



US Army Corps
of Engineers
Portland District

PUBLIC NOTICE

for Permit Application

Issue Date: August 16, 2004

Expiration Date: September 16, 2004

Corps of Engineers Action ID: 200300146

Oregon Department of State Lands Number: 32111-RF

30-Day Notice

Interested parties are hereby notified that an application has been received for a Department of the Army permit for certain work in waters of the United States, as described below and shown on the attached plan.

Comments: Comments on the described work should reference the U.S. Army Corps of Engineers number shown above and should reach this office no later than the above expiration date of this Public Notice to become part of the record and be considered in the decision. Comments should be mailed to the following address:

U.S. Army Corps of Engineers
CENWP-OP-GE (Ms. Merina Christoffersen)
1600 Executive Parkway, Suite 210
Eugene, Oregon 97401-2156

Applicant: Weiss Development Corporation

Location: The project is located on the East Arm Wetland at the end of Lincoln Avenue off Sea Bird Drive, in Section 36, Township 28 South, Range 15 West; and near the city of Bandon, Coos County, Oregon.

Project Description: The applicant has requested authorization to fill a total of 0.60 acres of wetland to construct a residential development. The development, known as Rogers Additions, would contain a 58-lot residential subdivision. The property is approximately 20 acres in size with seven wetlands covering 2.26 acres. Wetland impacts are related to the development of the infrastructure such as roads and utilities, as well as the lot development. A large portion of the site has been under agricultural use since the 1900s, and large deep ditches were constructed to drain the boggy area, which is dominated by herbaceous vegetation. Swales crossing the property would be realigned into ditches along the property lines. The impacts by wetland are shown in Table 2 page 24.

Mitigation: The applicant has proposed a compensatory wetland mitigation plan to replace lost wetland functions if the proposed project is authorized. Onsite mitigation would involve the creation of 0.13 acre of palustrine emergent wetland from upland areas, creation of 0.40 acre of wetland via a swale 25 feet in width and 880 feet in length, and restoration of 0.40 acre of previously filled wetland in an area dedicated as open space. Off-site mitigation of an adjacent property would involve enhancement of 0.90 acre of palustrine forested wetland and restoration of 0.30 acre of previously filled wetland. The total mitigation area is 2.13 acres.

If a permit is issued, the Corps will determine what is appropriate and practicable compensatory mitigation. The amount of compensatory mitigation required shall be commensurate with the anticipated impacts of the project.

Purpose: Provide residential subdivisions in the city of Bandon.

Drawing(s): Eighteen (18) drawings are attached, labeled COE # 200300146.

Additional Information: Additional information may be obtained from Ms. Merina Christoffersen, Project Manager, U.S. Army Corps of Engineers at (541) 465-6882, or email merina.e.christoffersen@nwp01.usace.army.mil.

Authority: This permit will be issued or denied under the following:

Section 404, Clean Water Act (33 U.S.C. 1344), for discharge of dredged or fill material into waters of the United States.

Water Quality Certification: A permit for the described work will not be issued until certification, as required under Section 401 of the Clean Water Act (P.L. 95-217), has been received or is waived from the certifying state. Attached is the state's notice advertising the request for certification.

Section 404(b)(1) Evaluation: The impact of the activity on the public interest will be evaluated in accordance with the Environmental Protection Agency guidelines pursuant to Section 404(b)(1) of the Clean Water Act.

Coastal Zone Management Act Certification: A permit for the described work will not be issued until the state has concurred with the applicant's certification that the described activity affecting land or water uses in the Coastal Zone complies with the State Coastal Zone Management Program. Section 307(c)(3) of the Coastal Zone Management Act of 1972, as amended by 16 U.S.C. 1456(c)(3) requires the applicant to provide a Certification of Consistency statement. If the state fails to concur or object to the certification statement within six months, state concurrence shall be conclusively presumed. Attached to this Public Notice is a notice of application for Certification of Consistency with the State's Coastal Zone Management Program.

Public Hearing: Any person may request in writing within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state with particularity the reasons for holding a public hearing.

Endangered Species: Preliminary determinations indicate that the described activity will not affect endangered species or their critical habitat designated as endangered or threatened, under the Endangered Species Act of 1973 (87 Stat. 844). Formal consultation under Section 7 of the Act is not required for the described activity.

Cultural Resources: This notice has been provided to the State Historic Preservation Office, interested Native American Indian Tribes, and other interested parties. If you have information pertaining to cultural resources within the permit area, please provide this information to the Corps project manager (identified in the Additional Information section of this notice) to assist in a complete evaluation of potential affects.

Evaluation: The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the described activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit, which reasonably may be expected to accrue from the described activity, must be balanced against its reasonably foreseeable detriments. All factors, which may be relevant to the described activity will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property ownership and, in general, the needs and welfare of the people.

The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Additional Requirements: State law requires that leases, easements, or permits be obtained for certain works or activity in the described waters. These State requirements must be met, where applicable, and a Department of the Army permit must be obtained before any work within the applicable Statutory Authority, previously indicated, may be accomplished. Other local governmental agencies may also have ordinances or requirements, which must be satisfied before the work is accomplished.

PUBLIC NOTICE
Oregon Department of Environmental Quality (DEQ)
Water Quality 401 Certification

Corps of Engineers Action ID Number: 200300146

Notice Issued: August 16, 2004

Oregon Department of State Lands Number: 32111-RF **Written Comments Due:** September 16, 2004

WHO IS THE APPLICANT: Weiss Development Corporation

LOCATION OF CERTIFICATION ACTIVITY: See attached U.S. Army Corps of Engineers public notice.

WHAT IS PROPOSED: See attached U.S. Army Corps of Engineers public notice on the proposed project.

NEED FOR CERTIFICATION: Section 401 of the Federal Clean Water Act requires applicants for Federal permits or licenses to provide the Federal agency