoreline should be provided.

A proposal to extend the Conservancy Shoreline Area 600' to the southeast would further limit development of uplands at the end of Little Squalicum Beach. The County Shoreline Ordinance is now also undergoing a revision which would reclassify Tilbury's tidelands below the old Olympic Portland Cement Plant site from Urban to Conservancy. The Tilbury reclassification is uncontested and uncontroversial and essentially recognizes that the primary character of the Port and Tilbury beachlands and tidelands northwest of Tideland Lot 5 should remain natural and publicly accessible while accommodating limited and compatible industrial uses.

Rather than exhaustively examine and debate the long term implications of joint management and dedications to recreation, recreational easements could be granted now on a revokable basis which would reduce liability for the owners under RCW 4.24. Law enforcement and fire prevention services could be substantially improved by a one-manager system and increased public use of an improved site. (Tilbury has expressed interest in this approach for its upland property.) Currently activities like swimming, camping, dumping, beach fires, beach parties, motorbike racing, shooting and tree cutting all occur on Port, Tilbury and Burlington Northern property (and County land) in a sort of "no man's land" atmosphere. The public is largely unaware of which activities are illegal or unsanctioned by owners. Many members of the public who would readily report abuses simply avoid the site or avoid reporting activities that are not addressed by formalized site rules.

Due to a severe county shortage of public lowbank beach access and due to a worldwide diminishing supply of tidal wetlands and natural fisheries this management plan draft proposes that the Port formally adopt a plan to preserve the tidelands at the southeast end of Little Squalicum beach and that some form of public access to the beach be provided at the north corner of the Mt Baker Plywood lease fill. Recommendations to that effect are addressed under management cell W1B and under Public Access and Circulation Management below. (Further discussion is anticipated and intended on this issue.)

P/O Regardless of any public rights which might be conveyed to the tideland areas of the site the County should assume and argue for some prescriptive public recreational rights to these areas. The public has used the tidelands in an open and unrestricted

manner for at least 80 years and these lands include the only significant sand flats on the Bellingham urban area's last remaining beaches.

P/O The Port, Whatcom County and Tilbury should all maintain prescriptive rights to undercrossings beneath the Burlington Northern trestle. None of these rights have ever been recorded yet crossings have been allowed for just under 100 years on an open and unrestricted basis.

D The County, as lead operator of a recreation site, would need to negotiate several management practices with BN. These include non-spray vegetation control beneath the trestle (probably assumed by the County) and location of some park fixtures within the BN right-of-way. BN owns the most popular part of the beach which is regularly used for sitting, sunbathing and swimming.

P/O The County and Tilbury should agree to permit and manage public use of the Tilbury upland properties within the site. Other than fencing to preclude pier use and signs indicating general regulations no fences or restrictions on non-motorized public movement would be involved unless a change in Tilbury's pier activity occurred. The County would agree to enhance fire and police security, would be responsible for some maintenance and would permit continued Tilbury use of the Park lands for access.

D With the possible exception of the Tilbury railgrade upland areas and rights owned by Tilbury and the Port appear to be zoned for recreational uses. Under a revokable recreation easement Tilbury could withdraw from or renegotiate the provisions of this management policy. Tilbury now uses park property for access to its pier. Changing this access, especially for larger industrial vehicles, would involve extensive disruption of wetlands and terrain.

P/O The Tilbury Pier should be recognized as an outstanding potential recreational asset for the County and City. If it were to become available for public use the County should aggressively pursue its conversion to recreational uses as a major element of the Little Squalicum Park.

P/O Within the short term public use of a portion of the Tilbury Pier spanning the beach should be pursued by the County and discussed with Tilbury. Such short term use would involve improving a short 50' to 75' section of the 2000' long pier as a sitting and viewing platform overlooking the beach.

II. Public Access and Circulation Management

A. Private Passenger Vehicles Inside the Ravine

P/O Private motor vehicles will not be allowed access to the floor of the excavated Little Squalicum ravine, except for Tilbury vehicles, other vehicles accommodated as part of the Management Plan and except for specially accommodated disabled/senior patron van pools.

D The pressure on a very limited number of public shoreline sites, especially those with low bank access and beach environments, is extremely intense. In such cases the often limited upland areas that could be used for beach-related people activities like play areas, picnicking and passive enjoyment can be quickly and permanently consumed by motor vehicle parking that serves relatively few users and encourages "unrequited searches" for additional parking and encourages even greater vehicle visitation. Fully one third of the area of Boulevard Park is devoted to paved auto parking which does not come close to satisfying actual peak period parking demand. Marine Park is another example of how parking can consume a high percentage of a valuable shoreline open space site while falling far short of actual demand. Whatcom County also has a tradition of popular walk-in beaches with remote trailheads, indicating the willingness of the public to walk distances comparable and even greater in length than those proposed for this site. Restrictions on auto access reflect the intent of the County Shorelines Program; under Recreation, Site Capabilities the Program's policy text states: "The type and concentration of recreational development of an area should be dictated by the physical limitations and opportunities of that area. Such conditions as soil characteristics, slopes, geological features, surface and subsurface drainage, water tables...and native plant and animal life should be taken into consideration when planning recreational development of an area."

B. Motor Vehicles on Site and Transit

P/O Motor vehicles operated by Tilbury and the Port and their grantees in a manner consistent with this Management Plan will be permitted on the West Meadow road and Tilbury railbed road. This may also include access by treaty fishing operators who enter into agreements with the County.

D An easement for Port, Tilbury and BNRR use of the County Parks road is needed as part of the Management Plan. Current levels of industrial pier access and anticipated railroad maintenance and treaty fishing activity are compatible with public recreation. (Notable examples of even more intense, combined industrial and recreational activity sites include Granville Island in Vancouver and the Port of Seattle's Pier 91.)

The existing County Parks road provides the best current vehicular access to the pier and beach. Relocating vehicular access to the Port right-of-way or the Tilbury properties would involve extensive alteration of the Little Squaticum Creek wetland. While wetland enhancement and reconstruction may be possible as part of such a relocation the changes in pier use that might warrant such a redesign of the West Meadow area not anticipated at present.

Shore-based gillnet fishing and its associated vehicle access could be permitted, subject to site use agreements with treaty fishermen. Treaty gillnetting could be an interpretive asset to the site providing the current problems with camping, littering and monopolization of limited beach space are resolved. Accommodation of a gillnet fishery is encouraged by the multiple use and resource conservation provisions of the Conservancy County shoreline designation and greatly strengthens development controls in the area. Vehicle access rights could be granted to fishermen who participate in the Management Plan.

G Limited parking for these vehicles should be accommodated on the widened Tilbury railbed fill northeast of the BNRR trestle and not on the more heavily used lower West Meadow level. Parking for fishermen might be provided on the Mt Baker Plywood lease fill in management cell W1B.

P/O The northbound Whatcom Transit Authority bus stop and its landscaped periphery (just south of the Marine Drive gate) should eventually be upgraded to be a prominent thematic extension of the Park site, including a shelter and park area maps. In conjunction with on-site trail improvements the southbound WTA bus stop at the north end of the bridge should also be upgraded to include a shelter.

D/G A considerable amount of open space could be landscaped around this transit stop. The possibility of an informational panel for short term motorist viewing should be examined here; no parking regulations are quite easy to enforce at transit stops. The bus stop would be served by both the Marine Drive gate and a trail across Marine Dr, located so as to constitute a legal crosswalk at the Marine/Lindbergh intersection.

C. Disabled Parking and Access

P/O Parking for disabled park patrons using private passenger cars should not be provided in the west meadow area. Van pools for disabled patrons, operated by professional drivers, should be accommodated near the beach. The Tilbury railgrade trail and new access from a public parking area on the Parberry property (a distance of about 1100') should be improved and constructed to meet state and federal wheelchair standards. The main gully floor bikeway (between the beach and the east BVTI parking lot) and

several of the foot trail segments paralleling it will be fully wheelchair accessible.

D As noted above flat public land at beach level is extremely limited on this site and throughout the county. Providing improved parking and roadway access for private motor vehicles will consume open space that is in short supply and will result in unacceptable levels of traffic in a confined area. Providing access to disabled drivers would open up the gully and beach to unauthorized driving by the entire public, involving ongoing enforcement, noise and safety problems.

G Parking for van pools with access through a controlled barrier should be accommodated on the widened Tilbury railbed staging area or at informal locations on the lower meadow level intended to serve multiple uses and minimize visual and surface impacts.

P/O If a portion of the Mt Baker Plywood lease fill adjacent to the beach becomes available for public parking that parking should be carefully managed and designed to ensure adequate disabled patron access to the southeast end of the beach.

D. Park Entrances and Auto Parking

P/O Public access to the Little Squalicum Park site should be accommodated at six basic pedestrian and bicyclist entry points shown on the attached Public Access and Circulation map. Supporting motor vehicle parking will be provided at from 2 to 4 peripheral parking lots.

The six pedestrian/bicyclist entry points are:

1. Marine Drive, North.
2. Eldridge/Marine Drive, South.
3. The Little Squalicum Trail at the north end of the Nome St right-of-way.
4. East Maryland and the BVTI east parking lot access road.
5. The Tilbury Railbed Trail at the extension of the East Illinois St right-of-way.
6. A corridor extending Roeder Avenue along the base of the bluff north of Seaview Drive and east of the Mt Baker Plywood complex.

The 2 short term peripheral parking lot locations are:

7. The east BVTI parking lot.
8. The northwest BVTI parking lot.

- TRAIL TYPES**
-  FOOT TRAIL
 -  WALKWAY
 -  MULTIUSE TRAIL
 -  BIKEWAY
 -  BIKEWAY/WALKWAY
(SEE TEXT)

ITEMS 1-6 - PARK ENTRANCES

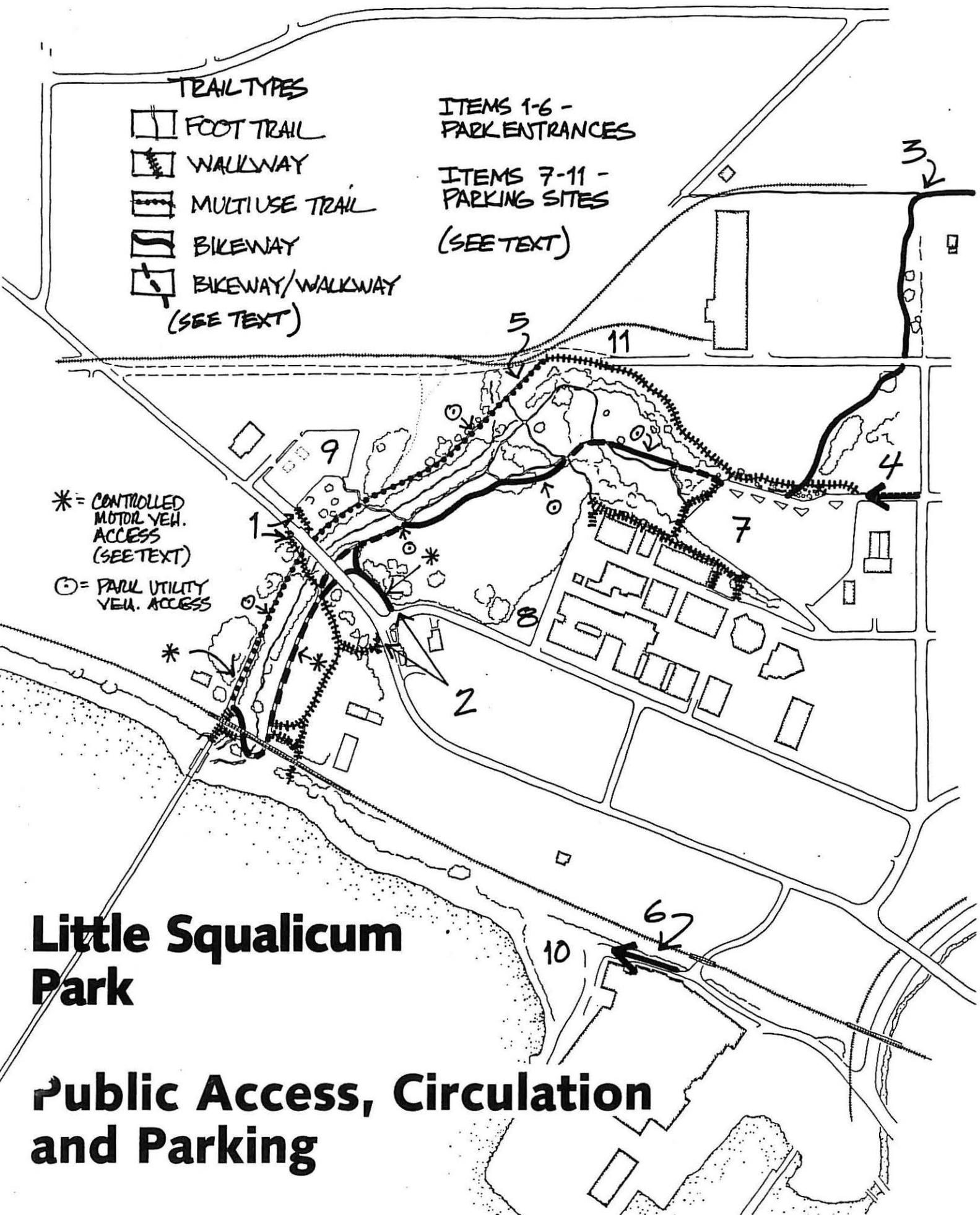
ITEMS 7-11 - PARKING SITES
(SEE TEXT)

* = CONTROLLED MOTOR VEH. ACCESS
(SEE TEXT)

⊙ = PARUL UTILITY VEH. ACCESS

Little Squalicum Park

Public Access, Circulation and Parking



Two additional longer term parking sites may be built at:

9. The Parberry property north of the Marine Drive bridge.

10. Limited parking on Port of Bellingham property on the Mt Baker Plywood fill near the northeast corner of the present plywood plant building complex.

P/O Park patron use of the two BVTI parking lots will be permitted but secondary to BVTI staff and student uses and subject to change as the demand for Institute parking changes. Parking at the northwest BVTI lot will be on a weekend and non-school hours basis and may be regulated by BVTI. Parking at the east lot will be on an as-available basis until a need for a priority BVTI use becomes evident and feasible to regulate. As long as there is room for public parking in the east BVTI lot park patrons may be routed there with directional signing. BVTI will work with the county to remove or open the existing gate for public park access as this access is needed.

D The BVTI lot has a tradition of informal and permitted use for recreational activities, including autocross and park site access. An October 31, 1989 agreement between the County and BVTI approves uses of the east parking lot for public park parking.

D Peripheral public parking is also available in the Lindbergh and Nome right-of-ways and may become available in the Illinois right-of-way to be dedicated to the County. Another potential parking site is shown as item 11 on the map. This portion of the Morse Hardware site has some limitations for building uses and could be considered if the Parberry site becomes unavailable. Parking for senior and disabled patron van pools could be accommodated on the wide portion of the Tilbury railbed east of the BNRR trestle. This assumes professional drivers who would participate in a controlled access program. General access to the beach and west meadow area by disabled drivers is probably not feasible. Thus the Parberry parking site is even more important for accommodating disabled patrons via a minimal walkway to the Tilbury Railbed trail.

P/O Purchase of the Parberry site north of the Marine Dr bridge is recognized as the only opportunity to significantly expand park parking in a convenient and visible location. This parking would be especially critical in the event that the Tilbury pier were to become accessible to the public for recreation. The County should seriously examine the cost and availability of the Parberry property.

G Only about half or two thirds of the Parberry site should be developed for parking and the remainder of it, Sugar Waste Gulch and its east bank, should be managed as open space.

D The two BVTI lots are remoter than the Parberry site, and are subject to priority uses by the Institute. Their use also involves routing auto traffic onto neighborhood streets.

P/O Until and unless the Parberry site is developed for public parking public directional and name signing for the park will be carefully designed and located so as to minimize parking activity and turning movements near the Marine Drive bridge. Public directional signing for Eldridge Ave and Marine Dr traffic should refer to the "Little Squalicum Trail" and not a "park", thus indicating a remoter inland trailhead location and discouraging parking along these arterials. This signing would direct drivers to the east BVTI lot or parking along Nome St. Park name signing at the Marine Drive foot and bike entrance gate should be directed at non-motorized traffic entering the park and not to arterial traffic.

P/O If a change in land use occurs a limited capacity parking lot should be considered as a priority use for the Mt Baker Plywood fill at the southeast end of the Little Squalicum Beach.

G Any parking established here should be planned so as not to excessively infringe on shore open space or opportunities for reasonable beach restoration.

E. Sidewalks Providing Access to the Site

P/O The city and county and County Public Works Departments should act together to improve and construct sidewalks along Lindbergh between BVTI and Marine Dr and along the west side of Eldridge and Marine Drive between the improved asphalt shoulder in the city to Bennett Dr in the county.

D The Eldridge/Marine Drive sidepath is unsurfaced yet regularly used. The Lindbergh sidewalk is in disrepair and its upgrading involves structural work to the entire roadbed and/or realignment of the motor vehicle lanes to the south. The broken curbing along the Lindbergh sidewalk is particularly unsightly and permits driving and parking along the eroding roadway edge.

F. Trail Classifications, Widths and Alignments

P/O Bicycle and foot travel on the site will be encouraged and conflicts between them will be addressed by constructing and operating a variety of facilities to separate them whenever practical. Five types of trails are established for the site. Their alignments are shown on the Master Plan Map(s) and their typical cross sections are described below:

Foot Trail. Typically "rustic" 3 to 5 feet wide and unpaved.

Walkway. Typically "formal" 5 feet wide, paved and often wheelchair accessible.

Multiuse Trail. Typically 8 feet wide, unpaved and permitting speed-inhibited bicycling.

Bikeway. Typically (but not always) paved, 10 to 12 feet wide and permitting normal speed bicycling.

Bikeway/Walkway. A special-case combination of a parallel bikeway and walkway separated by knee to tree size elements to enforce a bike-free walking surface.

D Each trail type is described further in an Appendix to the Little Squalicum Site Management Plan. Bikeways and Multiuse Trails are accessible to emergency and maintenance vehicles. In the case of this site the West Meadow and Tilbury Railbed road sections (used occasionally by industrial motor vehicles) are classified as Bikeways. Keeping Bikeways unpaved is one way to reduce bike speed in areas where lower speeds are desirable.

G Since no commuter movements would occur within the lower draw and since the area is intended for largely passive uses it is not necessary to pave the Bikeway through the East and Middle Meadow areas. Eventual paving is advised on other segments of Bikeway which are used for utility trips, are prone to erosion by motor vehicles and which can be improved to attract cyclists away from other surfaces.

P/O A foot-only interpretive loop trail route free from bicycle traffic will be established east of Marine Drive. A major bicycling trail will pass through the center of the site, part of a 7 mile predominantly off-street bicycling route from Lake Whatcom.

P/O Foot and bicycle access will be discouraged from improved trail surfaces by innovatively combining regulations, barriers, educational messages and aligning trails for convenient bypassing of sensitive areas.

G Trails themselves represent a way to limit access to particular areas by attracting traffic along anticipated and "unblockable" corridors of demand. Wetlands can be shaped to discourage access (often with moat extensions) and the effects of barriers and openings in influencing movements can be enhanced by employing timely visual cues for trail users.

G. Managing Trail-less Areas

P/O Areas shown without trails on the master plan map are intended to be relatively free of human activity and should be managed to discourage foot travel and other human uses.

G Foot travel off of trails can be discouraged using innovative and site specific combinations of barriers, visual access and signing or cultural demarcation. "Mystery reducing" visual access, in lieu of landscape elements that encourage physical exploration, and visual breaks leading users to "proper" movements can be useful. Signs and cultural demarcations include signs (with messages ranging from regulatory to suggestive and) symbolic barriers or markers of an interpretive or educational nature and involving less verbage. Site interpretation can be a useful way to define desired movement patterns. Barriers include plantings, wetlands, moats and climb- and roll-over surface obstructions like railing or headers.

Human entry is never completely controllable and if its repeated occurrence challenges aspects of the site management plan or its circulation element than plan reevaluation may be preferable to rigid "fortification" at problem areas.

III. General and Site-wide Management (Non-Access/Non-Circulation Issues)

A. Plant Materials

P/O Plant materials used and maintained on the Little Squalicum site should predominantly represent diverse species characteristic of the Georgia Strait coastal zone in Washington and British Columbia. Special emphasis should be placed on conserving and using local plant varieties whenever possible, especially those found on or near the site.

G Naturalized alien trees and shrubs on the site should be retained as long as they provide desirable functions and values for wildlife and humans.

G Other (non-Georgia Strait) plant species native to western Washington and western British Columbia may also be used if specially suited to subsite areas and complimentary to dominant local plantings.

D The "predominantly...diverse" plantings approach is actually more of a "new plants introduction" approach rather than a "conservation" approach: the site is not rich in diverse native vegetation and a minority of its potentially desirable plant species occur on the site at the present time. The site is highly altered by gravel mining and highly invaded by weedy Eurasian species. Further work is needed to identify and locate significant local natives and to assess the value of many non-native alien species. The actual distribution and selection of plant species will reflect cell-by-cell management policies and guidelines described below and particular ecological restoration and integrated pest management practices employed.

P/O Special attempts should be made to identify and conserve local plant varieties or species subject to "genetic swamping" by introduced plants.

D Two candidate species here are Black Hawthorn and Serviceberry varieties now on the site. A localized form of bigleaf maple (showing both characteristics of *A. glabrum* and *A. macrophyllum*) is also the subject of discussion.

B. Integrated Pest Management and Ecological Restoration

P/O Integrated Pest Management (IPM) and Ecological Restoration practices should be encouraged as part of site landscaping, revegetation and management actions and should be employed whenever practical.

D The field of IPM involves control of pest plant or animal species using fundamental biological information about each pest species and its vulnerabilities to efficiently control it without using "broader spectrum" chemical agents or physically disruptive measures. Examples of IPM techniques include simple measures such as cutting brush or trees when their energy reserves are stored above ground in the summer (thereby killing them more selectively and effectively) to more complicated administration of toxins, often very selective biological types, at critical times in a pest's lifecycle (thereby using less toxic material and killing few overall species). IPM often involves a more detailed understanding of the processes at work on a site than traditional park maintenance or construction does. It often involves more work phases and scheduling of work on a more drawn-out, seasonal basis. Properly conceived and conducted IPM can save money, maximize habitat values, reduce needless overkill and educate everyone involved in managing a site. The Little Squalicum site is heavily infested with weedy non-native species and successful IPM will require County support for educating its existing staff, obtaining technical information from new staff or consultants, and creatively engaging skilled volunteer workers and advisors.

Ecological restoration involves using the principals of ecology to re-establish interacting plants and animals on heavily human-influenced sites, to enhance diversity and create a relatively stable overall site environment, usually characteristic of pre-European settlement. Well-conceived ecological restoration admits that discovering and incorporating these ecological processes involves backing-off on controlling the site for purely aesthetic or functional goals. Incorporating ecological restoration into a park means taking longer to observe what is happening and taking longer to decide on how to intervene to shape a parks environment. This is a very different approach than hiring a designer to lay out a final site design and hiring one or two contractors to implement it in one construction season.

G Intensively utilized walking and playing surfaces in the West Meadow area, and some of their edge zones, will not be fully restored to represent native or predominantly natural ecosystems. These include lawn or meadow areas used for play and sitting etc. and surfaces sustaining active human use.

C. Public Education and Site Research

P/O Visible public education involving active research projects and environmental interpretation should be incorporated into the design and operation of the site and its elements.

D The terms "studyscape", "experimental park" and "research park" have been used to describe design elements and a design and operating philosophy which would physically call attention to research and restoration projects and natural processes taking place on the site. Such elements would seek to involve users with prominent landscape elements and might also encourage the participation of groups and individuals in special projects. It will be important to involve researchers and educators in the ongoing management of the site to make quality interpretation a part of the site.

Public education is evolving as a core element of ecological restoration. Restoration often properly involves monitoring of experimental actions. Restoration involves understanding the natural processes taking place on the site by "letting them go" to some extent and not seeking to control them purely for managing or influencing their aesthetic qualities. This approach is very different from a traditional park landscaping program. It involves a premise that what people do to the landscape will not necessarily shape its final form. It acknowledges that nature will work with its human contributions to create an ultimate aesthetic environment and that human intervention to influence function and aesthetics should take many of its cues gradually and in response what is happening on the site. Restoration naturally generates the question, "Restoration to what?"-- a subject with great interpretive potential.

D. Wetlands and Water Quality

P/O Wetlands should be maintained, enhanced and constructed as functional and aesthetic elements of the site. Functions and values of wetlands include wildlife habitat elements, barriers to maintain "people free" areas, treatment of polluted surface and storm flows and provision of a varied aesthetic environment.

G Wetlands on site should be enhanced using plants from nearby wetlands like the Lost Lake wetlands north of the airport and the Nequalicum Bluff wetland near Squalicum Creek.

G Wetland enhancement should include nonchemical mosquito control provisions.

D Mosquitos are sometimes a seasonal problem in the Middle Meadow area and study of control options is necessary. Enhanced wetlands can include introduced larvae predators and provisions for water level manipulation.

D Many of the wetlands on site are highly man-influenced and overall plant diversity is rather low. The Cell by Cell Management discussion addresses individual wetland issues.

G Presumed public safety and liability risks associated with wetlands should be managed in the same manner that other highly successful public access wetlands such as Tennant Lake are managed. Design and demarcation efforts would be employed to define appropriate public uses.

P/O Polluted wetlands on the site are a fact of life and reflect frequently common levels of urban exposure to environmental contaminants. Polluted wetlands on the site should be featured in interpretive exhibits and other on-site media. Research should be encouraged and, if practical and advisable, wetlands in the Middle Meadow area should be enhanced or modified to improve water quality in the West Meadow and beach areas where human contact with water is traditional and anticipated. Creek water quality in the West Meadow and at the beach should be assessed prior to deciding on actions to make the creek more accessible above the beach.

D Information on beach and creek water quality is appended to this document. Fecal coliform has been a problem at the Marine Drive storm sewer discharge into the creek and at the storm water discharge onto the beach north of the Tilbury trestle. Recent conversations with Bob Kloc of the Health Department indicate that coliform levels have probably decreased significantly with required septic system repairs in the area. (Tests had not been made.) Installation of the Marine Drive sanitary sewer by the City is planned for the fall of 1990 and will eventually

eliminate any remaining problems. Contamination of the creek by the Oeser Cedar operation is evident and one source of overland runoff would be relatively easy for the plant to control. The EPA reference appended quotes a Washington Department of Ecology memo stating, "Water samples taken by Ecology upstream and downstream of Oeser Cedar in 1978 indicated the facility's impact on the creek water quality is minimal". Further assessment is recommended.

P/O The county and city should submit the water quality aspects of this management plan to the Environmental Protection Agency's Bellingham Bay Action Program Work Group for consideration as an element of the ultimate EPA Action Program. Included in the submittal should be recognition of the potential use of the southeast beach area for a water quality-oriented diversion of Squalicum Creek, as described under management cell W1B.

D Special sources of funding stimulated by the EPA Action Program could be used for park site wetland research and enhancement projects designed to improve water quality and enhance recreation. The Work Group will be identifying a series of actions in and affecting Bellingham Bay. The use of Little Squalicum Beach as a discharge for a relocated Squalicum Creek requires further study. This major rechannelization and estuary restoration project could be a mitigating measure for further development at the present mouth of the creek, which will likely degrade upstream water quality and fisheries.

E. Wildlife Habitat

P/O The enhancement of diverse wildlife suited to the Little Squalicum site and its surrounding area should be incorporated into the implementation of this management plan. Further study of appropriate habitat enhancement measures should be encouraged by the county and a plan element addressing wildlife and compatible with the site master plan is desirable.

D All manner of habitat enhancement measures are envisioned for birds and small land and water animals. Many of these simply include the diversely vegetated and interrelated wetland and upland environments discussed above. These also include nest structures, snag creation, rock piles etc. Wildlife enhancement must be targeted at species well-suited to the site and often species (such as mosquito-eating sticklebacks) that are appropriate in terms of Integrated Pest Management and particular ecological restoration efforts. Species such as the blacktailed deer now on site may not be able to survive on the site as the surrounding neighborhoods continue urbanizing. Other species will decline or increase as the park master plan is implemented and as human activity increases on the site. Further study should provide guidance on what enhancement actions should be undertaken in conjunction with the master plan elements already established.

F. Sculptural Art on the Site

P/O The use of "environmental sculpture" or "site art" should be encouraged to create added public interest and compliment other site features.

G East of Marine Drive sculptural landforms and fixtures should be limited to features along trails, especially installations which aid in controlling (attracting and diverting) the movement of people in a manner consistent with the circulation plan. In these situations sculptural elements which involve sitting, guidance or interpretive functions are especially desirable. All sculpture should be vandal resistant. Due to the linear nature of the site and its scarcity of flatter areas for human activity site art should not displace desired human uses. In a fine arts sense the site is not well suited to major works by professional sculptors until visitation increases. Thus sculptural art in early site work will be of a functional, local nature.

G. Cell by Cell Management Recommendations are Guidelines

P/O The recommendations made in the following Cell by Cell Management Recommendations section will be considered as "G" or guideline text guiding future actions on the site.

IV. Cell by Cell Management Recommendations and Issues

(Cell labels appear at left. See the Management Cells map. References to map illustrations cite the Master Plan map unless otherwise indicated.)

W Cells--the West Meadow and Beach Area

W1A BEACH AND TIDELANDS IN NATURAL SHORELINE CLASSIFICATION

A 150' wide opening off of the end of the West Meadow access road should be kept clear of almost all fixtures to facilitate easy public access and views to the beach. This very popular area, mostly within the BN rail property, is easily congested and serves as the main point at which people enter and leave the beach and tidelands.

The Master Plan map shows a public viewing/sitting deck constructed on the first 100 to 150 feet of the Tilbury pier, inside a relocated gate. Also indicated are seasonal driftlog placements on the beach to create informal sitting areas during the summer and protect upland areas during the winter. As the park becomes established relatively intense beach use can be expected during summer high tides. Space will be at a premium and such log manipulation could make a big difference. The area just south of the access road "U" is shown levelled and slightly filled for siting of two or three picnic tables.

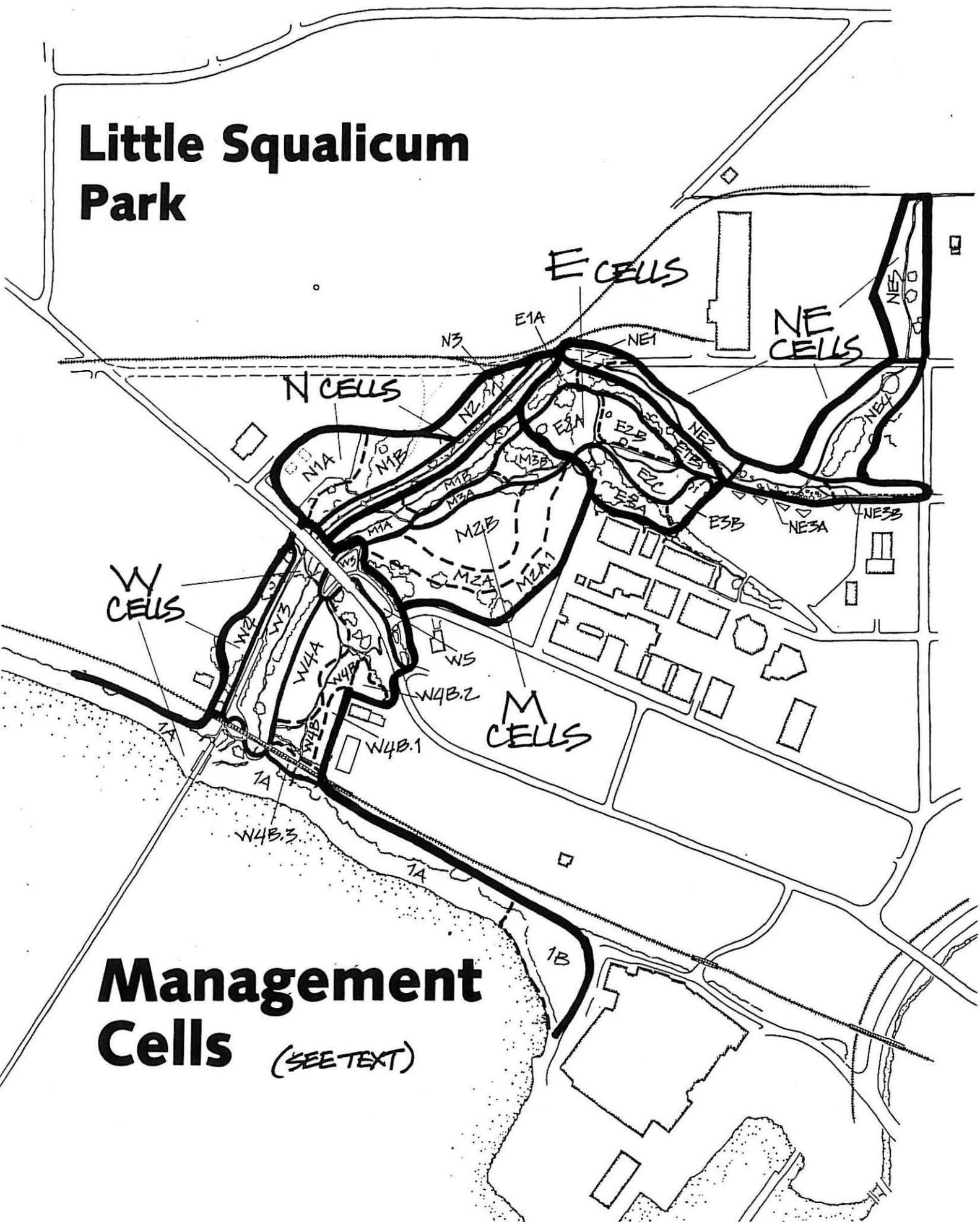
The wetland beneath the south half of the BNRR trestle should be retained; one of its functions is to keep people away from the trestle structure. A boardwalk is shown crossing it. Spraying by BN in this area and across the ravine mouth must be stopped and the County should assume vegetation management for the railroad.

The year-round spring flowing onto the beach from the base of the bluff just south of the south abutment of the BN trestle may offer a potential water source for supplementing lower Little Squalicum Creek for play and aesthetics.

The present jumbled and unsightly appearance of the driftlogs and beach gravel in some areas near the access road is the result of past heavy equipment work. Some of this should be redone as part of a revegetation effort using beach vegetation, to make it both more attractive, create sitting log space, and channelize foot traffic.

An assessment of plant materials and residual seed should be made in historically unsprayed bluff areas within the BN property south of the ravine mouth. This may be one of the zones of least soil disturbance in the area.

Little Squalicum Park



Management Cells (SEE TEXT)

If the Tilbury pier became public a portion of the Tilbury railbed property beneath and just east of the BN trestle should be considered for a phone booth and bait shop/minimal refreshments concession and information panels. A phone booth and some type of limited concession would increase the effectiveness of security and emergency services in the area.

A seawall promenade has been discussed along the base or lower slope of the bluff south of the BN trestle and linking the Mt Baker Plywood lease fill with the ravine mouth. This long term/high use/relatively high cost element is not recommended by this writer...the beach is just not very large relative to potential urban demand. Natural shorelines are in very short supply and asking people to walk on the beach is one way to limit visitation.

W1B MT BAKER PLYWOOD LEASE FILL AND URBAN SHORELINE DESIGNATION BEACH AND TIDELANDS

Providing access to Little Squalicum Beach from the Roeder Avenue and Squalicum Way Corridors is highly desirable, especially as part of a change to complimentary public access-related land uses on Port of Bellingham property in the area. The Bellingham Comprehensive Plan recognizes the importance of these linkages in its Open Space element. The Port should work as a partner with the City and County to provide such access, which might or might not involve motor vehicles.

The north corner of the Mt Baker Plywood fill is a desirable site for parking by disabled drivers who desire direct access to a lowbank beach. Parking improvements there should be carefully designed to include some attractive and accessible beach restoration on its periphery.

The tidelands adjacent to the Mt Baker Plywood fill should not be filled. They represent a rather high percentage of the easily accessible beach remaining on the Bellingham area bayshore. Another reason to preserve these tidelands is that future Port activity at the mouth of Squalicum Creek could involve mitigating measures to protect the water quality and fisheries of the creek. Such mitigation might include preserving and enhancing these tidelands, even relocating the mouth of Squalicum Creek to Squalicum Beach and reconstruction of estuary habitat and fishery resources lost to Port activities. This potential should be an action addressed as part of the EPA's Bellingham Bay Action Program.

W2 HOMEOWNER LOTS, NORTHWEST OF WEST MEADOW, UNDEVELOPED, LOWER PORTIONS

No direct public use of this area is envisioned. However, these

owners could receive tax benefits from granting the County conservation and planting easements across the lower, unused portions of their property. Such buffer lands and plantings would benefit the both homeowners and park users.

W3 LOWER CREEK/LOWER TILBURY RAILBED/WEST MEADOW EDGE (TILBURY AND PORT)

Some viewbreaks should be opened and maintained between the West Meadow and the Tilbury Railgrade. However, the south slope of the railgrade, above the north bank of the stream, should be protected from climbing and play with shrubby or brier vegetation and possibly with a stairway or improved trail (possibly near the Anarchy Bunker) to accommodate unstopable access and play travel. This narrow band of stream bank forest would start at the Marine Drive bridge and fade into a shrub dominant strip about two thirds of the way to the BN trestle. The immediate north bank of the stream could be armored with stepping rocks as discussed below and similar to recent work completed in the Lost Lagoon area of Stanley park in Vancouver.

The portion of cell W3 beneath the Marine Drive bridge should receive special landscape design attention to eliminate problems associated with camping and loitering beneath the bridge and disturbance of the dry soils there. A ground cover treatment is needed in areas with limited light and water. Some armored surfaces may be desirable and cross-viewing should be kept open in the under-bridge area for security.

W4A WEST MEADOW

The wetlands along Little Squalicum Creek and its open channel should be preserved and enhanced for public enjoyment. Increased human access to these waters should be phased to reflect findings and improvements in water quality associated with the Marine Drive sewer project and Oeser Cedar runoff controls. The creation of several ponds is shown in the lower part of the West Meadow, involving shore armoring or other elements to provide attractive surfaces and banks for rather intense (erosive and compacting) play activity of the sort now found at Fairhaven Park.

Keeping limited industrial, and possibly van pool, traffic on the existing County access road alignment minimizes impacts on the streamshore.

A restroom is shown nestled into a line of windbreak trees across the southwest opening of the meadow. A shrub-height windbreak is recommended on the northwest meadow opening. (Prevailing winds blow directly into the meadow.) A bicycle parking rack is shown just to the west of it and additional bike parking could be provided on the Tilbury railgrade/BN trestle intersection. The widened Tilbury grade is also a preferred location for limited vehicle parking, perhaps vanpools, maintenance vehicles and

pierhead industrial access.

Play activity is proposed for the West Meadow and would be accommodated on a drained lawn or meadow and play equipment. A playground structure could be built of found beach logs and designed to also accommodate occasional group interpretive or entertainment events. The runoff diverted from drained surfaces and lawn areas should be used to feed the BN trestle wetland or other wetland elements if feasible.

Picnic tables are shown toward the west end of the West Meadow, placed east of the narrow squeeze point to the beach and toward the stream to keep the westward view open.

W4B WEST MEADOW SOUTHEAST FOREST EDGE

A forested buffer (cell W4B) is desirable along the West Meadow, with some breaks for views to and from Marine Drive. A diverse but visually penetrable plant understory should be restored and conifers should be established in this zone. A wet margin could be graded along this buffer to drain the open meadow, keep people off the private slopes to the south and transport water to the BN trestle wetland.

W4B.1 HOMEOWNER LOTS, SOUTHEAST OF WEST MEADOW, UNDEVELOPED, LOWER PORTIONS

No direct public use of this area is envisioned. However, these owners could receive tax benefits from granting the County conservation and planting easements across the lower, unused portions of their property. Such buffer lands and plantings would benefit the both homeowners and park users. If future park use exerts enough pressure the enhancement of permanent buffer strips across the bottom of these lots could allow the County to use more of its limited West Meadow flats for people uses.

W4B.2 WILDER PROPERTY

The Wilder property should be acquired and used as passive, forested buffer space in the same manner as cell W4B.1. Keeping a portion of its flat area wet might be a way to reduce "hidden corner abuses" like camping.

W5 MARINE DRIVE GATE/ENTRANCE AREA

As the main entrance to the beach and West Meadow until other improvements are made this area should be relandscaped and maintained to provide a more attractive and inviting park entrance effect. Specific recommendations are made in the Short Term Action Recommendations section of this document. These recommendations include signing, weed control and selected plantings. The park entrance concept should eventually be

extended further south of Lindbergh Avenue to include the bus stop and landscaped islands in the Marine Drive right-of-way. This concept is discussed under II.B. in the General Management section above. It might involve a covered transit shelter and a park area map for transit users and for pull-off, from-car-only viewing for motorists who would temporarily occupy a portion of a paved bus stop. The planter islands and paths could be relandscaped to thematically reflect the lower park site. The portion of cell W5 beneath the Marine Drive bridge should receive special landscape design attention to eliminate problems associated with camping and loitering beneath the bridge and disturbance of the dry soils there. A ground cover treatment is needed in areas with limited light and water. Some armored surfaces may be desirable and cross-viewing should be kept open in the below-bridge area for security.

M Cells-- the Middle Meadow Area

M1A CLEAN WATER CREEK REACH/WETLAND DISCHARGE

This lower reach of the Middle Meadow creek channel is shown as a clean water area receiving the runoff from the Middle Meadow wetlands and a modified upstream creek channel which would detain and purify water from the Oeser Cedar and Birchwood storm sewers. A forested streamway is recommended here, screening the Middle Meadow from the bridge and Parberry site and supplemented with conifers. Fishery elements have been noted here and should receive more study. It is possible that a newly engineered stream linkage between the creek and reconstructed Middle Meadow ponds could accommodate fish passage, even if non-game species like stickleback are involved, which could have important wildlife enhancement and mosquito control roles.

M1B UPPER CREEK MIDDLE MEADOW EDGE WATER TREATMENT WETLAND

The Master Plan shows an engineered wetland in the creek channel, laying between a detention structure at the west end of the cell and the outfall of the Birchwood storm sewer where it joins the Oeser Cedar storm flow from the north. Trees would be removed from most of the creek channel but retained, with viewbreaks, along the north bank for a forest buffer along the Middle Meadow. Water quality research would be conducted here and vegetation would be selected based on research projects which might examine the effects of pollutants on animal and plant life, bio-filtration principles etc. A practical role for this wetland would be improvements in water quality for downstream fish and wildlife and for human association with the creek at the beach and West Meadow. Another practical role might be service as a safety detention basin in the event of a toxic material spill at the Oeser plant.

Further design and study is needed on the water treatment wetland

concept for this cell; there may be significant water quality benefits for downstream areas in the park site, and valuable educational and research opportunities that are rare in urban areas. Until such a cell role is developed further this area should be maintained as a forested buffer along the Middle Meadow with some viewbreaks from the Tilbury railgrade maintained, with control of blackberries and addition of some conifers and more varied understory shrubs. The south edge of this forest receives the most winter sun of any area in Middle Meadow; early flowering shrubs may be appropriate.

M2A MIDDLE MEADOW WET FOREST EDGE

This "U" shaped buffer of dense and "entangled" wetland and high water-tolerant trees and shrubs is shown encircling a newly created series of open meadows and ponds in the center of the Middle Meadow. This cell would be intended for wildlife and a buffer function, partly to keep people from moving between the Middle Meadow and BVTI and Lindbergh Ave. See the discussion of deer habitat below. This wet forest could have a larger role as a deer forage area than that of the evolving dryer, more uniform forest understory in the Middle Meadow. One or two smaller detention areas might be constructed within or on the edge of this cell to receive and "treat" storm water from the Eldridge and Lindbergh storm sewers before releasing it into the larger Middle Meadow wetland system. (Engineering is needed here to determine capacities.)

M2A.1 MIDDLE MEADOW WET FOREST UPLAND SLOPES

This forest occupies the steep banks between BVTI and Linbergh Ave. and the lower Middle Meadow. It should be managed for wildlife and as a barrier for human travel. Supplementing with native conifers such as Western red-cedar and Sitka spruce is recommended. However, a strong broadleaf element is recommended and canopy openings should be maintained periodically to promote native understory shrub growth, as a wildlife habitat measure and a human movement barrier. (More study is needed on the viability of the local deer population. The current population relies heavily on understory growth in this slope area. If the park plays a large enough role in the local herd's survival, deer forage enhancement could be an important wildlife element in this area and the wet forest edge, cell M2A, above.

M2B WET MIDDLE MEADOW/OPEN PONDS

This open area is shown largely free of shrubs and trees. Wetlands here would be both wet meadows and open ponds and possibly some marsh vegetation. An island, or more, would be provided for wildlife refuge. The outflow for this wetland system is shown paralleling the bike trail and forming a moat between the busier trail area and the interior wet meadows, swamps and islands. See the discussion of fish passage under cell M1A above.

Human access into the wetland should be discouraged, partly by providing good visual access from the trail and one or two viewing areas associated with it.

M3A MIDDLE MEADOW WEST TRAIL ISLAND

This cell should be maintained as a dry shrub-dominated strip possibly with occasional trees. It may be desirable to raise its grade with spoils from pond excavations. A more ornamental quality for this strip is recommended. Drought-tolerant, flowering shrubs should be used and some interpretive fixtures and/or sculptural art may be desirable.

M3B MIDDLE MEADOW EAST TRAIL ISLAND

This cell should also be maintained as a dryer, open area. It may also be desirable to raise its planting grade with spoils from pond excavations. An open ornamental shrub-scape surrounding an interpretive area with a small shelter or several information panels should receive design consideration. Drought-tolerant, flowering shrubs are again appropriate.

The N Cells-- the North Slope Area

N1A PARBERRY PROPERTY UPPER FLAT AREA

A public parking area is shown, providing more convenient public access to the West Meadow, beach area and potentially public Tilbury pier. Also shown is a walkway parallel to Marine Drive and set behind a planting strip. The parking area and this walkway would connect with a wheelchair accessible walkway passing beneath the Marine Drive bridge to the Tilbury railgrade trail.

N1B PARBERRY PROPERTY LOWER SLOPES AND SUGAR WASTE GULCH

This cell and the area to the northeast may be unique in the Little Squalicum area by virtue of having the least historical disturbance to its topsoil. There may be reserves of original plant seed here and plant and seed surveys should be made here as the basis for future restoration work. Sugar Waste Gulch (so named because it was used for discharge of sugar refining wastewater) and the sloping portions of the Parberry property should be managed as open space and kept free of all built elements except the trails shown. Plantings there are not recommended until more site design and research efforts are undertaken. (Buffer and windbreak tree plantings along this slope have been discussed.)

N2 OAK HARBOR FREIGHT SLOPES AND BUFFER

A 150' buffer along the sloping southeast edge of the VanderPol

property should be managed as open space to compliment the park site and eventually permit the establishment of a tree screen between industrial and park lands. The County and the owners should examine ways to preserve this buffer strip, including exchanges for street right-of-ways to the northwest. As with the cell above this area may be biologically unique in terms of the park site and valuable as a restoration resource. While a tree buffer may be desirable in the long term the ownership and genetic resource issues should be carefully resolved and addressed prior to any buffer plantings.

N3 NORTHEAST TILBURY RAILBED TRAIL

The same plant material resource potential exists for this strip as for the above two cells. Management of this strip will involve operation of a multiuse trail about 8' in width, mowing of trail shoulders and maintenance of some views for trail users into the lower park area. One view in particular, looking east across the Middle Meadow from the Oeser Cedar box culvert to Mt Baker, should be maintained and encouraged with a modest but protected off-trail viewing area.

The E Cells-- the East Meadow Area

E1A POLLUTED EAST MEADOW WET SCRUB EDGE

This cell contains an intermittent wetland receiving storm-peak surface water runoff from the Oeser Cedar plant. Water and life quality are observably poor. Solutions to the storm water problem should be pursued immediately. After the problem is corrected the pond basin should remain undisturbed (and the subject of study and monitoring) and its shrub/scrub overstory vegetation maintained. This cell should continue to be reserved as a storm sewer channel alignment for the future movement of storm water from the Morse/Illinois St area to Little Squaticum Creek. This concept should involve keeping storm water out of the spring-fed ponds in cell E1B. (Development in the upper Illinois St area could increase flows.)

E1B SPRING-FED EAST MEADOW WET FOREST EDGE

This forest strip includes a drainage channel excavated to keep the floor of the mined-out East Meadow drained for other uses. This linear pond has some of the best water quality in the whole park site. It also serves to reduce play and access to the steep bank above it and should be preserved as part of the site plan as long as such preservation compliments other site elements. (Literal preservation might take the form of removing ongoing bank slides that block the pond or displace it onto the moss

meadow; this may not be desirable when compared with other immediate locations that could accommodate the same spring flows.)

E2A EAST MEADOW JUNCUS WETLAND/SCRUB

This intermittent wetland has been identified for preservation and enhancement through a slight lowering for longer periods of standing water. The goal here should be to maintain, expand and enhance the existing stand of Juncus (soft rush) and possibly create some c. 6" deep summer season pools for a wildlife water source. Blackberries in this area should be removed and only sparse tree and shrub cover maintained.

E2B EAST MOSS MEADOW

This meadow should be maintained as an open moss-covered area to demonstrate natural succession as part of an interpretive landscape. Some colonizing trees should be removed immediately; removal might involve interpretive preservation of stumps or snags (perhaps copper nail poisoning) and must be undertaken with care to protect the moss groundcover. Human travel across the moss meadow should be discouraged with interpretive devices and barrier treatments designed into the adjacent trail. The polytrichum moss and the Lady's Tresses orchid found here are unique on the site and probably reflect earlier log storage by Mt Baker Plywood.

E2C EAST TANSY MEADOW

Park uses and landscape concepts for this area have yet to be articulated and discussed. However, this area should be maintained largely free of shrubs and trees to preserve the open feeling of the entire East Meadow. One exception for shrub management would be the south edge of the flat meadow. An informal shrub buffer at least 10' wide should be established along this edge to facilitate wildlife movement. Tansy weed should be controlled soon to keep this pest species in check in the whole East Meadow area. Possible uses for this cell include propagation of plants for the park site and even composting of BVTI grounds material and neighborhood yard material. (The dumping of yard wastes is a problem in the East Meadow area. BVTI and the County should discuss possible controls and strategies. A controlled access or semi-supervised situation is advisable. Space in this lower, harder-to-police location could be allocated to BVTI horticulture programs displaced by an upper campus, neighborhood-scale, composting facility. Or, a trailer system from an upper campus loading site could move material to the lower site.)

E3A EAST MEADOW SOUTH FOREST EDGE

This forest edge should be maintained and supplemented with additional native species. A passive buffer without human uses is recommended here. A view into the East Meadow from the BVTI campus is shown. This could be maintained if BVTI is interested in establishing a park overlook area for outdoor sitting, eating etc. such as that shown.

E3B EAST MEADOW EAST FOREST/WETLAND EDGE

This forest edge and its wetland component should be maintained to separate the park site experience from the BVTI parking lot. Tree heights should be examined in maintenance and design efforts to preserve the Mt Baker view across the East Meadow from the Tilbury railgrade. A walkway is shown running through this buffer, possibly to connect two areas of an expanded BVTI campus on either side of the east parking lot. A park trailhead should be formalized where the storm sewer trail now enters the park from the BVTI parking lot. (See Short Term Action Recommendations.)

The NE Cells-- the Northeast Bank and Tiscornia Draw Areas

NE1 MORSE STORM WATER/PARKING SITE

No park uses are likely for this site. However, if the Parberry site were not acquired for public parking and if the park became very popular (as would happen with a publicly accessible Tilbury pier) this site could be acquired for trailhead parking. This parking would be more accessible if Illinois St were extended to the west. Another use of this site involves storm water movement and detention for bio-treatment. Storm water generated from development on the BNRR site and the west portion of the Morse site could be detained in this area for some degree of biological action, settling and "metering" and discharged into an open channel wetland in park site cell E1A. This combination of open detention may be more desirable for downstream park water quality than using the Birchwood storm line. County Parks should support granting of drainage easements and improvements at the north corner of the park that can benefit water quality in the park.

NE2 BN FIELD EDGE ON TOP OF BANK

About 75' of open space should be dedicated along the top of the BN Bank as part of any development on that site. A walkway is shown along the top of the bank connecting the Tilbury railbed trail with the BVTI east lot. If future land uses are not park-oriented or south exposure-oriented a dense screen of trees could buffer park and non-park uses along this walkway greenbelt. A BVTI campus expansion or offices would probably desire a sunny south exposure and views into the park. Direct human movement to

and from the developed BN site to the East Meadow, up and down the steep bluffs, should be discouraged as part of site design.

NE3A BVTI/BN PARKING LOT EDGE

This area is important in creating a sense of entering the park at the BVTI trailhead. It is also extremely important in accommodating the future bike trail from the east. It is recommended that the bike trail enter the BVTI parking lot aisle as shown, just north of the gully mouth so as to avoid massive regrading of this area. (Bicyclists and pedestrians are already permitted use of the parking lot and aisle for park access as part of an interagency agreement.) See the Short Term Action Recommendations section for detailed recommendations regarding this area.

NE3B BVTI E. MARYLAND STREET ENTRANCE

This area is also an important "gateway" element for the park. See the Colebrook concept in the Short Term Action Recommendations section for a detailed discussion. A sidewalk/sidepath for pedestrians is shown along the north side of the Maryland access road. The mouth of the Little Squalicum Draw should be kept largely free of plantings for views into the greenbelt. For safety reasons bicyclists entering the park using this entrance should use the roadway and not the sidepath.

NE4 BN DRAW AND BANK TOPS

The Little Squalicum Draw and 50' on either side of it should be managed or acquired as part of the park site. The major bike trail should be kept out of the draw and is shown on the north bank where regrading will not dominate natural contours. Foot travel should be kept out of the draw itself or accommodated on a narrow nature trail type facility. The draw should be landscaped to include some cover for small wildlife while keeping a secure shrub-level view-over of about 3'. Both ends of the draw should be managed to permit viewing well into forest and meadow areas.

NE5 MORSE DRAW

Preservation of the Morse Hardware segment of the Little Squalicum Draw is supported by the Morse family and several arrangements for a trail greenway are being discussed between the Morse's and the City of Bellingham Parks Department.

SHORT TERM ACTION RECOMMENDATIONS

for County Parks Department and BVTI

Planning and Negotiation

Discuss and Obtain Tilbury Recreational Easement

Tilbury representatives have expressed interest in a revokable recreational easement for their upland property, in the interest of reducing their liability and improving security of their trestle. This should be a priority since it provides one of the three main access points to the park site, where some regulatory and site identification signing is needed.

Continue BVTI Mapping Effort

The BVTI Surveying Technology program is producing a detailed topographic map of the site which could be extremely valuable for developing grading and landscape plans, conducting research and planning and monitoring restoration. Work should continue and timely completion should be encouraged so that it may be used for work like the item below.

Grading and Excavation Design for Wetlands and Trails East of Marine Drive

This work should be based on the map described above. A design team should work in the field and with these maps to refine wetland and trail concepts. These construction activities should be coordinated to use gravel wetland spoils for all-weather trail beds. Tree clearing debris could be used to control access and create habitat. The BVTI Survey program could assist with construction surveys. See SCS pond elevation information on Wetlands map.

Maintenance and Construction

Upgrade Marine Drive Gate Area

This area should be formalized to discourage dumping and create the feel of entering a cared-for public area. The "island" between the Marine Drive roadway and the Little Squalicum Access Road should be landscaped to create a more inviting entrance to the park. The surfaces should be levelled and graveled at the intersection area and the blackberries on the east side of the access road should be periodically clipped. The gate should be painted and the old signing removed. The trail providing access around the east end of the gate should be relocated to the west end of the gate while the open dumping spot at the east end is woven shut with blackberries and possibly faced with a temporary

barricade. A preliminary landscape plan for this area has been prepared by Binda Colebrook and follows this project list.

Upgrade E. Maryland Street Gate Area

The northeast edge of the lower BVTI parking lot and the entrance to the East Meadow trail at its north corner also create the sense of entering an uncared-for area. This in turn stimulates more dumping and damage to vegetation. The fence along the BVTI parking lot should be removed in a considered fashion and as part of park entrance area design concept; its security value is very limited but it has served to reduce dumping and motorbike damage. The provision of a composting area to eliminate East Meadow area dumping problems should be discussed. The BVTI-owned slope above the north side of the parking lot and the planting islands defining the north parking lot aisle should be relandscaped in a theme that compliments the informal, native species park landscaping. A preliminary landscape plan has been prepared by Binda Colebrook and appears after this project list. Design work for this area should address the directional signing and gate access issues noted below. A program of phased landscape enhancement, fence removal and gate opening may be desirable. This phasing might involve removal of key fence segments as part of a clean-up, walkway construction and relandscaping effort. Some of the fence might be retained until plantings are established and park identity is strengthened, partly with an attractive walkway/trail from Nome St and the directional signs described below. During this period after-hours and weekend parking for park users could be limited to Nome Street by gate closings.

Site Directional Signing and Maryland St Gate Control

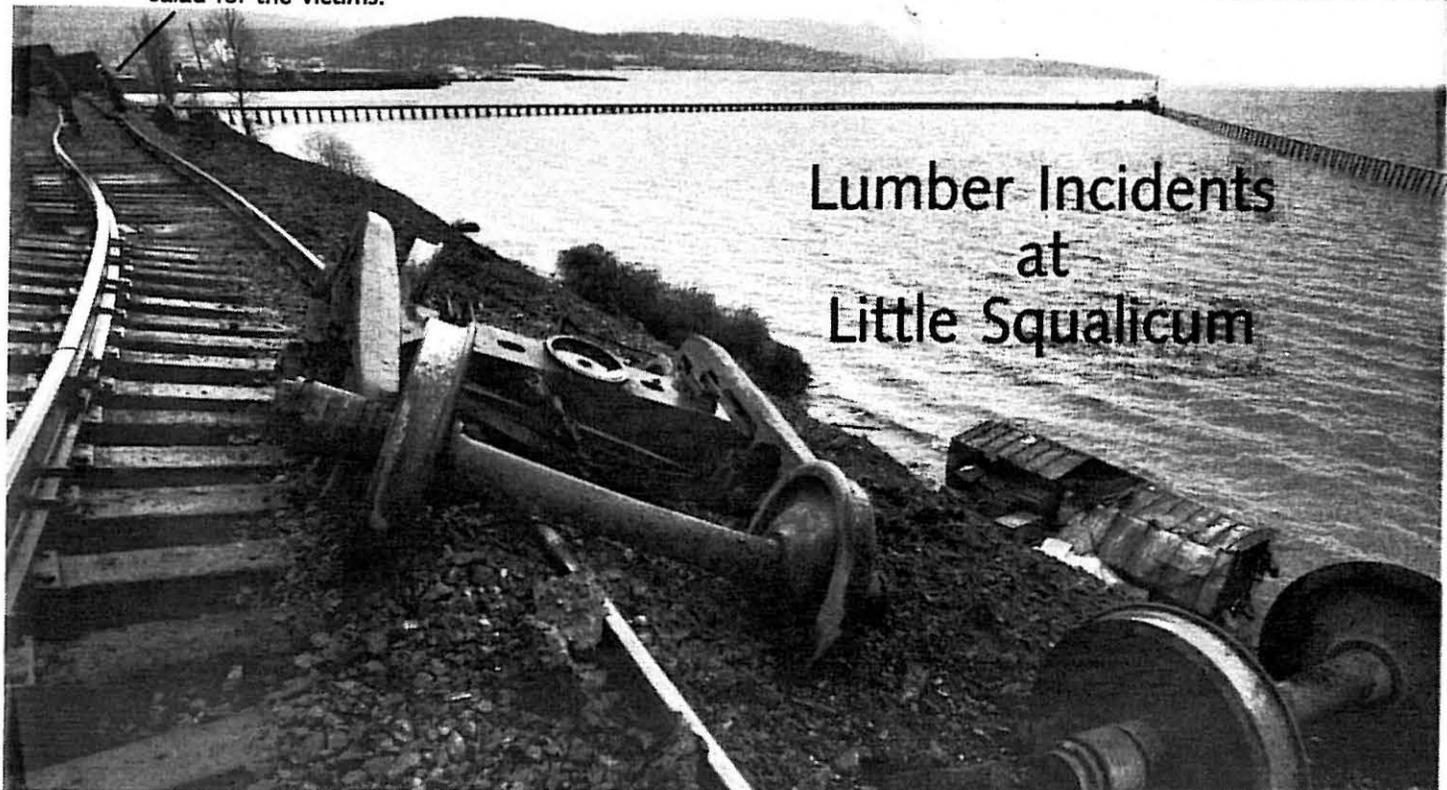
Once trails and access controls in the East and West Meadow areas are improved and after BVTI and the County have agreed on trailhead parking provisions (note the alternatives and phasing possibilities above) Little Squalicum Park should be indirectly promoted with directional signing stating "Little Squalicum Trail" and directing Eldridge and Marine Drive traffic to the east BVTI parking lot. It is desirable to develop new signing that jointly identifies BVTI and the trailhead, possibly using the location of the present BVTI directional signs on the Eldridge and Marine Drive bridges. (See Management Plan for a discussion of when major site name signing would be appropriate for the Marine Drive arterial. Motorist-directed signing indicating a park or beach at Marine Drive will exacerbate parking and traffic problems in a residential areas with some marginal roadway characteristics--unless it is employed at a public parking lot provided on the Parberry property.)

The lumber ship H.D. Carleton blows ashore west of Squalicum Creek, December 1904.



"Call Peggy, we're gonna need a beach clean up."

"Get Peggy, we need plastic forks and potato salad for the victims."



Lumber Incidents at Little Squalicum

A Burlington Northern lumber train derails below Tilbury Cement, February 1990

Install Trail Access Site Rules and Park Identification Signing

Vandal resistant and "basic but attractive" signs indicating entrance into a park area and basic regulations should be installed as soon as possible at the 3 main entrances to the park (the north end of the Tilbury railbed off of the soon-to-become-public Illinois St., the Marine Drive gate and the lower BVTI parking lot gate.) Basic regulation messages should be less prominent and should address motor vehicle and dumping restrictions. Since Little Squalicum suffers from vandalism associated with a "no man's" land (not quite public, not quite private) replacement of such signs should be anticipated in their design and fabrication. The Marine Drive entrance sign should be positioned so as not to be visible to Marine Drive motorists.

Enlarge and Upgrade West Meadow Area and Plant Bordering Conifers

The grassy area at the West Meadow should be enlarged by removal of some peripheral trees. A screen of trees should be preserved on Park property. This screen should be infilled with native conifers and some limbing and brushing should be done to allow visual penetration from the West Meadow road. A windbreak similar to that shown on the Master Plan should be left across the west side of the meadow. Neighboring property owners should be contacted to see if they also desire conifer plantings as a denser buffer. The purpose of this work is to enhance security, expose hidden camping spots and expand the meadow area for walking and play. Actions to drain and maintain the meadow are not necessarily recommended yet, although they may be appropriate if County support is available. (The cleared area and the seasonally wet meadow could be left alone, possibly with the exception of mowing problem brush and brier species once or twice a year, without compromising public use at the present time.) The handling of water in this seasonal wetland needs to be examined before lawn turf or dry meadow establishment is pursued. It may be desirable to create a wet meadow strip along the south edge of the drier activity area. This strip would serve to keep people away from the steep banks and private property to the south and move water to the wetland beneath the BNRR trestle to the west.

Conifer Screen Plantings, Middle Meadow Area

Native conifers, especially red-cedars and spruce, should be planted beneath the existing hardwoods on the slopes between the Middle Meadow and the BVTI campus. This will eventually create a denser and more diverse year-round buffer between the campus and the Middle Meadow. (Other site periphery buffers involve land use, ownership and study issues that need to be examined.)

Restoration and Propagation

Propagation of Locally Endangered and Desirable Local Plant Varieties

Two species, Black Hawthorn and Serviceberry, are apparently rare enough on site to be considered endangered and may reflect unique local varieties desirable for use in restoration work. Other plants likely fit this category as well. These varieties should be propagated immediately.

Conduct of Plant Surveys

The Hanners plant survey should be supplemented with distribution information so that a base line map of vegetation can be compiled. The BVTI map may prove valuable in this regard, as well as the management cell system. Additional plant surveys should be undertaken in the N management cells and the west edge of the BNRR right-of-way above the beach. These less disturbed areas may contain remnant species valuable in restoration work.

Little Squalicum Park
 Recommendations for Short Term Action

Maryland St. Entrance Area (Management Cells NE1, NE2, E1B, E3B.)

The cell as a whole (see sub-areas listed below) should conform to the general management goals of revegetating the park with native plants of the Rosario/Strait of Georgia coastal strip. Care should be taken to use native species that fit into the over all "landscaped " quality of the BVTI parking lot. Species that are maximally adapted to the various microsites should be used. This area is adjacent to the Horticultural program greenhouses and can be used for student projects with the correct supervision. Educational projects involving work on this site should be concerned with the following:

- *information on regional and local native plant communities,
- * the importance of using local eco-types and excluding distant ones to avoid genetic swamping
- * wild collected seed and cuttings as starter sources for propagation
- * respect for remnant native plant populations
- * carefully designed and monitored plantings
- *limiting species for purposes of visual unification as well as ease of propagation of correct ecotypes

Neighborhood volunteers and landscape planners involved with vegetation management in the park will also need to be aware of the above factors.

A paramount issue is that of weed management. This should be seen as a long term goal needing years of vigilant, consistent and appropriately timed effort. Re-establishing relatively non-competative native flora on this weed invaded site will not be easy and will fail without correct attention.

Four subareas of this cell have been designated below:

Cell subareas are (see map):

1. Entrance road strips
2. North area of parking lot and planters
3. South-facing slope above parking lot.
4. East Meadow entrance and adjacent slopes.

1. Entrance Rd. Strips

Existing Conditions and Problems

Exposed area, quite sunny and windy. Gravelly loam soil. European pasture grasses and weeds, and a row of dying plane trees. Ugly chain-link fences on both sides; visual conflict with ornamental plantings inside fence on south side of driveway. Weed/grass seed load which will interfere with plantings.

Recommended Visual Quality and Functions:

Create semi-formal entrance "avenue" and initial native plants statement; limit diversity. Remove chain link fence on north side of driveway. Retain and screen chain link fence and ornamental plantings on south side of driveway. Somewhat less emphasis can be placed on "vegetation" processes in this and the following sub area.

Management Issues

Select species and start seed collection/propagation

Remove northern fence

Turn soil or mulch-kill existing pasture grasses. Check for presence of quack grass. If present consider barrier strips.

If time allows, summer fallow to germinate existing weed/grass seeds from planting strips

Group trees and shrubs to give natural effect and view through. Put vines along south fence as well as shrubs.

Leave 10 foot meadow strip for possible sidewalk or side path along northern edge of driveway.

Potential Species

Trees:

Acer glabrum (Wharf St. or smaller Island ecotype)

Cascara sagra

Crataegus douglasii

Corylus cornuta

Shrubs: use in groups, but sufficient to cover 75% of area.

Ribes sanguineum,

Amelanchier alnifolia (Search out Lilloet and other desirable cultivars)

Philadelphus lewisii

Lonicera ciliosa, *L. hispidula*

Rosa gymnocarpa, *R. nutkana*

Non native fescues or mulch?

2. North Parking Lot Planters

Existing Conditions and Problems

Extremely xeric (dry) site; sunny/asphalt. Vehicular pollution. "Soil" is maximum 3" of bark mix on top of asphalt and contained by berms. Some weediness. Tree holes are 3-4' diameter cut into asphalt and planted with Plane trees (non-native, non wildlife, messy, eventually huge).

Recommended Visual Quality and Functions

Visually merge vegetation with other subareas
Utilize extreme droughty site for displaying/experimenting with bald-adapted woody species. There is also interesting potential for use of soil covered asphalt to grow bald-adapted forbs and grasses, though this would require careful planing, seed collecting, and vigilant maintenance. Short (to three feet) shrubs needed in planters.

Management Issues

Remove plane trees and replace with native species.
Remove asphalt to create holes for selected shrubs. Retain some asphalt for creating shallow soil "bald" habitat if desired.

Screen out large bark pieces and add sandy gravel soil from elsewhere on site. Steam sterilize in place.

Potential Species

Trees

Arbutus menziesii
Quercus garryana Garry Oak
Pinus contorta
Juniperus scopulorum (Island ecotypes)

Shrubs

Arctostaphylos columbiana (dwarf ecotype)
Shepherdia canadensis

Ground covers

Arctostaphylos urva-ursi,
Pachystima mysinites
Native forbs and grasses?

3. South-facing slope above parking lot

Existing Conditions and Problems

Sunny, fairly xeric, sandy gravel soil. Planted c. 1984 to Black Austrian pines, Scotch broom; var. Moonlight, (non native/non wildlife/invasive) and Douglas-fir. Adventives include blackberry, tansy, English hawthorn and Eurasian grasses/weeds. There are some scattered remnant artemisia and aster populations which are being crowded out by the weeds. If allowed to mature the pines and doug-fir will thoroughly shade the slope and development areas to north.

Recommended Visual Quality and Functions

Nice elevation change with a southern exposure provides opportunity for the rarer sun-adapted native plants and a low screen for the upper trail. Short (under three feet) deciduous and/or evergreen floristic elements are needed where the bike trail joins the parking lot.

Management Issues

Start adventive weed management control immediately.

Select species and start seed collection/propagation.

Remove fence

Remove Austrian pines

Phase out easternmost douglas-fir when they grow too tall and as Shore pines and/or junipers take over.

Save firs on northwest end of sub cell (see map)

Remove all scotch broom

Remove English hawthorns

Remove red alder and two willows

Group shrubs to give natural effect and views through

Save asters and artemesias and any other native herbaceous perennials

Consider issue of introducing xeric adapted coastal forbs and grasses

Potential species

Trees

Pinus contorta (dwarf ecotype)

Juniperus scopularum (Island ecotype)

Pseudotsuga mensiezii

Shrubs

Ribes sanguineum, *R. lobbii*

Holodiscus discolor

Philadelphus lewisii

Manzanita columbianum

Ground covers and low shrubs

Pachistima myrsinites

Manzanita columbianum (low growing San Juan ecotype?)

Gaultheria shallon

Berberis nervosa

Vaccinium myrtilloides

4. East Meadow Entrance

Existing Condition and Problems

This is the entrance to the lower level of the East Meadow. It has gravelly slopes facing south west, and a heavier gravel loam along the edge of the parking lot down to the water table. The whole area is seriously infested with blackberry, bindweed, poison hemlock, tansy and reed canary grass. Native alders and cottonwoods are also colonizing the area.

Recommended Visual Quality and Functions

A "gateway-vista" effect can be created with trees and shrubs. A sampling of representative wetland species here would give park users a good introduction to wetland vegetation.

Management Issues

Start on weed control immediately with the most rigorous/effective means. This control must involve a larger area than needed for planting so as to leave a management strip. IMP probably of limited potential here and some herbicides might have to be used.

Control cottonwoods (too large for area)

Remove alders close to gate leaving room for birch clumps and crabapples.

Remove the Austrian pines.

Consider introduction of wetland forbs such as Sparganium, Alisma, etc.

Potential species

Trees

Betula papyrifera

Crataegus douglasii

Pyrus fusca (Malus pyrus)

Pseudotsuga menziesii (to south edge of parking lot)

Tsuga heterophylla (ditto)

Thuja plicata (ditto)

Shrubs

Sambucus canadensis

Lonicera involucrata

Cornus stolonifera (sericea)

Osmaronia cerasiformis (Oemlaria cerasiformis)

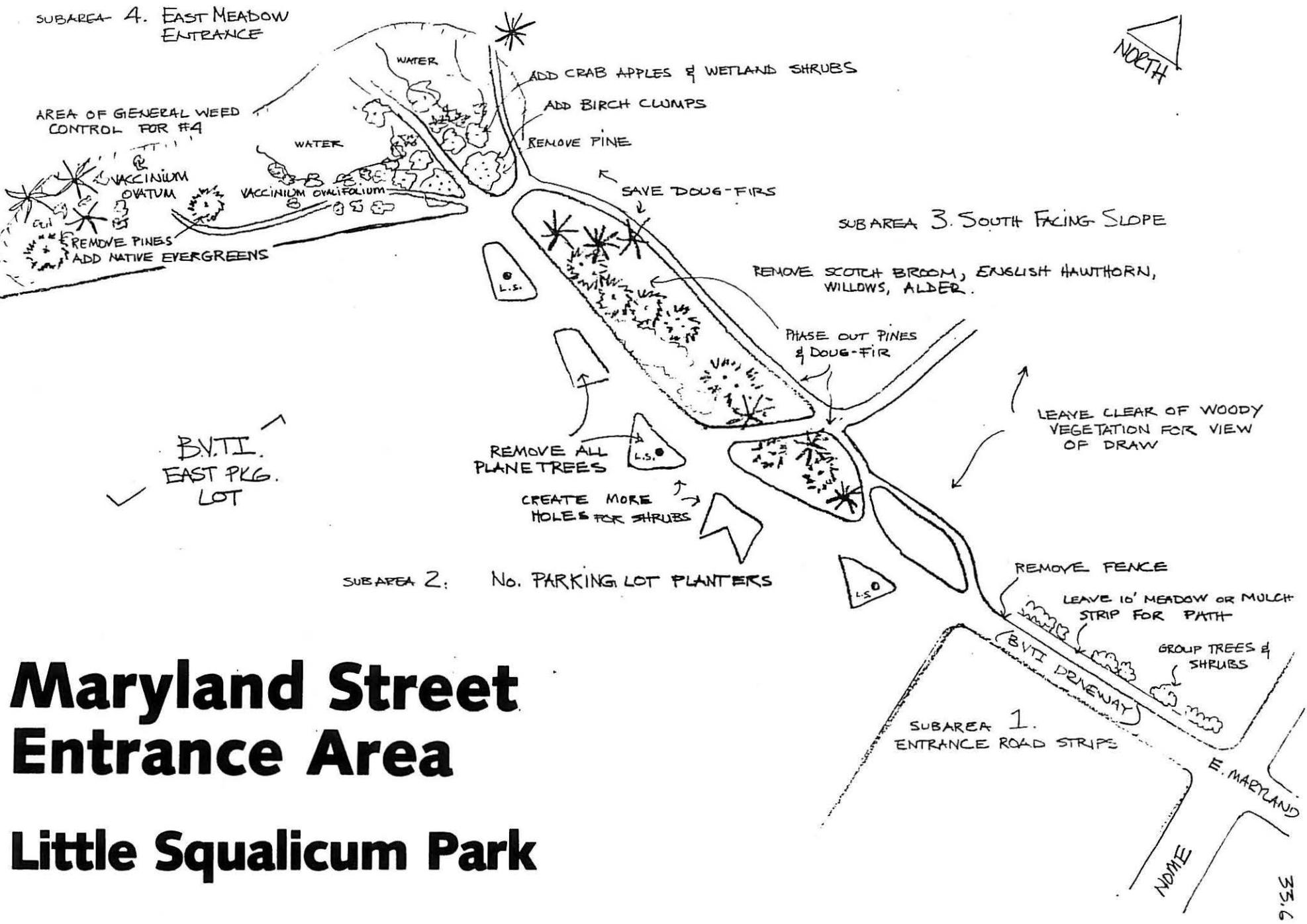
Physocarpus capitatus

Ribes laxiflorum, R. divaricatum, R. lacustre

Rosa pisocarpa

Viburnum edule

Vaccinium ovalifolium, V. ovatum (by gate and southwest parking lot edge .)



Maryland Street Entrance Area

Little Squalicum Park

Little Squalicum Park
Recommendations for Short Term Action

Marine Drive Entrance (Management Cell W 5)

Existing Conditions and Problems

Exposed site, heavy traffic pollution. Heavy infestation of blackberry on both sides of access road. Usual Eurasian weeds and tansy on Marine Drive side. Decrepit guard rail, six unsightly telephone poles and one industrial stack. Dump site on north side of access road.

Recommended Visual Quality and functions

Create open grassy slopes with a few trees and grouped shrubs to southwest of access road and triangle under bridge to allow for visibility. Use some of same species as in BVTI entrance so as to link the two areas.

Management Issues

1. Upper area by drive and bridge
 - Remove guard rail.
 - Raise grade by stop sign.
 - Remove blackberry and tansy from whole area.
 - Remove big alder closest to bridge
 - Limb up big alder close to gate.
 - Plant douglas-fir and grouped shrubs.
 - Construct new trail around gate on south side of gate post.
 - Install site name sign by gate. Locate so as not obvious from Marine drive to discourage parking.
 - Steam sterilize soil to remove weed seeds if feasible.
 - Sow to Companion grass seed mix. Consider a few native early spring forbs such as Camas, Allium, etc.
 - Install new site regulation and name sign on gate.
 - Encourage blackberries to close up gap made by old path on north side to discourage passage and dumping.
 - Remove alders and Bigleaf maple by bridge, plant Corylus, Osmaronia and Viburnum and undersow to Companion seed mix with scattered clumps of Dicentra.

2. Lower area across access road
 - Clear blackberries etc off of large rocks to north side of access road on lower level for climbing and sitting.
 - Remove cottonwood, alders and bigleaf maple to southwest of rocks to open up area.
 - Sow to Companion.

3. Sloping Triangle under bridge
 - Remove blackberries and cottonwood. Plant grouped shrubs(Oso plum and viburnum).
 - Sow companion grass mix.
 - Plant scattered clumps of Bleeding heart along lower path.

Potential speciesTrees

Acer glabrum

Corylus cornuta

Psuedotsuga menziesii

Shrubs

Ribes sanguineum

Philadelphus lewisii

Viburnus edule(shade)

Osmaronia cerasifolia(shade)

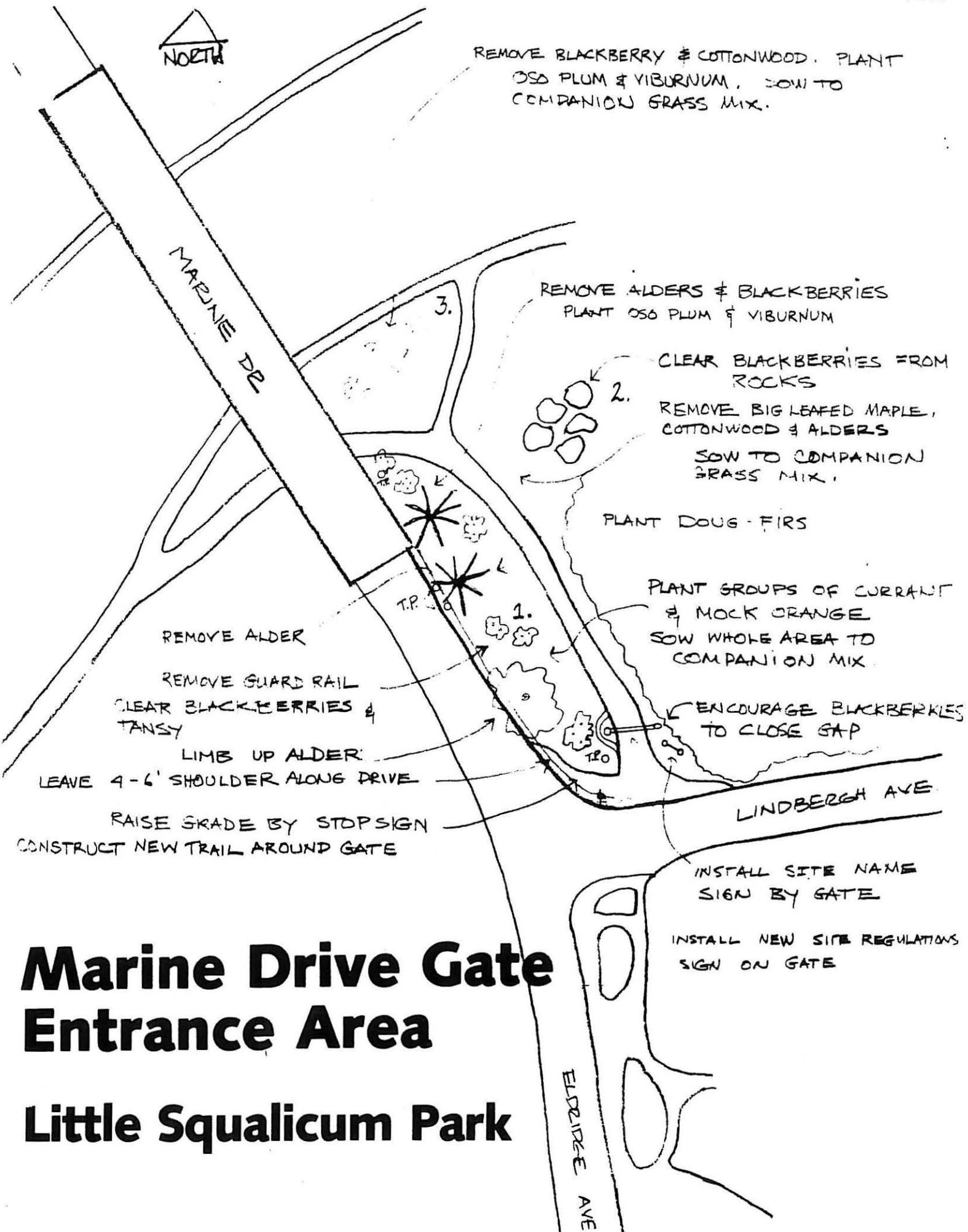
Ground covers and vines

Dicentra formosa (along access path between gate and bridge)

Lonicera ciliosa

Companion grass seed mix

Native spring forbs



REMOVE BLACKBERRY & COTTONWOOD. PLANT OSO PLUM & VIBURNUM, SOW TO COMPANION GRASS MIX.

REMOVE ALDERS & BLACKBERRIES
PLANT OSO PLUM & VIBURNUM

CLEAR BLACKBERRIES FROM ROCKS
REMOVE BIG LEAFED MAPLE, COTTONWOOD & ALDERS
SOW TO COMPANION GRASS MIX.

PLANT DOUG-FIRS

PLANT GROUPS OF CURRANT & MOCK ORANGE
SOW WHOLE AREA TO COMPANION MIX.

ENCOURAGE BLACKBERRIES TO CLOSE GAP

REMOVE ALDER

REMOVE GUARD RAIL
CLEAR BLACKBERRIES & TANSY

LIMB UP ALDER

LEAVE 4-6' SHOULDER ALONG DRIVE

RAISE GRADE BY STOP SIGN

CONSTRUCT NEW TRAIL AROUND GATE

INSTALL SITE NAME SIGN BY GATE

INSTALL NEW SITE REGULATIONS SIGN ON GATE

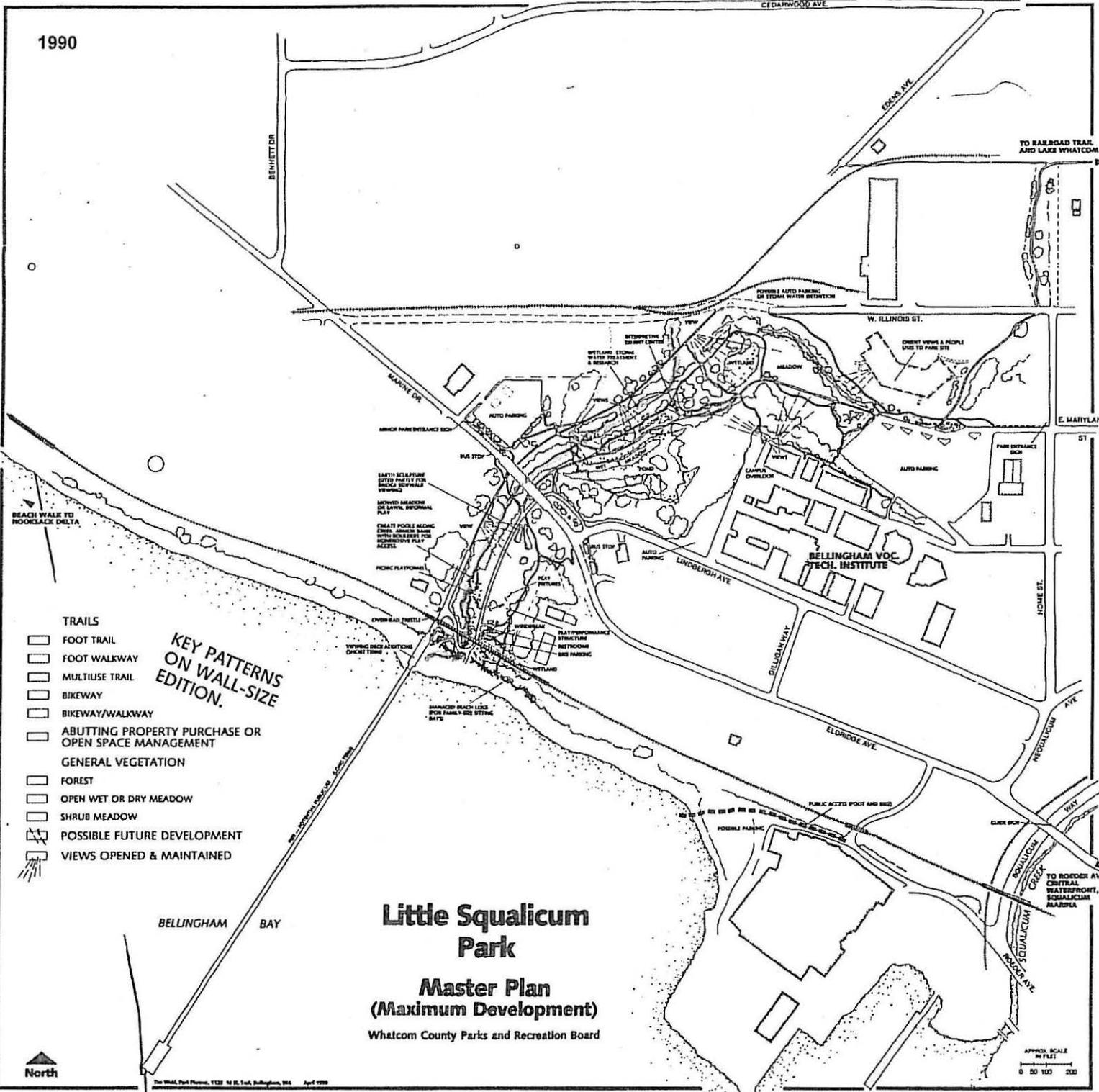
Marine Drive Gate Entrance Area

Little Squalicum Park

THE SITE MASTER PLAN

The map on the following page describes how the Little Squalicum Park site might appear if the policies, guidelines and opportunities identified in this document were implemented. The Master Plan is intended as a policy document generally stating the maximum level or extent of development, facilities and landscape modifications within the site, as well as their inter-relationships. Some elements of this overall concept will change; many elements require further design and study.

1990



KEY PATTERNS ON WALL-SIZE EDITION.

- TRAILS
- FOOT TRAIL
- FOOT WALKWAY
- MULTIUSE TRAIL
- BIKEWAY
- BIKEWAY/WALKWAY
- ABUTTING PROPERTY PURCHASE OR OPEN SPACE MANAGEMENT
- GENERAL VEGETATION
- FOREST
- OPEN WET OR DRY MEADOW
- SHRUB MEADOW
- POSSIBLE FUTURE DEVELOPMENT
- VIEWS OPENED & MAINTAINED

Little Squalicum Park
Master Plan
(Maximum Development)
 Whatcom County Parks and Recreation Board



APPROX SCALE
 IN FEET
 0 50 100 200

The Whatcom Park Plan, 1231 N. St. 1st, Bellingham, WA April 1990

PHASING AND ALTERNATIVE PLAN SCENARIOS

Completion of all the elements shown in the Master Plan may never occur! The intent is to define a general direction and basis from which to start site improvements. Site work will be phased according to budgetary constraints and according to constraints inherent in the Management Policies and Guidelines. Phasing of development can lead to fruitful revisions of the Management Plan and its Master Plan, especially with the ongoing participation of a management group such as that described in the Introduction of this document.

VARIABLES IN PHASING

Phasing will involve prioritizing site actions and selecting what combination of actions are most appropriate. This document identifies one such phase, a set of Short Term Action Recommendations. Other phasing decisions will reflect some of the factors and variables noted below:

Vegetation management using IPM (integrated pest management) principles and undertaken in the context of ecological restoration involves critical issues of seasonal and growth cycle phasing. An example is weed control prior to revegetation with native vegetation. Such restoration work can be economically infeasible with unadvised weed control. A careful weed control phase, often lasting a year or more, is often best prior to a any planting of foundation species.

Whether and when the Tilbury Pier can be publicly accessible. This factor will make a vast difference in levels of site visitation and the need to accommodate such visitation. A critical choice may be involved here in securing the irreplaceable/unsubstitutatable Parberry property.

When and how public access can be provided between Roeder Avenue and the southeast end of the beach. Visitation rates are again a key variable. A change in land uses for nearby Port lease lands would be important to several aspects of the site plan.

Wetland excavations and trail construction and reconstruction

east of Marine Dr should be coordinated. One involves cuts, the other fills. Opportunities abound to make the most of this match, given the shallow organic soils, the need to engineer water storage and flow, and the use of water features to serve as barriers in a trail access plan.

Human contact with waters may be affected by water quality issues. Actions to make pools and streamsides accessible for things like wading, something the Management Plan recognizes as appropriate for the West Meadow and Beach areas only, may be timed to reflect water quality improvements made elsewhere on- and off-site.

Improvement of the Railroad Bikeway/Little Squalicum Greenway for public access will greatly affect visitation and its accommodation. Trails and access control measures in the East Meadow and Middle Meadow areas will be greatly affected by construction of a popular trail linking inland neighborhoods with the bay. Trail and access control features must be coordinated and phased to address this dramatic change in use.

Expansion of the BVTI campus or changes in campus design will affect phasing decisions. Several opportunities for creative cooperation benefitting public open space and the Institute are possible.

CHANGES IN BASIC ASSUMPTIONS; LARGER UNKNOWNNS

Every plan makes certain assumptions. Some may prove to be invalid, necessitating basic changes in approach. Some such assumptions and the alternative scenarios they imply are noted below, as are larger unknowns which are difficult to assess:

Development, and especially a change in land use, for the undeveloped BNRR property northeast of the park site involves several unknowns, contingencies and, of course, opportunities.

An increase in industrial vehicular access to the Tilbury Pier or a change in its character may involve many contingencies and design issues not addressed in this site plan. Issues of safety, liability, wetlands protection would arise and might have to be addressed in site plan changes.

If the Parberry property is not purchased for park parking and open space use while the Tilbury pier did become public several very important aspects of this plan might have to change.

If Illinois St is extended to the northwest to Marine Drive to serve Morse Hardware and new land uses in its vicinity several changes in this plan should be examined.

OWNERSHIPS AND TITLE TRANSFER NOTES

Little Squawicum Park Area
(See Map for Parcel Locations)

Beach Area

B1 Port of Bellingham Tidelands

Tideland Lots: Hugh Eldridge to Port of Bellingham, Dated 3/1/27, Filed 10/28/36, AF# 468006, V 234 P 140, Assessor's Tray No. 50, 380223 042503. (There are no recorded covenants.)

Donation Claim Lands Laying Between Tideland Lots and BNRR: Hugh Eldridge to Port of Bellingham, 3/1/27, AF# 322427, V 194 P 502.

B2 Port of Bellingham Lease to Mt Baker Plywood

The 1950 30 year lease to Mt Baker Plywood involved 5.9 acres in Tideland Lot 7. Subsequent leases appear to be unrecorded with the County Auditor. Based on recorded financial arrangements by Mt Baker the current lease appears to involve 14.76 acres in Tideland Lots 6 and 7.

B3 Burlington Northern Railway Mainline

Edward and Teresa Lappin Eldridge to Bellingham Bay Railway and Navigation Co., Right-of-Way Deed Dated 12/28/1888, Filed 2/5/1889, V 8 P 477. 25' wide tract; grant revokable if rr not constructed within one year.

E and T Eldridge to Fairhaven and Southern Railway, 4/29/1890, V 13 P 625. Fee rights to 100' wide linear tract with reservation of "riparian and littoral rights incident in and to said premises hereby conveyed". The present day tracks appear to follow the 1890 alignment, being centered 25 feet from the NE property line and 75 feet from the SW line.

B3.1 Burlington Northern Lease to Mt Baker Plywood, Unrecorded Agreement, 380223 478059, 5165 sq.ft., GNRR Lease # 72923.

B4 Tilbury Pier Property

B5 Tilbury Tidelands

Acquired by Olympic Cement sometime around 1911 from Hugh Eldridge. AF# 873782 later recorded legal description for fee right.

Park Lands

P1 Whatcom County Parks

Eldridge heirs convey to Guy Eiford and Fred Reinholt, 9/20/60, AF# 899955.

Eiford and Reinholt convey Whatcom Co, Dated 12/5/75, Filed 3/20/76, AF# 1208788, V 279 P 203. 18,000 sf at SE corner sold to BVTI in 1989.

P1.1 Whatcom County Parks

Apparently purchased from Bellingham School District by Eiford. Conveyed to County under AF# 1208788 above.

P2 Bellingham School District 501 Park Trail Easement

Interagency agreement dated 10/31/89.

P3 Morse Hardware Co. Perpetual Open Space/Trail Easement

Agreement in progress, Bellingham Parks Department.

Tracts with Proposed/Possible Public Park Uses

(Usually only a portion of these properties, or selected rights are under consideration for public use.)

PP1 Tilbury Railway Tract

Hugh Eldridge conveys to Olympic Portland Cement, 11/22/11, AF# 153387, V 120 P 108. Fee transfer but three at-grade crossings, all grade separate crossings retained. Some reversionary rights implied relative to condition of perpetual railroad maintenance these seem to include the buried concrete underpass west of the Marine Dr bridge. Subsequently conveyed to other cement plant owners.

Local Tilbury Contact: Les Eggert, Terminal Accountant, Tilbury Cement Co., 741 Marine Dr., P.O. Box 37, Bellingham, Wa. 98227. ph. 733-6720, fax 733-6785.

Regional Tilbury Contact: Paul Heaton, Tilbury Cement Co., 7777 Ross

Road, P.O. Box 950, Delta, BC, Canada, V4K 3S6.
ph. 604-946-0411.

PP2 Tilbury Lower Stream Tract, Two Parcels on Opposite Sides of
Marine Dr.

Eldridge Heirs convey to Olympic Portland Cement, 11/16/56,
AF# 827666, V 420 P 279, 380223 344168. Subsequently conveyed to
other cement plant owners. Tilbury contacts as above.

PP3 Port of Bellingham Right-of-Way.

Eldridge heirs convey right-of-way to Port of Bellingham, 10/16/56,
AF# 826032, V 419 P 435, 380223 347164.

PP4 C.V. Wilder Tract

C.V. Wilder, 2006 N. State St., Bellingham.

PP6 Oak Harbor Freight Tracts

E.H., D.A. and J.P. Vanderpol and S.J. Dykstra, P.O. Box 1469,
Auburn, Wa. 98071-1469.

PP7 Glacier Park Co. (Burlington Northern Railway) Industrial
Tract

Larry Seyda, BNRR, Seattle, Wa. ph. 467-3493. Glacier Park,
467-5500.

PP8 Morse Hardware Co. Steel Center

Bob Morse, Morse Hardware, 1025 N. State St., Bellingham, Wa.

Selected Abutting Properties

N1 M. VanZanten residence, 617 Marine Drive, Bellingham.

N2 George Prather residence, 613 Marine Drive, Bellingham.

N3 Audrey Hastings, owner, 10311 Aragon Road, Richmond, BC, Canada,
V7A 3E6.

N4 William Schacht residence, 603 Marine Drive, Bellingham.

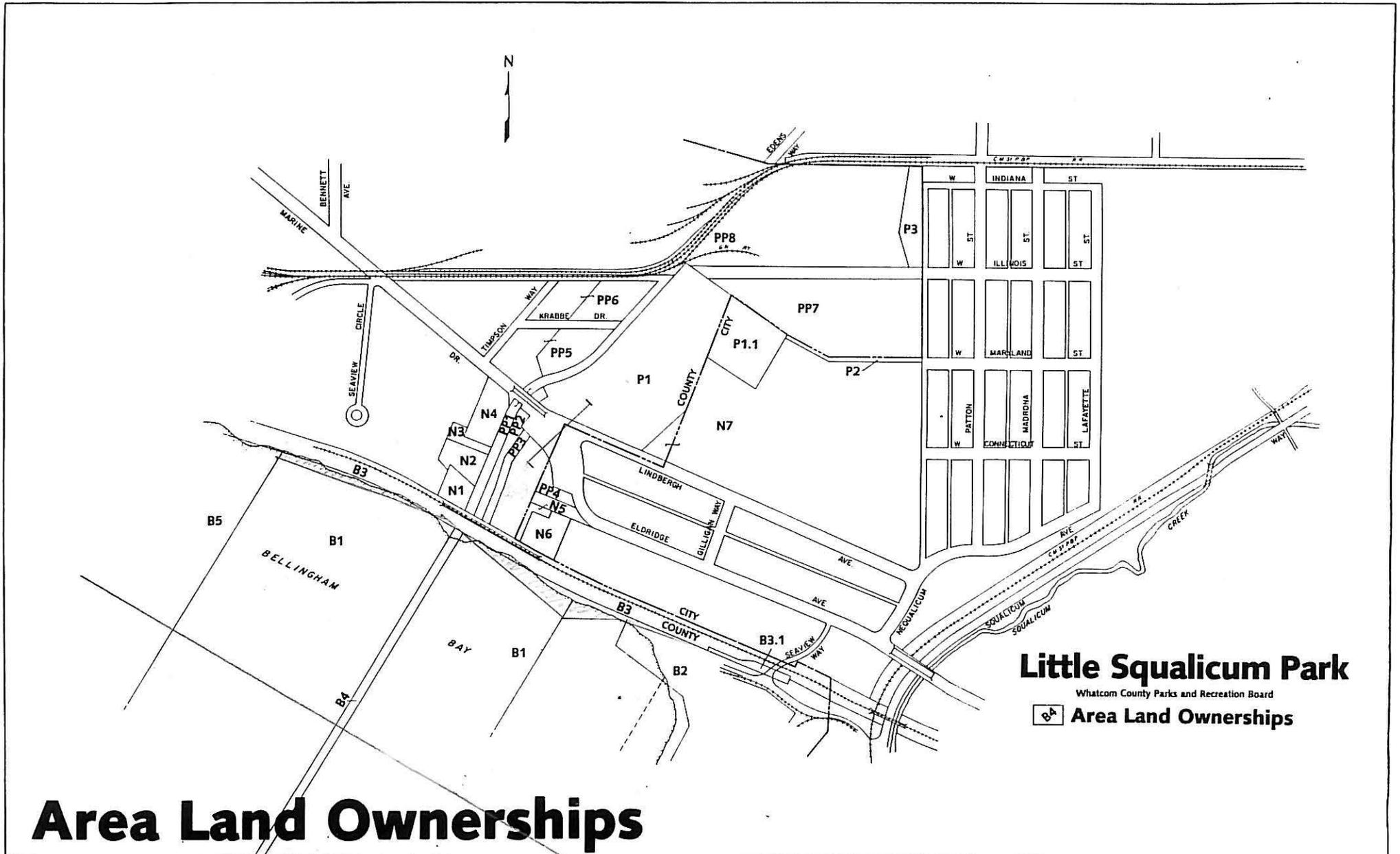
N5 David Siden residence, 3117 Eldridge, Bellingham.

N6 James and Pauline Anderson residence, 3115 Eldridge, Bellingham.

N7 Bellingham School District #501, Bellingham Vocational Technical Institute Campus

Eldridge heirs convey to Tiscornia family, 9/30/43 (contract executed by Hugh Eldridge prior to 1939) AF3 582571, V 288 P 37. (Including parcel P1.1)

Tiscornia family conveys to Bellingham School District, 5/25/55, AF# 796254, V 407 P 28.



Little Squalicum Park

Whatcom County Parks and Recreation Board

B^A Area Land Ownerships

Area Land Ownerships

See Text

DATE	BY	REVISION	Job No. WMA 1 240 / 1221	Designer Drawn by Checked by	Prep. Date Approved by Date						
------	----	----------	-----------------------------	------------------------------------	-----------------------------------	--	--	--	--	--	--

SUMMARY OF LAND USE AND SHORELINE CONTROLS
Adjacent to Public Park and BVTI Lands

See Map

COUNTY ZONING ORDINANCE

HII Heavy Impact Industrial Zone

Intent: Production, distribution and processing of raw materials for primarily non-local markets.

Typical Industries: Food, pulp, lumber, refining, plastics and rubber, primary metal, metal products fabrication, transportation equipment fabrication.

Public uses and recreation facilities are permitted.

LII Light Impact Industrial Zone

Intent: Industrial activities with a relatively light impact on adjacent land uses and districts. Primarily related to services and for distribution, manufacture and assembly of finished products. Accommodation of subordinate uses which provide support services for the district.

Typical Industries: fabrication of light machines, rail and truck freight terminals, business firm headquarters, professional offices, building material yards, construction contract yards, cafes, gas stations.

Public uses and recreation facilities are permitted.

UR3 Urban Residential 3 Zone

Intent: Accommodation of residential uses making an orderly transition between urban and rural land uses with uses and densities complimenting future urban densities and services.

Density: Gross Density equalling 3 dwelling units per acre.
1,2000 SF minimum, conventional lot.
3,000 SF minimum, cluster lot.

CITY ZONING ORDINANCE

RM Residential Multi, Duplex Zone

Intent: Accommodation of single family homes and duplexes.

Density: West of Eldridge Ave:

20,000 SF minimum, detached unit.

7,5000 SF per duplex unit.

East of Nome Street:

4,000 SF minimum. detached unit.

4,000 SF per duplex unit.

RS Residential Single Zone

Intent: Accommodation of single family homes.

Density: 7,200 SF minimum per home.

COUNTY SHORELINE PROGRAM

Urban Shoreline Area (200' landward of OHWM)

Intent: An area of intensive development including residential, commercial and industrial uses and where public access and multiple uses are also desirable. Optimization of regional benefits through intensive development which is appropriate and which enhances the area.

Policies:

Preservation of physical and visual access to the shoreline for the public should be strongly encouraged and planned for.

Multiple use of shoreline should be sought and encouraged.

Additional density should be permitted and encouraged in exchange for additional open space and public access.

Landfills are permitted in limited instances for water-dependent uses, such as when pier or pile supports are infeasible. Jetties, breakwaters and seawalls are conditional uses.

Setback Regulations:

Commercial:	30', shore dependent 75', non-shore dependent
Marina:	30', shore dependent 75', non-shore dependent
Port/Industry:	50'

Conservancy Shoreline Area (200' landward of OHWM)

Intent: An area with natural resources that can be used and managed on a long term multiple use basis whenever possible. The reduction of use and development intensities and maintenance of most of the area's natural character. Areas with recreational or aesthetic qualities of high value to the region and which would likely be diminished by moderate to intense development.

Landfills are permitted as a conditional use (except that minimum grading with approved development is permitted outright) and except that landfills to create new uplands are prohibited.

(Adjacent offshore, Aquatic Area, breakwaters, seawalls and jetties are a conditional use.) Breakwaters, seawalls and jetties within Conservancy Areas are conditionally permitted if accessory to a shoreline dependent use.

Conservancy Shoreline Area, continued

Policy: Serious consideration should be given to floating, portable or submerged breakwater structures...wherever such lower impact alternatives are feasible.

Setback Regulations:

- Commercial 75', shore dependent
 150', non-shore dependent
- Marina: 75', shore dependent
 125', non-shore dependent
- Port/Industry: 150'

Aquatic Shoreline Area (water surface and underlying lands seaward of OHWM)

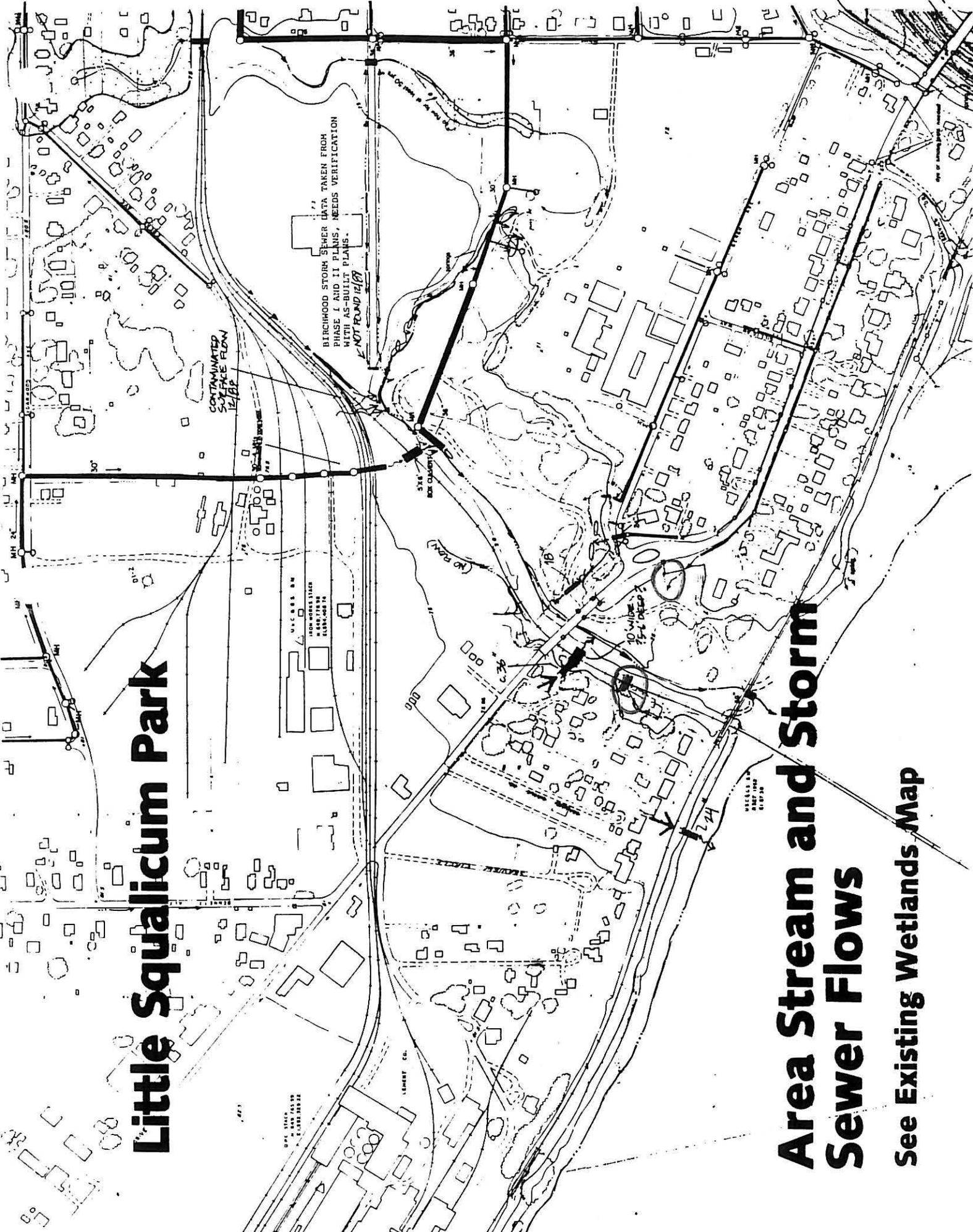
Intent: Encouragement and protection of appropriate multiple uses. Protection of limited water surfaces, tidelands, and shorelands from encroachment. Preservation and wise use of natural features and resources which are substantially different in character from those of adjoining uplands and backshores.

Landfills are permitted in limited instances for water-dependent uses, such as when pier or pile supports are infeasible. (A conditional use permit would be required under currently proposed shoreline regulation changes.) Jetties, seawalls and breakwaters are a conditional use adjacent to Urban and Conservancy Shoreline Areas. Piers and docks are permitted subject to policies and regulations and if such development is permitted in the adjacent shore Area.

Policy: See breakwater policy above.

Policy: Development should be sharply limited to those uses which are compatible with conservation of Aquatic Area resources including water, fish and wildlife and recreation areas, as well as with other appropriate uses and the area's unique natural character. Development in conflict with these objectives should be directed to an onshore location.

Little Squalicum Park



BIRCHWOOD STORM SEWER DATA TAKEN FROM PHASE I AND II PLANS. NEEDS VERIFICATION WITH AS-BUILT PLANS.
 NOT ROUND 12\"/>

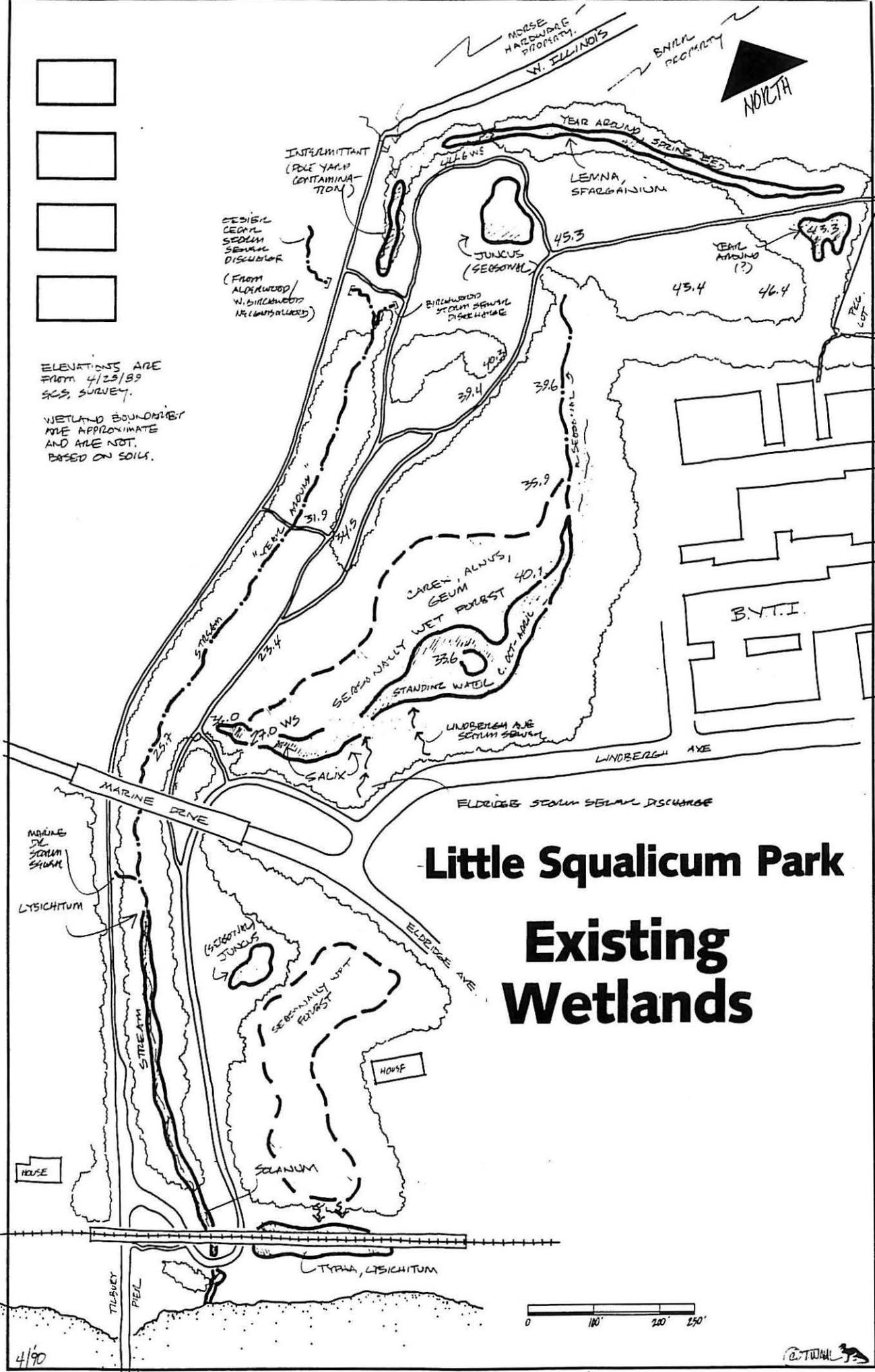
CONTAMINATED SURFACE FLOW 12\"/>

3\"/>

10\"/>

Area Stream and Storm Sewer Flows

See Existing Wetlands Map



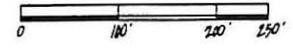
-
-
-
-

ELEVATIONS ARE FROM 4/23/89 SCS SURVEY.

WETLAND BOUNDARIES ARE APPROXIMATE AND ARE NOT BASED ON SOILS.

Little Squalicum Park

Existing Wetlands



6-1-89

TIM WAHL
BELLINGHAM PARKS DEPARTMENT
BELLINGHAM, WASH.

DEAR TIM,

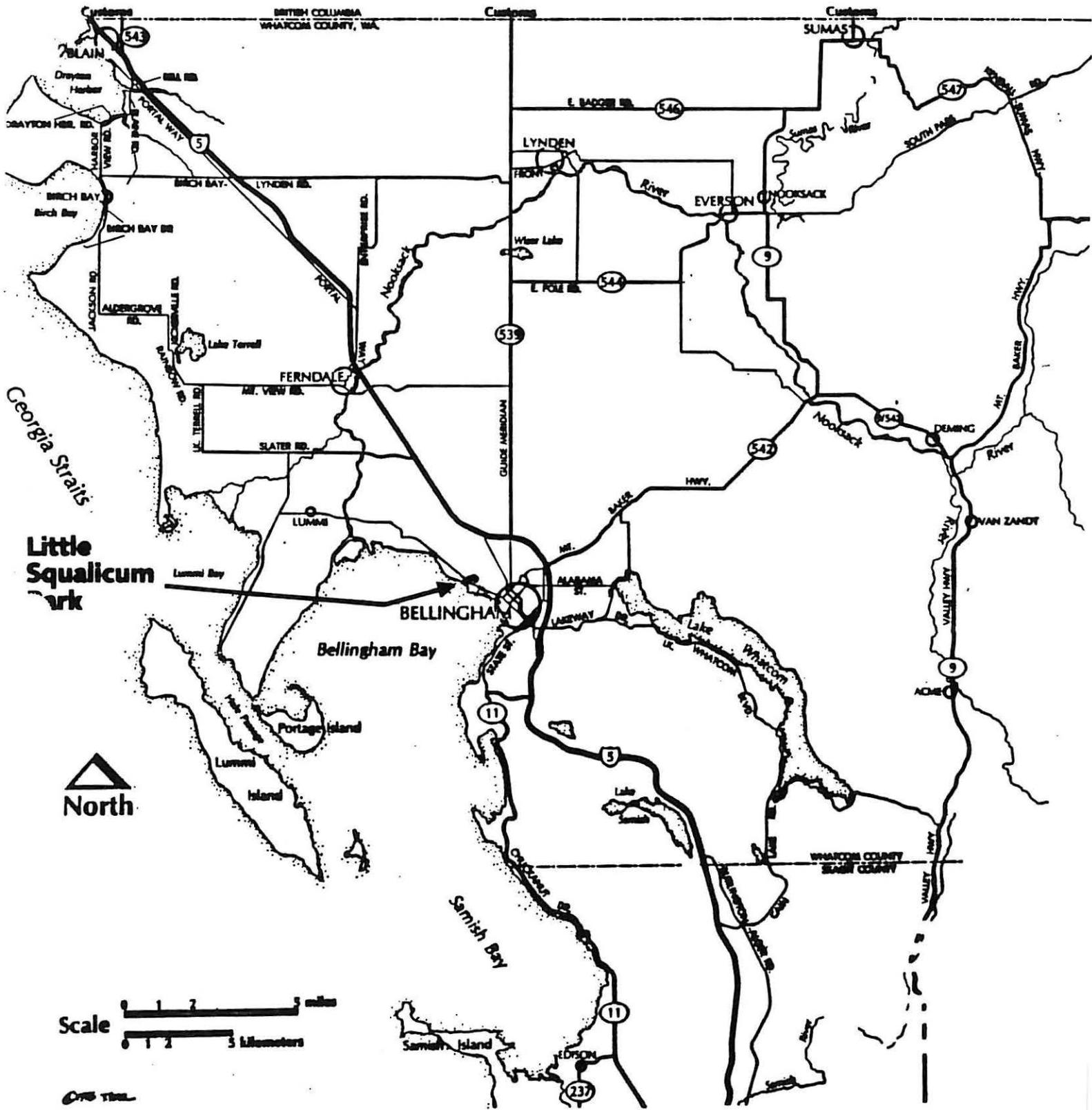
ENCLOSED ARE 2 COPIES OF THE
MAPS YOUR COMMITTEE PROVIDED FOR
OUR USE. THE ELEVATIONS WE
OBTAINED FROM A SURVEY 4-25-89
ARE SHOWN IN BLUE.

FROM THESE PRELIMINARY ELEVATIONS,
ALL INDICATIONS ARE THAT PONDS COULD
BE BUILT IN THE LOCATIONS OUTLINED
ON THE PLAN. WATER SURFACES ON
THESE PONDS COULD BE REGULATED WITH
OUTLET PIPES OR ROCK OUTLET STRUCTURES.

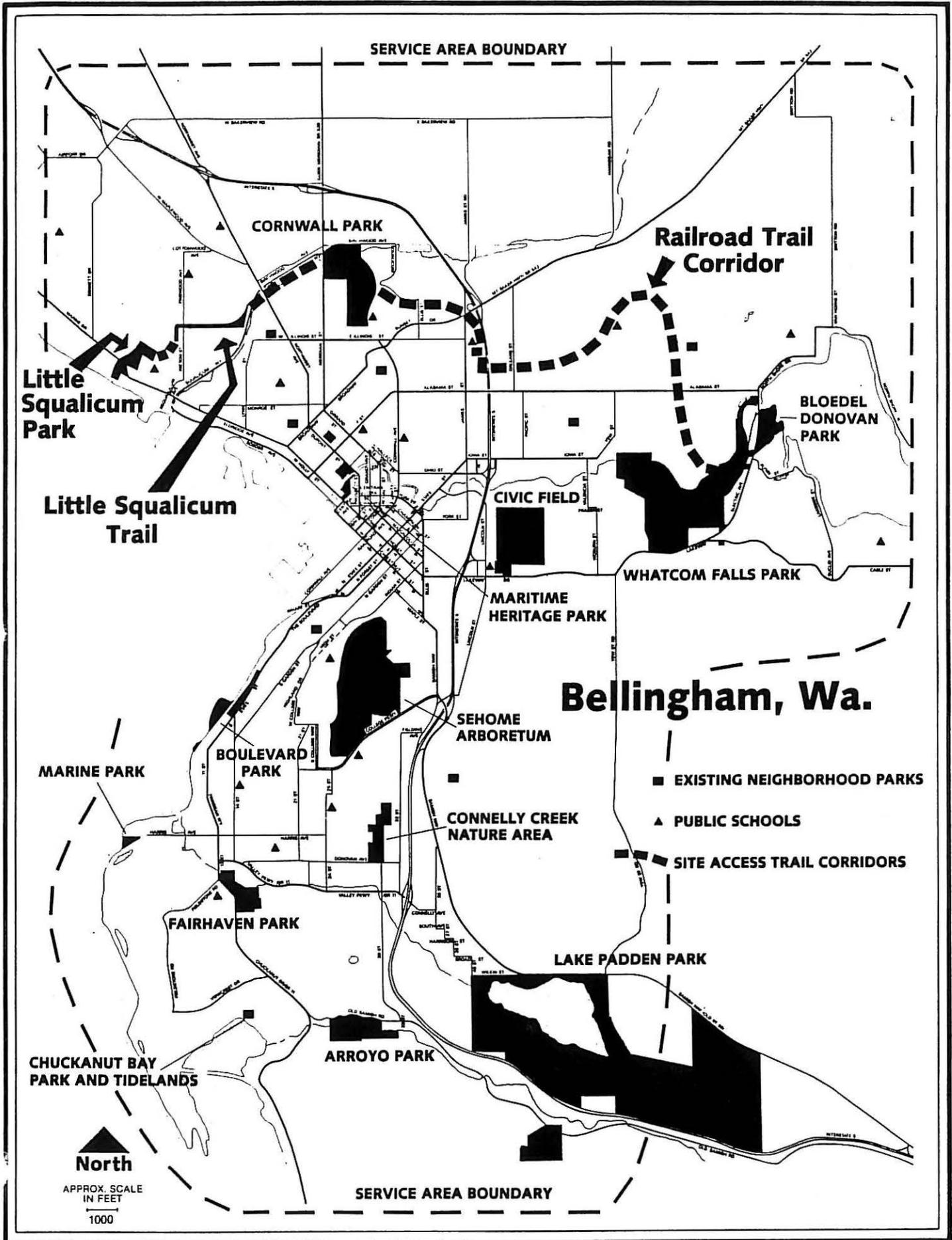
IF WE CAN BE OF FURTHER ASSISTANCE
TO YOU OR YOUR COMMITTEE FEEL FREE
TO CALL OUR OFFICE AT 354-2035.

SINCERELY,

BILL BONSEN
SOIL CONSERVATION
TECHNICIAN



Western Whatcom County



APPENDICES

Excerpts: Huxley College Squalicum
Beach Environmental Assessment Study;
Groundwater, Soils, Winds, Water
Quality. March 1988.

Next 9 Pages

The geology of an area controls its landscape, soil character, slope, and stability. The Squalicum Beach area, like most of western Whatcom County, is composed of layers of sediment deposited during the late Pleistocene, or ice age (Easterbrook, 1971). The primary geologic units on the site are outwash sands and glaciomarine drift. Glaciomarine drift is formed when retreating glacial ice floats on top of seawater. The pebbles, sand, silt, and clay particles trapped in the ice settle to the sea floor as the ice melts. Since the heavier pebbles and sand settle quickly, they are usually in small, scattered pockets in a matrix of extremely fine silt and clay, a characteristic of glaciomarine drift. Outwash sediments are deposited by meltwater streams flowing from the glacier over the land.

Surface Geology

The surface geology of the study area has been mapped by D.J. Easterbrook (1971) as "outwash sands and gravels". These were deposited about 10,000 years ago by a meltwater stream flowing from the glacier terminus that was near present-day Sumas, WA. The further outwash sands and gravels are from their source, the finer the particles and the thinner the deposit. According to Easterbrook (pers. comm., 1988) the outwash on this site is mostly sand, and is not more than 3 feet thick.

Subsurface Geology

Underneath the outwash sand is a layer called the Bellingham Glaciomarine Drift. This drift layer is exposed throughout much of western Whatcom County, and can be up to 70 feet thick. On this site the Bellingham Drift is probably thinner, between 20 and 60 feet. This layer is visible from the beach below the cement plant, a fine brown clay at the top of the bluff.

The next layer down is the Deming Sand (Easterbrook, 1971), a sand and gravel layer up to 30 feet thick. The areal extent of this layer is unknown, but the Deming Sand probably underlies most of the site. The U.S. Geological Survey topographic map shows a "borrow pit" in the upper part of Little Squalicum ravine, indicating that sand was once excavated from the site, probably for construction purposes.

Below the Deming Sand is a 15 -25 foot thick layer of blue-gray clay that is the Kulshan Glaciomarine Drift. Part of the Kulshan Drift can be seen at the base of the bluff below the cement plant. This fine, sticky drift contains fossil shells and wormtubes, and is quite distinct from the brown Deming Sand immediately above it.

Far beneath the layers of glacial deposits there is a thick sequence of late Cretaceous-early Tertiary (50-70 million years old) bedrock known as the Chuckanut Formation. The bedrock is mostly sandstone, but deposits of coal have been mined from it beneath the Bellingham area.

Coastal Geology

The Squalicum Beach site includes 1.3 miles of Bellingham Bay shoreline. The sand, gravel, and cobble beach is widest and sandiest at the mouth of Little Squalicum Ravine, between Mount Baker Plywood and the cement plant pier. Steep bluffs of glaciomarine drift and sand layers rise 60-80 feet above the beach. Along most of the beach, large concrete riprap is piled against the base of the cliff, apparently to prevent erosion.

Most of the beach sands are derived from the sediment load of the Nooksack River, which empties into Bellingham Bay about 2 miles northwest of Squalicum Beach. Some beach sediments are derived from the land. Large rocks, cement chunks, old bricks, and discarded railroad parts (track, ties, spikes) are the result of years of indiscriminate dumping of refuse over the bluff, an activity that aggravates erosion.

Jacobsen and Schwartz (1981) found the net longshore drift to be to the northwest, toward the Nooksack delta. This makes sense since the dominant winds are out of the southeast, and the direction of sediment transport depends on direction and intensity of wind and waves. However, Easterbrook (pers. comm., 1988) believes net drift occurs in the opposite direction since the bulk of beach sediments are transported from the Nooksack River delta. This subject merits further research, especially if future shoreline development is considered.

There are three classes of soils on the site, as designated by the Soil Conservation Service (Figure 2). The following descriptions provided by the Soil Conservation Service are from the most recent soil survey of Whatcom County (1987, in print):

70 H Whatcom-LaBounty Silt Loam; Whatcom Part; 0-8% slopes: "The Whatcom series consists of deep, moderately well-drained soils that formed in volcanic ash, loess, and glacial marine drift on glacial marine drift plains and occupies the upland position of kame-kettle type topography."

70 D Urbanland-Whatcom-LaBounty Complex; LaBounty Part; 0-8% slopes: "LaBounty drained phase consists of deep soils formed in glacial marine drift, loess, and volcanic ash in depressional areas on drift plains."

97 A Urbanland: The Soil Conservation Service could not provide a detailed description of this soil. Where "urbanland" soil occurs on this site (Mt. Baker Plywood), it consists of dredge/fill material of unknown origin and composition.

Soil Conservation Service (SCS) records indicate a depth to the water table of 1-3 feet for both of the Whatcom-LaBounty soils (a & b above). These soils transmit water very slowly and are unsuitable for septic tank absorption fields. They also exhibit shrink-swell potential and are generally low-strength when wet. This makes these soils poor for construction purposes such as building foundations, roads, and road fill. Saturated fine-grained soils also are unstable with respect to earthquake hazard, since they exhibit a high response to vibration (Easterbrook, 1973). Both Whatcom-LaBounty soils erode easily, and there is potential for erosion whenever these soils are exposed during clearing or construction. Appendix A contains SCS soil ratings for specific uses.

Maximum topographic relief on the site is 110 feet, from sea level at Bellingham Bay to the northwest corner at the intersection of Locust Street and Marine Drive. The most distinctive topographical feature are the near-vertical bluffs rising from the beach. Above the bluffs the land is flat or gently sloping, except for the steep ravine of Little Squalicum Creek which cuts through the central part of the study area.

The bluffs and Little Squalicum Ravine are designated Class 2 areas with respect to slope stability by Easterbrook (1973), who describes such areas as follows:

"Slopes are greater than 15% and underlain by weak, fine-grained, unconsolidated sediments. Most of these sediments consist of pebbly silt-clay Bellingham Glaciomarine Drift which has rather low-strength, especially when wet. The most hazardous areas occur beneath steep bluffs along sea cliffs and stream valleys. Slump failures and debris flows are common in such areas, particularly in the fall and winter wet seasons when the silt-clay glaciomarine sediments become saturated. Geologic and engineering investigations should be made prior to modification of natural slopes or construction in order to assess the potential hazard and to design corrective measures to insure stability."

SURFACE RUNOFF

Runoff occurs when soils can no longer absorb precipitation and water begins to collect on the surface. The soils in the area are fine-textured and developed in a thin layer of sand which sits on relatively impervious glaciomarine drift. They become saturated quickly since water cannot effectively percolate any further than the drift layer. Water collects on the surface, where it can evaporate and/or flow toward topographic low areas. A major portion of the precipitation falling on impervious surfaces (roads, parking lots, buildings) becomes storm runoff. The fate of storm runoff on this site can be characterized as

- Depression storage (ponding), slow percolation, evaporation
- Natural drainage to low topographic areas
- Channelization to storm sewer to creek or beach (Figure 3)

GROUNDWATER

Information regarding groundwater on the Squalicum Beach site is limited because there are few wells in the area. The only well currently withdrawing groundwater is on the property of Tilbury Cement. Previous hydrogeological studies (Easterbrook, 1973, Kimmel, 1982) discuss only the large-scale, regional groundwater flow, which is apparently toward the Nooksack River. However there is some evidence for local groundwater storage on the site.

Both the Soil Conservation Service and the Whatcom County Environmental Health Department report depths of only 1-3 feet to a perched water table. This corresponds to the top of the saturated layer of soil and outwash perched on impermeable Bellingham Drift. The saturated layer varies in depth seasonally, but is generally shallow. Also, water is not easily transmitted through the fine soils. Another consideration is that household septic tanks discharge into this layer. Though this groundwater is not utilized, its discharge to storm sewers by seepage is important because of its poor quality. Storm sewers discharging onto Squalicum Beach were found to have high levels of fecal coliform bacteria in tests conducted by members of the assessment team (Appendix C).

The Deming Sand layer (see Geology) is known to be the source of water for several household wells further inland, north of Bellingham near Bakerview Road. Inland, the water is trapped between the two impermeable drift layers (Bellingham and Kulshan), but at Squalicum Beach, water can escape where the sand is exposed in the bluff. In wetter times of the year, water can be seen seeping or even flowing from the sand where it contacts the Kulshan Glaciomarine Drift.

There are undoubtedly other water-bearing glacial sand and gravel layers buried between the Kulshan Drift and bedrock. It is likely that the Tilbury Cement well draws its water from one of these, however because of the scarcity of well data, it is difficult to draw any conclusions about existing aquifers.

None of the surface or groundwater on the site contribute to the public water supply. However, a few homes on the Seaview Gardens bluff may receive water from the Tilbury Cement well, in exchange for pipeline rights-of-way.

The Bellingham area climate is classified as "marine". Coastal mountains on Vancouver Island and the Olympic Peninsula protect Bellingham from the main force of eastward moving storms traveling over the Pacific Ocean. The Strait of Georgia, the Strait of Juan de Fuca, and breaks in the coastal mountains permit intrusion of moist ocean air throughout most of the year. Average annual precipitation is about 34 inches, and temperatures are moderated by the moist marine air. Average monthly precipitation and temperatures over a recent thirty year period are graphically represented in Figures 4 and 5.

The Cascade Range shields the area from cold, dry air from the east in the winter, but arctic air from the Canadian interior occasionally blows south through the Fraser River Canyon into the Bellingham area. Average winter daytime temperatures are in the 40's (Fahrenheit) falling to the 20's or lower 30's in the evening. In summer, winds shift to westerly and northerly directions, and cool air from the Pacific keeps average summer afternoon temperatures in the mid 70's while nighttime temperatures are in the the mid 40's. Summer temperatures can reach 90 degrees and higher, but only for brief periods. Wind speeds are also slower in the summer (Appendix D). Most of the annual rainfall occurs between October and April, with some light snowfall.

Groundwater reserves probably exist under the Squalicum Beach site (see end of section on groundwater). The only well on the site has a 350 gallon per minute pumping capacity, and during full cement production operated about nine hours a day. This is evidence that there may be a high yield aquifer at some depth; but no well log (record) of this well was on file at the Washington Department of Ecology, Department of Natural Resources, or the Water Resources Division of the U.S. Environmental Protection Agency. A well log would be necessary to research the aquifer by correlation with logs of other wells in the surrounding area.

APPENDIX C: Results of Water Quality Testing for Fecal Coliform Bacteria, Squalicum Beach Site

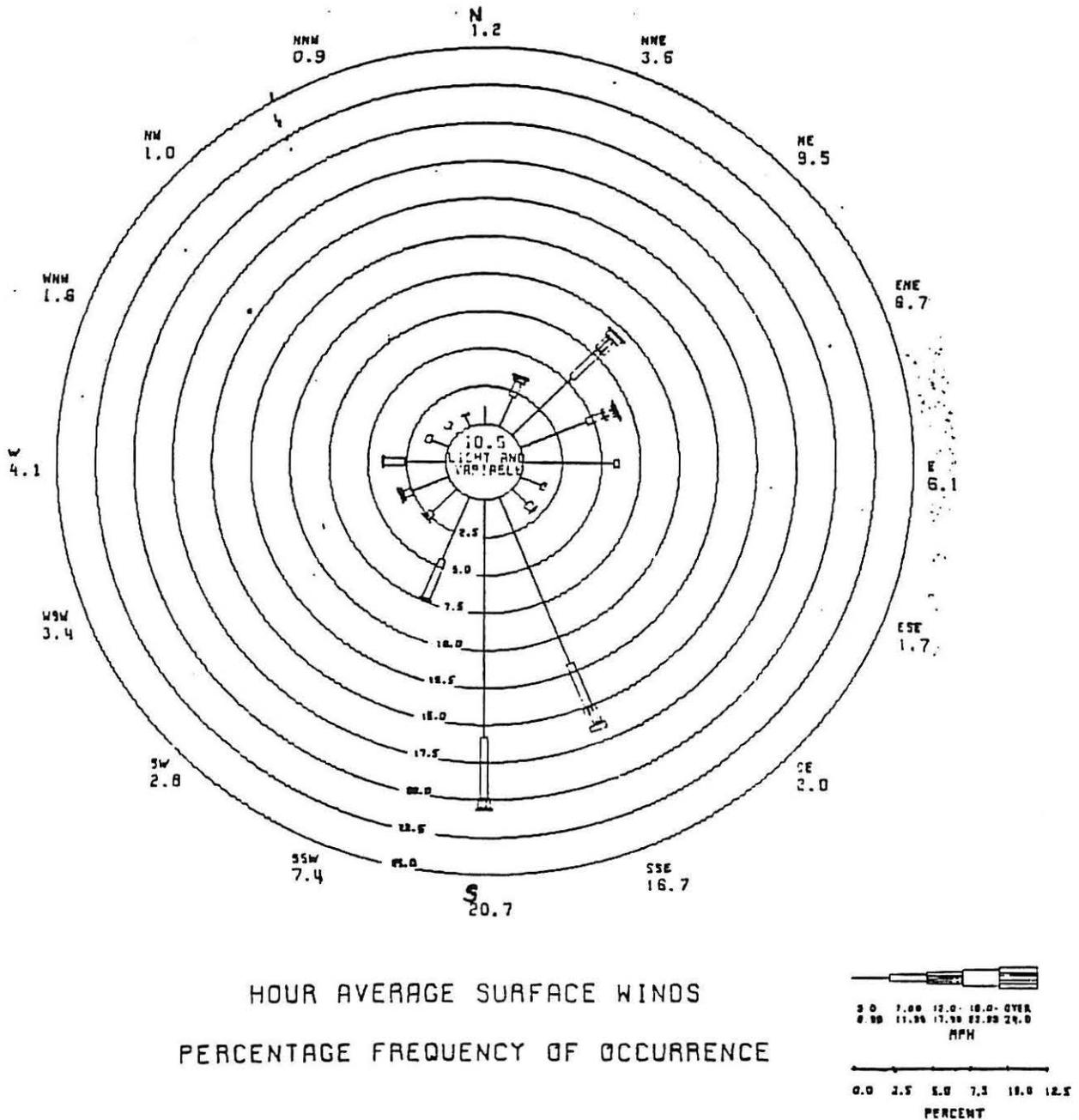
<u>Site#</u>	<u>Location</u>	<u>Fecal Coliform</u> <u>Coliform Colonies/100ml</u> <u>of Sample</u>		
		<u>7/15/80^a</u>	<u>1/19/81^a</u>	<u>2/22/88^b</u>
0	Little Squalicum Creek, Under Marine Dr. Bridge, Upstream From Seaview Garden Storm Outfall	100	100	100
1	Little Squalicum Creek, @Storm Outfall From Seaview Gardens	55,000	20,000	12,000
2	Mouth of Little Squalicum Creek	5,600	2800	1,000
3	Outfall Pipe To Bellingham Bay- Residential Storm Pipe From Seaview Gardens	4,000	100	TNTC ^c
4	Storm Outfall From Cement Plant to Bay	4,000	<100	240
5	Railroad Ditch @Residential Storm Sewer (3)-Behind Seaview Gardens	9,000		TNTC ^c

a: Sampled by Whatcom County Health Department

b: Sampled by Assessment Team Members Nancy Kohn and Keith Higman with permission from Whatcom County Health Department

c: TNTC - Too numerous to count

APPENDIX D: Wind Information



The wind rose is a plot of wind direction, frequency of occurrence, and wind velocity. The wind rose above is plotted from wind measurements taken at the cement plant station (Fig. 12) for one hour, each day, averaged for the year. The bars point in the direction from which the wind is coming. The length of the bar indicates the frequency of occurrence of a certain wind direction. Wind direction is conventionally reported by indicating the direction from which the wind is blowing, i.e., a southerly wind blows from south to the north.

Source: Northwest Air Pollution Authority (1988)

PTI

ENVIRONMENTAL SERVICES

RECEIVED

NOV 17 1989

DEPARTMENT OF ECOLOGY
NORTHWEST REGION

BELLINGHAM BAY ACTION PROGRAM:

Initial Data Summaries and Problem Identification

For

U.S. Environmental Protection Agency
Region 10 - Office of Puget Sound
Seattle, Washington

August 1989

1984). Runoff from berry farming in Whatcom County has historically been implicated as contributing low levels of EDB contamination into the Nooksack River. In addition, seepage of EDB from contaminated groundwater to the river is a potential source of contamination. In a groundwater survey conducted from June through October 1984, five of 35 public wells in Whatcom County exhibited EDB contamination. Use of EDB as a soil fumigant was banned in 1983 (McKeon 1985).

Little Squalicum Creek Watershed

The Little Squalicum Creek Watershed includes areas that are primarily forested and residential, with some industrial areas near the mouth of Little Squalicum Creek. The only documented point sources to Little Squalicum Creek are two storm drain outfalls located just beyond the Bellingham city limits. One of these sewers drain areas immediately adjacent to the Oeser Cedar Company's wood treatment facilities. In addition, a small unnamed seasonal creek runs adjacent to and receives considerable groundwater seepage from the Oeser Company's property. Water samples taken by Ecology upstream and downstream of Oeser Cedar in 1978 indicated the facility's influence on creek water quality is minimal (Prescott 1978). The Oeser Cedar Company has an NPDES permit for discharge of plant runoff to Little Squalicum Creek. According to the permit limitations, concentrations of total oil cannot exceed 15 mg/L and no detectable levels of pentachlorophenol (PCP) can be present in this discharge. Current nonpoint sources of contamination to Little Squalicum Creek include logging, residential, and industrial runoff, and frequent septic tank failures along Marine Drive. A sample collected in 1980 from the Marine Drive storm sewer where it enters Little Squalicum Creek revealed fecal coliform levels as high as 55,000 organisms/100 mL. A sample collected on the same day at the mouth of Little Squalicum Creek exhibited a fecal coliform count of 5,600 organisms/100 mL. Incidences of septic tank failures in this area have reportedly been reduced by 90 percent since 1980 (Kloc, B., 1 March 1989, personal communication).

Squalicum Creek Watershed

The Squalicum Creek Watershed covers a total of 65 km². These lands are primarily forested, but contain agricultural, residential, commercial, and industrial areas near the mouth of Squalicum Creek. The only point sources to Squalicum Creek are four storm drain outfalls located within the city of Bellingham. These outfalls drain primarily residential areas. Current nonpoint sources to Squalicum Creek include urban and industrial runoff and septic tank failures. Monthly water samples taken at the head of the Squalicum Creek Waterway from October 1983 through September 1984 revealed fecal coliform counts ranging from 11 to 1,300 organisms/100 mL with a mean of 285 organisms/100 mL (CH2M HILL 1984).

Whatcom Creek Watershed

The Whatcom Creek/Lake Whatcom Watershed covers an area of approximately 293 km². Approximately 109 km² of this area are forested, with the remainder in urban, residential, commercial, and industrial development. Primary point sources to Whatcom Creek include 42 storm drain outfalls draining residential and some commercial and industrial areas. Primary nonpoint sources in the Whatcom Creek Watershed include urban, industrial, and logging runoff; powerboats; marinas; septic tank failures; and runoff and leachate from several abandoned landfills near the

**List of Native and Adventive Plant Species
Little Squalicum Park Site**

Prepared by Albert J. Hanners and others

(7 pages, for use with Management Cells Map etc.)

Partial List of Native and Adventive Plant Species
 Little Squalicum Park Site
 Bellingham, Washington

Albert Hanners (4/2/90)
 Assisted by:
 Binda Colebrook
 Marie Hitchman
 Tim Wahl
 Jamie Wahl

A "*" in column A indicates a non-native species.
 W1B (example of notation) indicates distribution on site by cell label. See map.

	A	B	C	D	E
ACERACEAE					
<i>Acer macrophyllum</i> Big Leaf Maple					
<i>Acer macrophyllum</i> (form with <i>A. glabrum</i> characteristics)					
<i>Acer circinatum</i> Vine Maple					
ARACEAE					
<i>Lysichiton americanum</i> Skunk Cabbage					
ARILLIACEAE					
<i>Hedera helix</i> English Ivy	*				
BERBERIDACEAE					
<i>Mahonia aquifolium</i> Tall Oregon Grape					
BETULACEAE					
<i>Alnus rubra</i> (oregona) Red Alder					
<i>Betula papyrifera</i> White Birch					
<i>Corylus cornuta</i> Hazelnut					
BORAGINACEAE					
<i>Myosotis arvensis</i> Field Forget-Me-Not					
BUTTERFLYACEAE					
<i>Buddleja davidii</i> Butterfly Bush	*				

POACEAE

- Elymus mollis American Dune Grass
- Dactylis glomerata Orchard Grass
- Poa annua Annual Bluegrass
- Phalaris arundinacea Reed Canary Grass

POLYGONACEAE

- Polygonum aviculare Doorweed
- Polygonum persicaria Spotted Ladythumb
- Polygonum hydropiper Smartweed
- Rumex acetosella Sheep Sorrel
- Rumex alifolius var salicifolius Willowhead Dock
- Rumex crispus Curly-leaved Dock
- Rumex obtusifolius Broad Leaf Dock

POLYPODIACEAE

- Athyrium filix-femina Lady Fern
- Polystichum munitum Sword Fern
- Pteridium aquilinum Bracken Fern

RANUNCULACEAE

- Clematis vitalba Traveller's Joy
- Ranunculus acris Tall Buttercup
- Ranunculus repens Creeping Buttercup

A	B	C	D	E
<hr/>				
*				
*				
<hr/>				
*				
*				
*				
*				
*				
<hr/>				
*				
*				
*				

Foot and Bicycling Trail Facility Types
(the City of Bellingham Open Space Plan System)

Six Facility Types with letter code abbreviations have been developed to describe six categories of mutually exclusive off-street facilities. (Another seven Types have been differentiated elsewhere to describe on-street facilities.)

The Facility Types establish what types of traffic are ultimately desirable and should be accommodated, encouraged and "protected" in the course of ongoing maintenance, reconstruction or initial construction. They represent design and management objectives. Different segments of trail will be classified individually according to their connections with other roads or trails and according to their physical qualities.

Summaries and illustrations of each Type are found on the following pages. Basic physical attributes, operating characteristics and management strategies are noted. Applicable design standards and regulations are referenced; for use by planners and designers in the development of optimal, site-integrated trails.

Type classifications do not attempt to accurately describe existing conditions or current traffic mixes. The following paragraphs with underlined introductions are reminders of this and are intended to elaborate on classification methods.

It is not practical to neatly classify facilities by basic measures such as width, pavement type or type of traffic present. Width is often more dependent on maintenance vehicle access, utility placement or special peak period volumes than day to day use by nonmotorized traffic. Pavement type is often a matter of budget or site characteristics. Traffic mix may reflect "real world" situations where some types of traffic are impossible to regulate with physical means.

NOTES ON METHODOLOGY

CLASSIFICATIONS DO NOT DEFINITELY OR CONSISTENTLY REFLECT THE PHYSICAL APPEARANCE OR WIDTH OF TRAILS. Widths of given facilities may have more to do with historical uses, maintenance, drainage and regulated motor vehicle access than with trail traffic volumes or type.

continued

CLASSIFICATIONS DO NOT DEFINITELY DESCRIBE THE USES THAT MAY OCCUR ON A GIVEN TRAIL; they attempt to guide how traffic should be managed and physically accommodated over time. For instance, horse and all terrain bicycle (ATB) traffic may occur on a trail designated FT. This would be regarded as a "design standards notification" issue (i.e. use of messages defining the trail as improved for foot traffic only) and/or an enforcement issue. If equestrians or ATBs were identified as causing significant problems they would be discouraged using any of several physical and regulatory means, many of them "trail specific". For risk management purposes maps and markings may eventually notify users of a trail's classification and what uses have been addressed in its design and operation--design standards vary widely for different trail classes. If a segment of FT trail is to be constructed or reconstructed this work need not incorporate design criteria such as widths, clearances and structural elements for horse or ATB use.

WHEELCHAIR ACCESS. Basic wheelchair "width accessibility" is assumed to be desirable and provided system wide on WW, BSW, MT and BW facilities. However, existing standards for wheelchair ramp gradients are quite restrictive with respect to many trail alignments and do not accurately reflect the capabilities of more physically fit and motor assisted chair users. These standards also do not take into account the design, designation and user adoption of recreational loop trip routes which reduce upgrade exposure.

Thus much wheelchair accessibility is more widespread than traditional wheelchair criteria indicate and chair use is not confined to any one facility type. However, a special Walkway subtype, Building Site Walkway (or WW/BS), is used to describe specific walkways where chair access is or should be in compliance with Building Code requirements for wheelchair accessibility.

SIDEPATHS AND SIDEWALKS. Some facilities aligned parallel to streets or parking lots may appear as off-street facilities or trails. These may be considered as on-street facility types and may have been classified within a different set of Type abbreviations.

Off-Street Trail Types

Type Abbreviation:

FT

Type Name:

Foot Trail.

Primary Descriptors:

Typical 2 foot to 4 foot wide earth or crushed rock surface and within forested and undeveloped areas. Timber bridges, puncheon, and turnpike are typical. May be wider when maintenance vehicle areas or utility uses are involved.

Wheelchair Accessibility:

None intended.

Applicable Regulations and Guidelines:

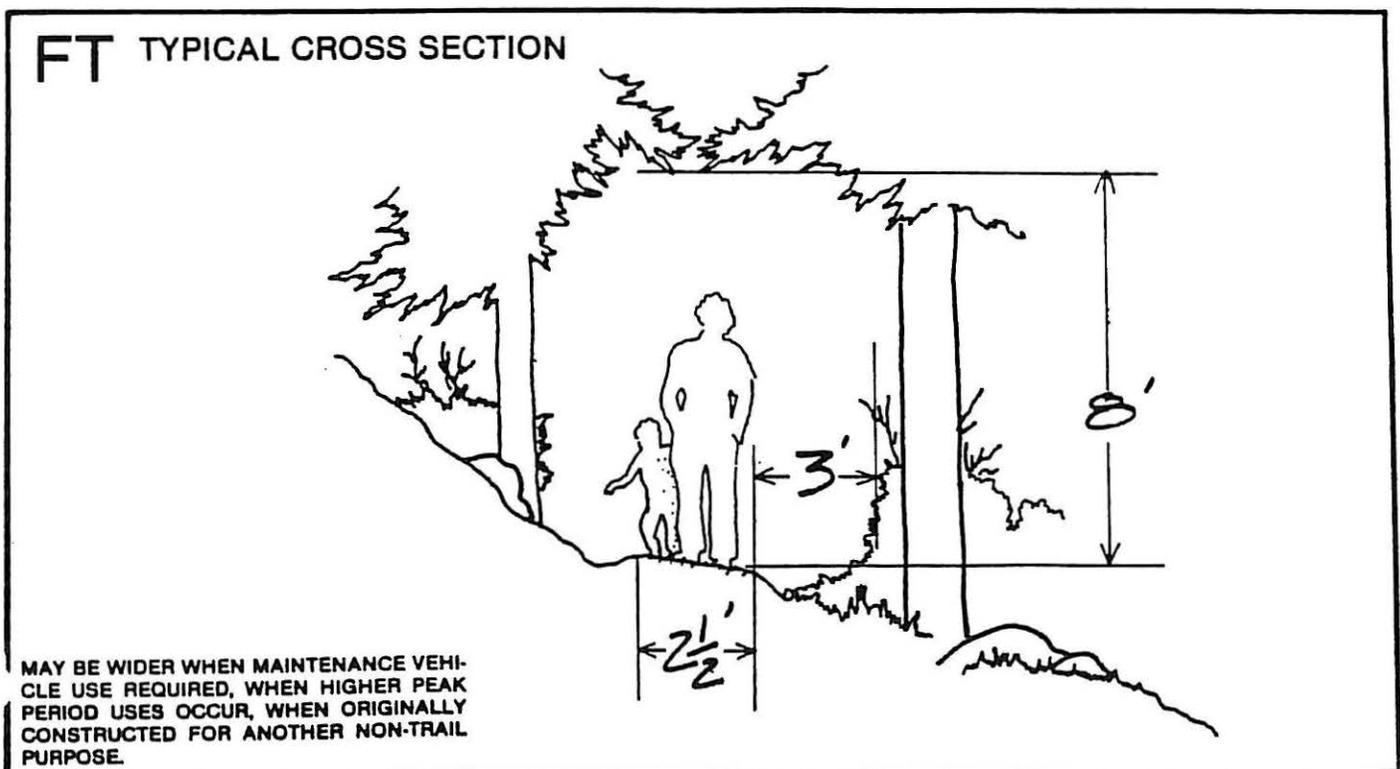
U.S. Forest Service Design Specifications for Foot Trails.

Management Policies and Design Elements:

Horse use prohibited. Bike riding often prohibited and/or discouraged with design details. Stairways and steps permitted. Bikes may be walked if bicycling prohibited.

Right-Of-Way Or Easement Width:

8 foot minimum on flat ground, 15 feet desirable.



Off-Street Trail Types

Type Abbreviation:

WW/OS

Type Name:

Walkway, Open Site.

Primary Descriptors:

Typically 5 to 6 feet wide; 3 foot to 12 foot width range depends on site volumes and desired maintenance vehicle access. Paved or compacted rock surface. Within subdivisions, park lands, sites without structures for indoor activity and sites without spectator activities. Steep alignments comparable to nearby streets are permitted where unpaved surfaces are maintenance problem.

Wheelchair Accessibility:

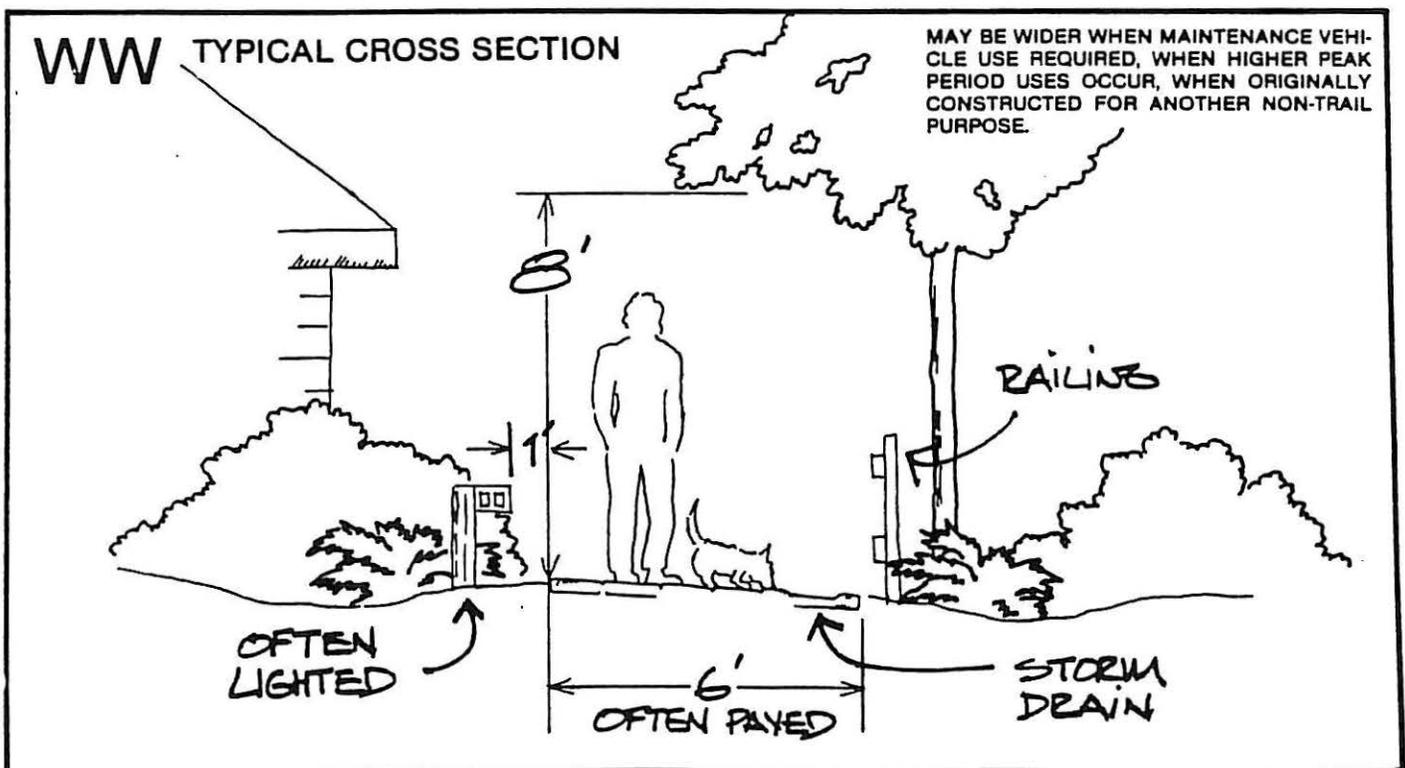
Usually width accessible. Grade and surface accessible as practical.

Applicable Regulations and Guidelines:
Management Policies and Design Elements:

Horse use prohibited. Bike riding prohibited and/or discouraged with design details. Stairways and steps permitted. Bikes encouraged to use other surfaces/routes. Wheelchair access sought when practical, as site topography allows.

Right-Of-Way Or Easement Width:

10 foot minimum and 15 feet desirable on flat ground and for narrower tread widths.



Off-Street Trail Types

Type Abbreviation:

MT

Type Name:

Multiuse Trail.

Primary Descriptors:

Unpaved tread typically 8 feet wide to accommodate maintenance vehicles; 6 foot to 12 foot range. Usually compacted crushed rock surface, sometimes paved. Some traffic control signs/markings. Intended for foot travel, stroller use, wheelchair use and lower speed bicycling.

Wheelchair Accessibility:

Width and surface accessible. Grade accessibility incidental.

Applicable Regulations and Guidelines:

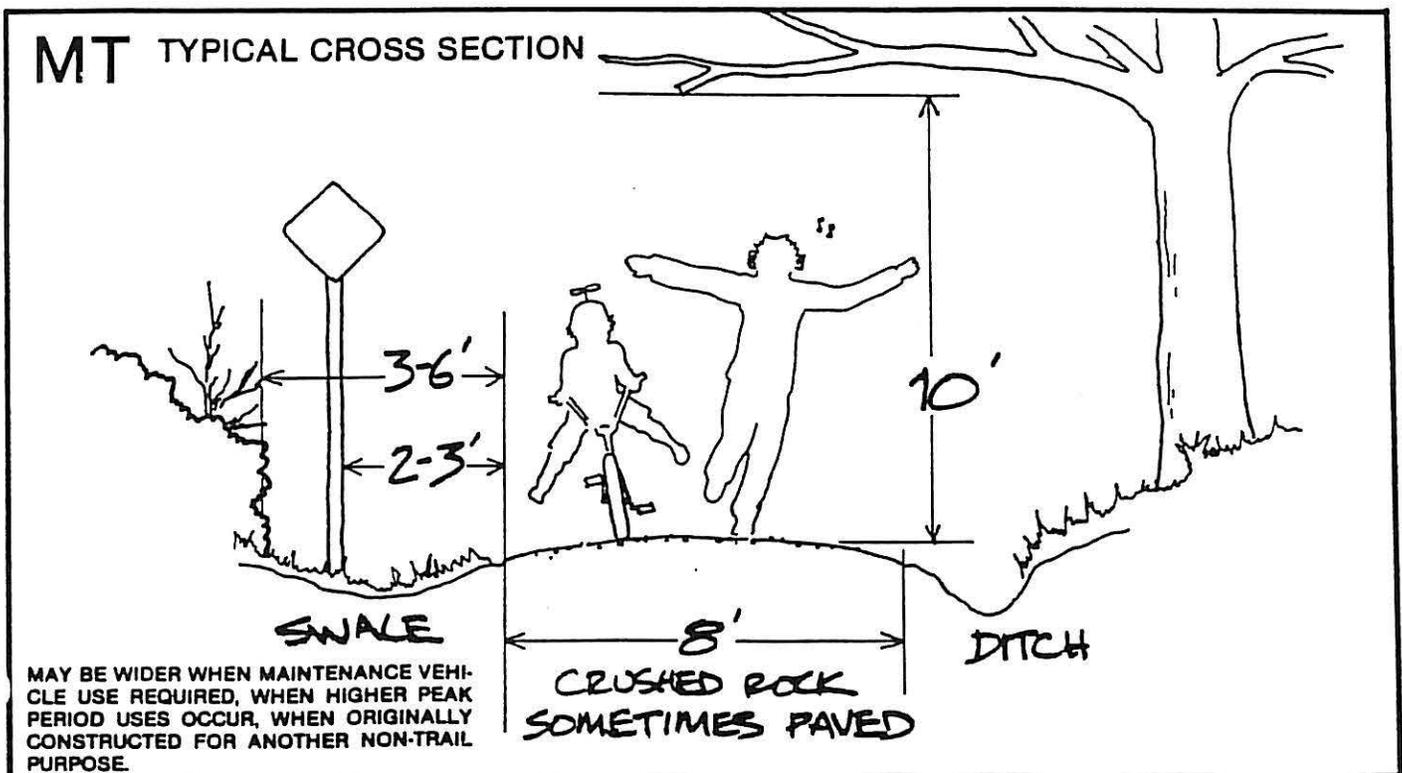
MUTCD as needed. Selected WSDOT Design Manual Section 337 elements if interim to bikeway development.

Management Policies and Design Elements:

Horses may be allowed on unpaved trails by designation. This facility type often interim to bikeway development. Reduced bike speed limitations encouraged by regulation and/or design details. Single and double step sequences permitted, but wheelchair width and surface access also provided and stairways not permitted. Bike dismount zones permitted.

Right-Of-Way Or Easement Width:

20 foot minimum and 30 feet desirable on flat ground.



Off-Street Trail Types

Type Abbreviation:

BW

Type Name:

Bikeway.

Primary Descriptors:

12 foot paved width typical, 10 foot to 15 foot range.
Extensive use of MUTCD signing and markings such as centerlines. Intended for average speed bicycling, wheelchair use and incidental foot travel.

Wheelchair Accessibility:

Width and surface accessible. Grade accessibility incidental.

Applicable Regulations and Guidelines:

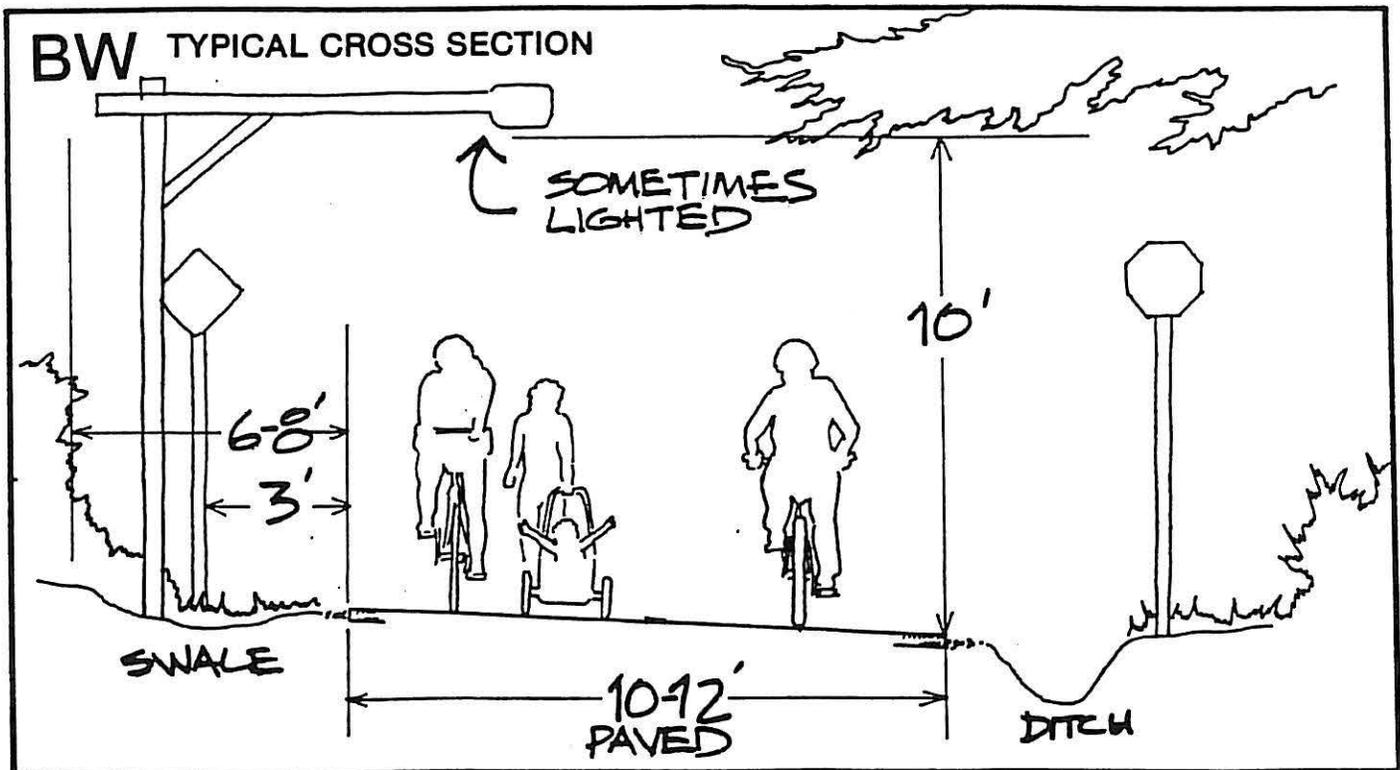
MUTCD Part IX. WSDOT Design Manual Section 337. RCW 35.75.060.

Management Policies and Design Elements:

Horses prohibited. Special efforts to promote orderly foot travel in conjunction with faster bike travel. Steps and stairways not permitted. Strollers and trailers are anticipated.

Right-Of-Way Or Easement Width:

20 foot minimum and 30 feet desirable on flat ground.



Off-Street Trail Types

Type Abbreviation:

BW/WW

Type Name:

Bikeway/Walkway

Primary Descriptors:

Typically, 12 foot bike surface adjacent to semi protected 6 foot walking surface. Extensive use of MUTCD signing and markings such as centerlines if paved. Intended for average speed bicycling, wheelchair use and relaxed foot travel by all ages.

Wheelchair Accessibility:

Fully width and surface accessible. Grade accessibility incidental, or as per below.

Applicable Regulations and Guidelines:

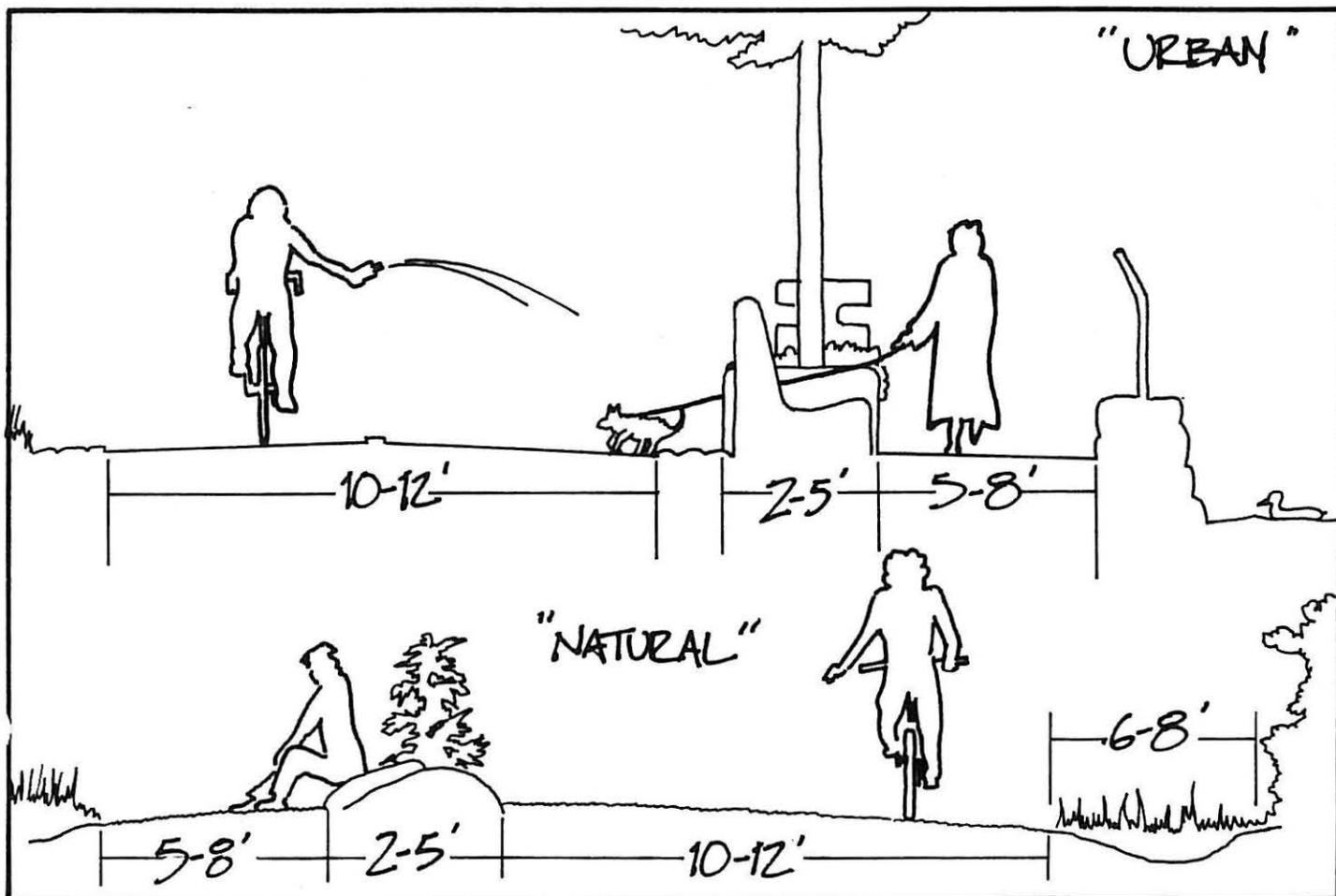
MUTCD part IX. WSDOT Design Manual Section 337. RCW 35.75.060 If fully grade accessible for wheelchairs: Ord. 3034, WAC 510, RCW's 19.27 and 70.92.

Management Policies and Design Elements:

Horses prohibited. Special elements to promote orderly foot travel in conjunction with faster bike travel. Steps and stairways not permitted. Strollers and trailers anticipated. Barriers between bike and foot surfaces often varied and broken. Some foot uses persist on wider bike surface.

Right-of-Way of Easement Width:

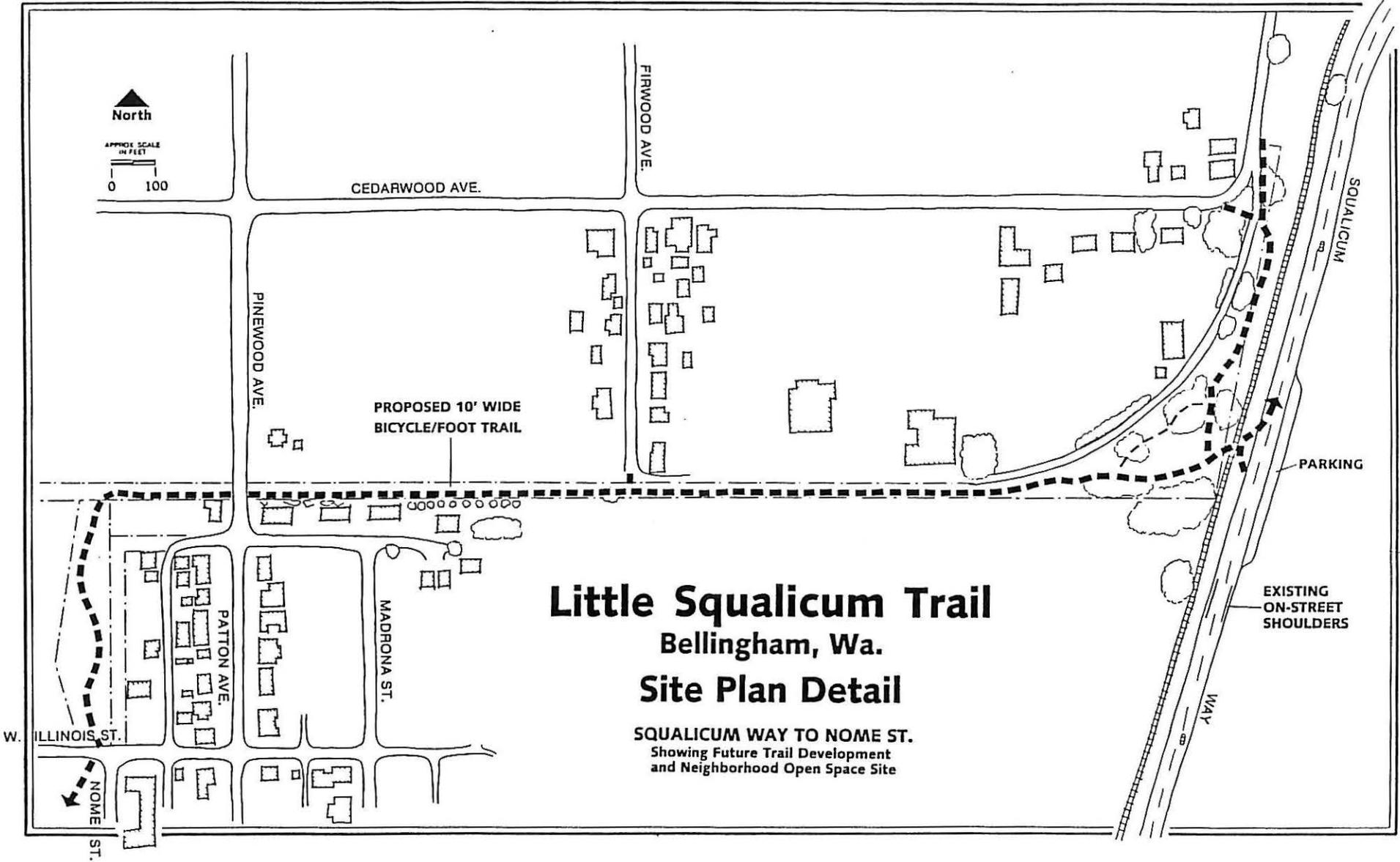
25 foot minimum and 35 feet desirable on flat ground.



Grant Proposal Maps for Washington
State Inter-Agency Committee for
Outdoor Recreation for Little Squalicum
Trail Property Purchase, City of
Bellingham, 1989.

Next 12 Pages

ALSO WHATCOMB CO. CAPITAL IMP. PLAN EXCERPTS -
CO. PLS & OPEN SPACE PLAN .



North
 GRAPHIC SCALE
 IN FEET
 0 100

CEDARWOOD AVE.

FIRWOOD AVE.

PINEWOOD AVE.

PROPOSED 10' WIDE
 BICYCLE/FOOT TRAIL

SQUALICUM

PARKING

EXISTING
 ON-STREET
 SHOULDERS

WAY

PATTON AVE.

MADRONA ST.

W. ILLINOIS ST.

NOME ST.

Little Squalicum Trail

Bellingham, Wa.

Site Plan Detail

SQUALICUM WAY TO NOME ST.
 Showing Future Trail Development
 and Neighborhood Open Space Site

CAPITAL IMPROVEMENT PLAN

PROJECT PRIORITIES

The following criteria were used to prioritize all projects. They are not listed in any type of order.

1. Shoreline access should have the highest priority; particularly saltwater shoreline.
2. Land for major park sites should be acquired while land is still available.
3. One additional camping area should be developed in the next six years.
4. An easy but highly visible trail section should be developed as a demonstration project.
5. Trail acquisition should be an on-going effort.
6. The planning of the Chuckanut Mountain Recreation Resource Management Area should occur immediately in order to preserve the access and beauty of the area.
7. Some new park development should occur in the next six year period but upgrading of existing park sites should come first.

The capital improvement plan shown on the next page assumes that money for acquisition and development will come from many sources previously described. However, the whole development program centers around a \$4.9 million county bond measure for park development and a \$600,000 five year conservation futures levy for open space acquisition. That money when leveraged against grants and other sources will create another \$1.4 million worth of park improvements.

The conservation futures levy will be used primarily for shoreline acquisition. However, another \$150,000 has been allocated to acquire development rights and access easements within the Chuckanut and Lummi Mountain RRMA's. The \$50,000 allocated for the acquisition of the Heron rookery is only seed money with the rest to come from private donations, foundations and other sources.

Table 26
Six Year Capital Improvement Plan
Whatcom County Park and Open Space Plan
1990-1996

Project Priority	Project	Action Required	Project Cost	Bond Measure	NOVA Funds	ALEA Funds	Boating Funds	Dept. Ecology	Revenue Bonds	Consv. Futures
YEAR 1										
1.	Lighthouse Marine Park	Development	\$188,000	\$143,000			\$45,000			
2.	Lake Whatcom Trail Clearing	Development	71,000			\$71,000				
3.	Heron Rookery	Part. acq.	50,000							50,000
4.	Misc. Shoreline Access	Acquisition	100,000					50,000		50,000
5.	Trail Acquisition/Develop.	Acq/Dev.	500,000	500,000						
6.	Semiahmoo Park	Upgrade	59,000	59,000						
7.	Chuckanut Mountain RRMA	Planning	25,000	25,000						
YEAR 2										
8.	Smith Creek Park - Phase I	Development	940,000	730,000		80,000	130,000			
9.	Chuckanut Mountain RRMA	Acquisition	100,000							100,000
YEAR 3										
10.	Misc. Shoreline Access	Acq/Dev.	100,000							100,000
11.	Lummi Island Park	Acq./Dev.	1,195,000	1,030,000		25,000	140,000			
12.	Nooksack Trail - Phase I	Acq./Dev.	396,000	198,000	198,000					
13.	Hovander Boating Facility	Development	35,000			35,000				
YEAR 4										
14.	Misc. Shoreline Access	Acq/Dev.	100,000							100,000
15.	Little Squalicum Park	Development	150,000	70,000		80,000				
16.	Lummi Mountain RRMA	Planning	25,000	25,000						
17.	S. Lake Whatcom - Phase I	Development	800,000	800,000						
18.	Silver Lake Park	Development	602,000	172,000					430,000	
19.	Lake Whatcom Trail Dev.	Development	290,000	145,000	145,000					
20.	Nooksack River Day Use Park	Acquisition	150,000	150,000						
YEAR 5										
21.	Lilly Point Access	Acq./Dev.	128,000	39,000				39,000		50,000
22.	Indoor Rec Center	Planning	25,000	25,000						
23.	Lummi Mountain RRMA	Acq/Dev.	50,000							50,000
YEAR 6										
24.	Cherry Point Park	Acquisition	600,000	600,000						
25.	East Lake Samish Park	Dev-Phase I	250,000	250,000						
TOTAL			\$6,929,000	\$4,961,000	\$343,000	\$291,000	\$315,000	\$89,000	\$430,000	\$500,000

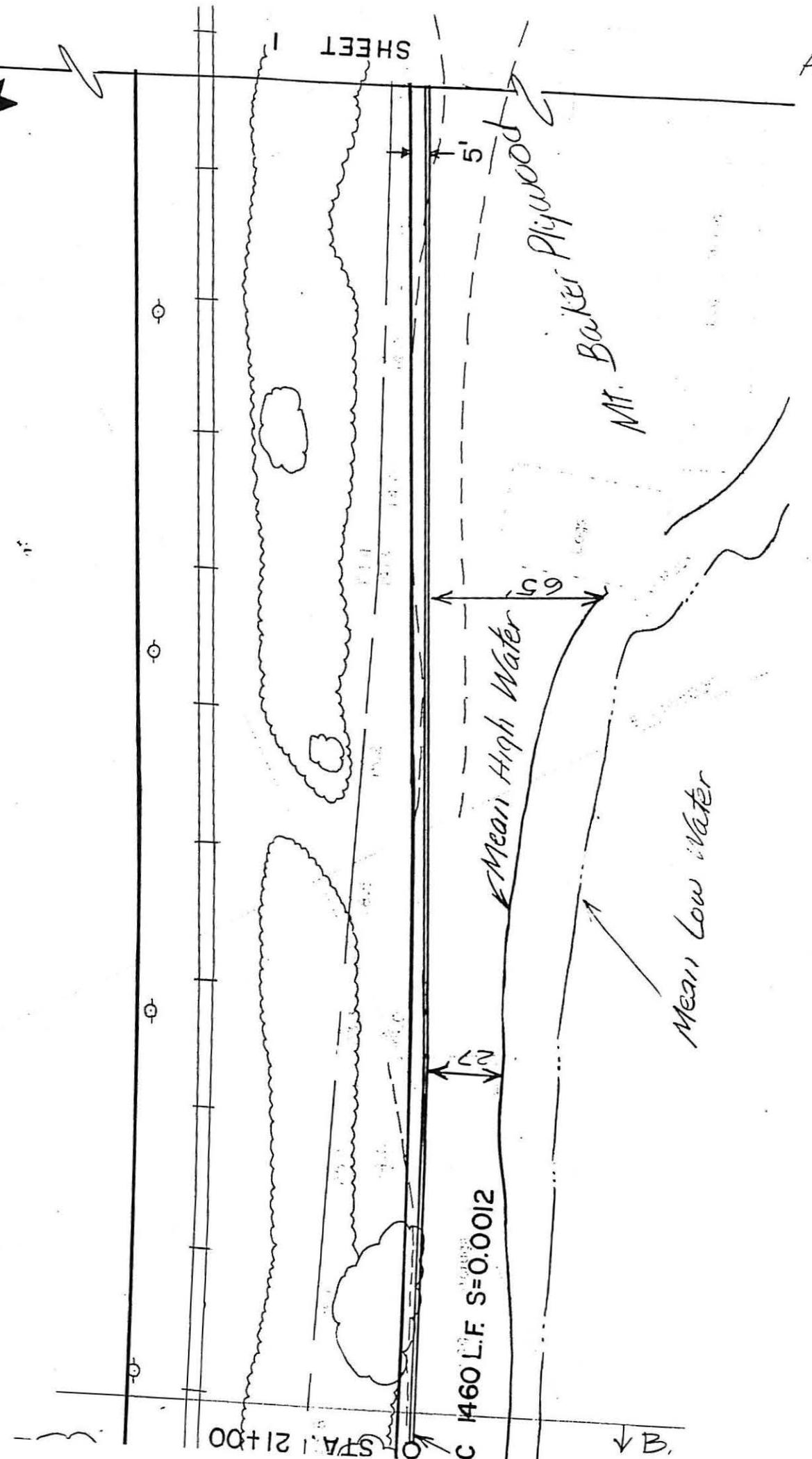
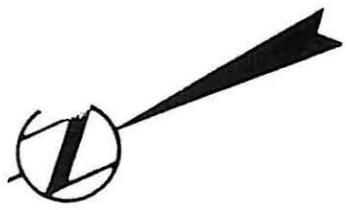


Note: A donation of land or money may change the project priorities.

**1990 Preliminary Marine Drive Sewer
Survey Maps**

City of Bellingham
Department of Public Works

(1"=50')



STA. 21+00

C 1460 L.F. S=0.0012

SHEET 1

Mean High Water

Mean Low Water

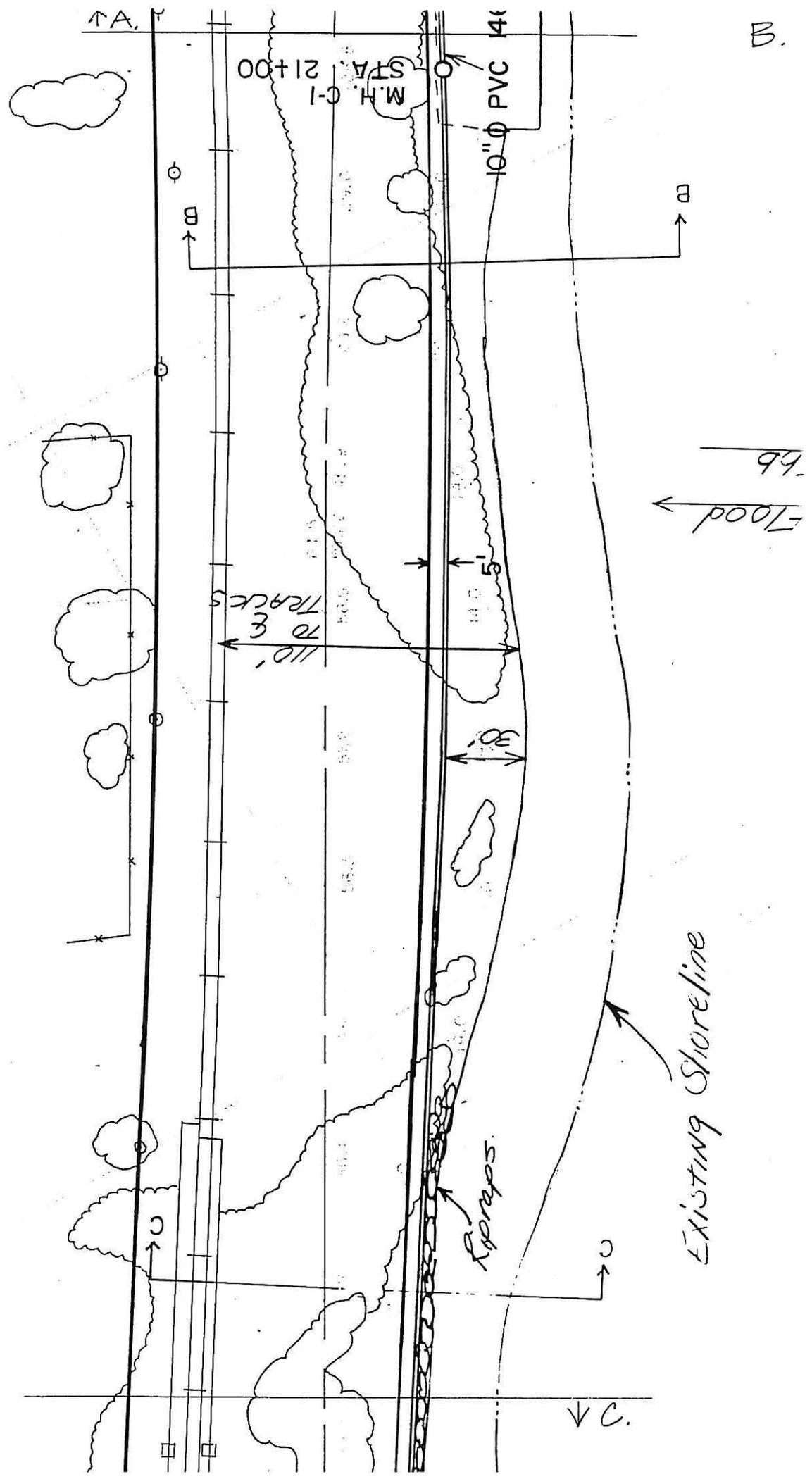
Mt. Baker Plywood

A.

B.

PRELIMINARY

B.



Flood
 ←
 66

Existing Shoreline

tyraps.

110'
 TO E
 TRACKS

M.H. C-1
 STA. 21+00

10" Ø PVC 4'

↑ A.

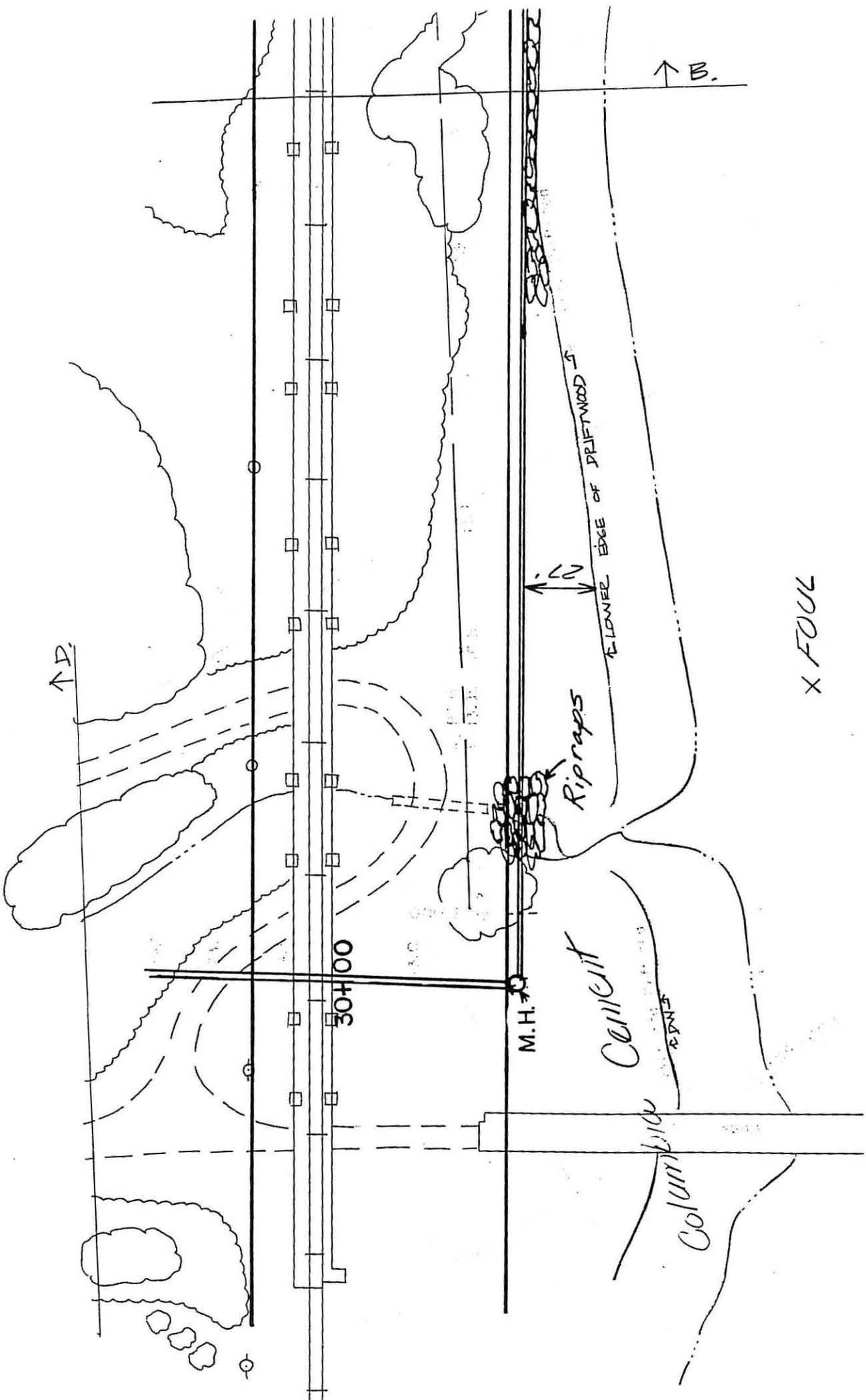
↓ C.

→ B

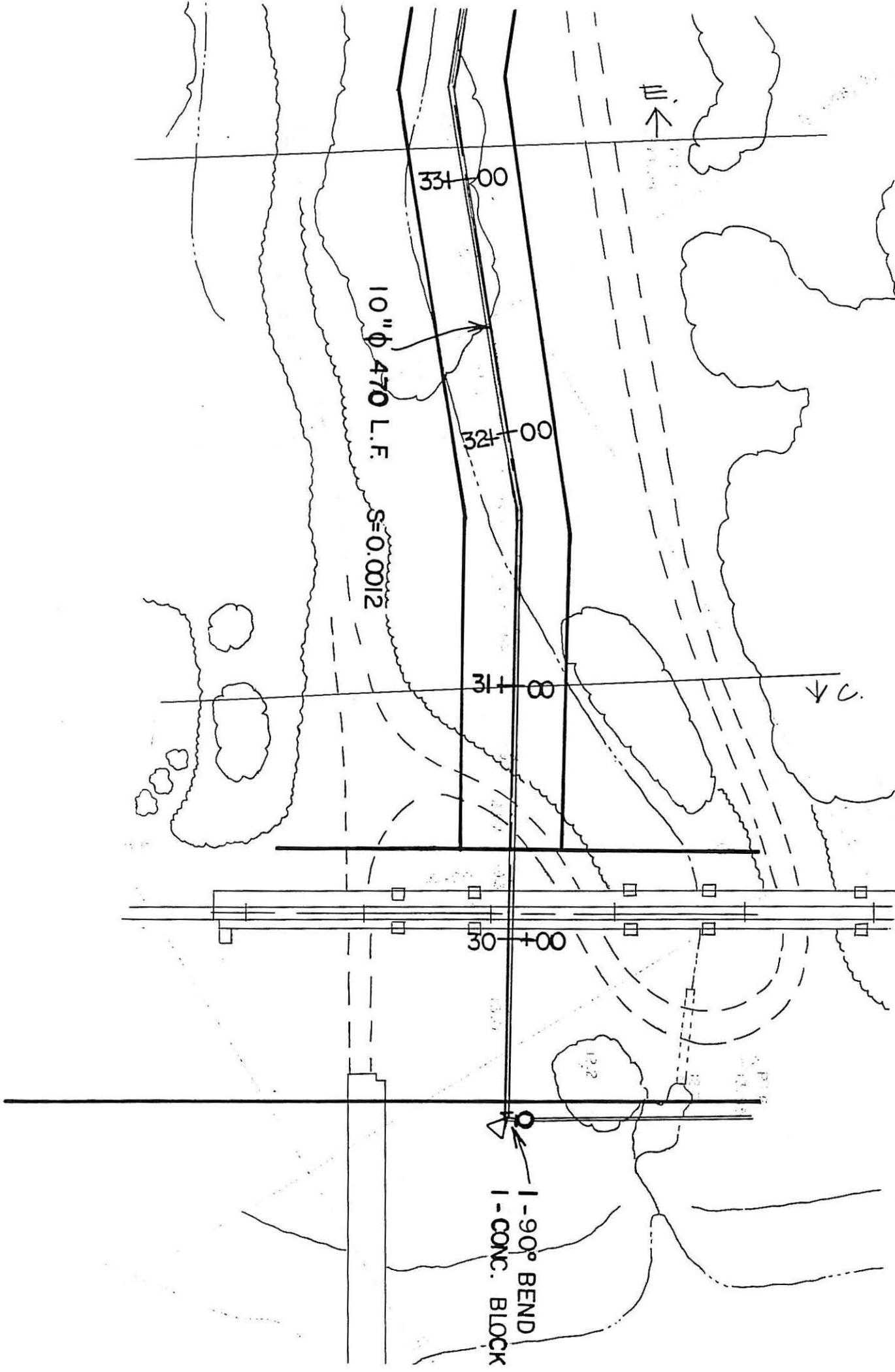
→ B

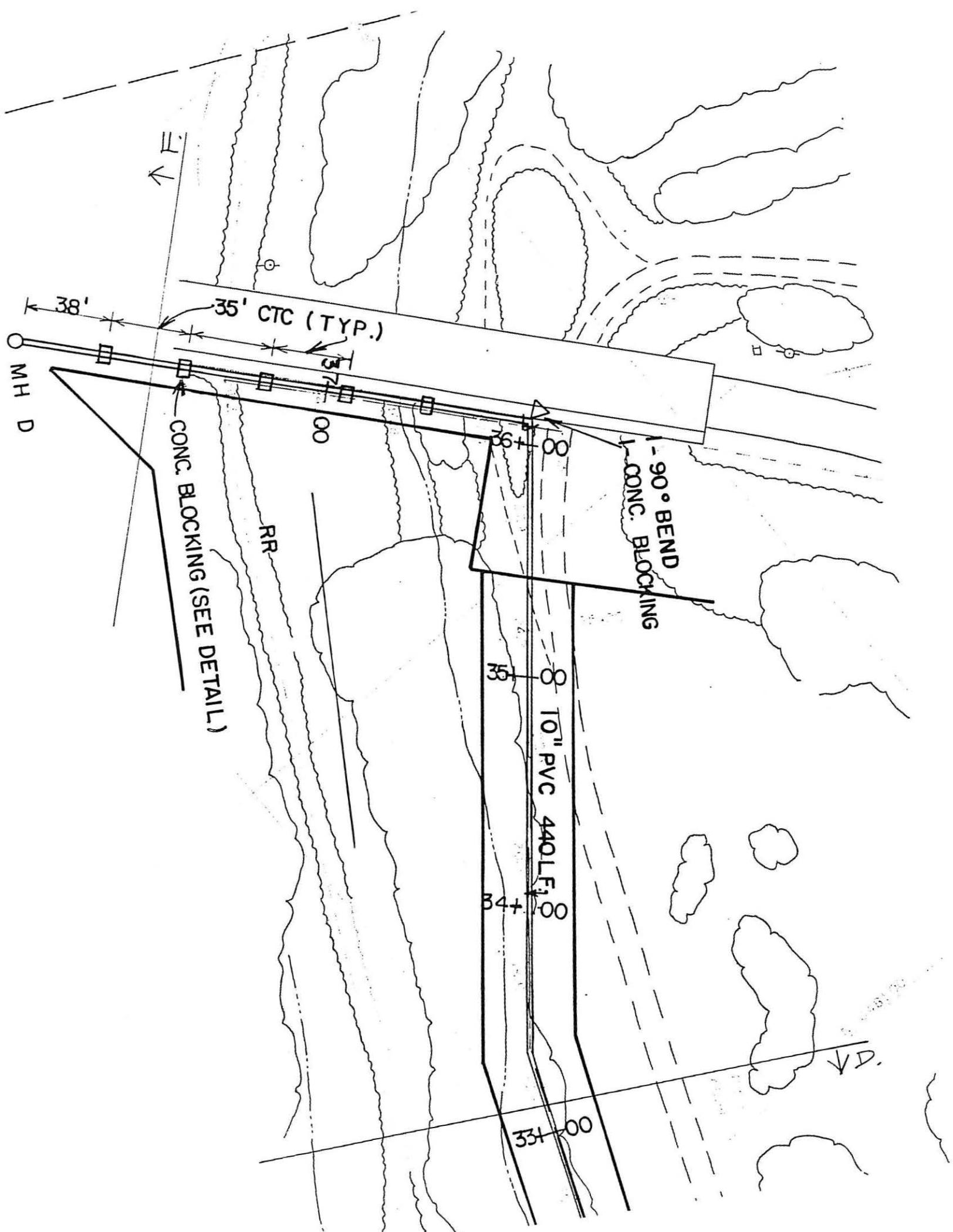
→ C

→ C



X FOUR





TIMPSON WAY

#6225
S.F. = 74.51

#6440
S.F. = 72.42

15'

4" SS

15" ϕ 250 L.F. S=0.0024 MH D

39+00

4" SS

PRELIMINARY

SEE SHEET 3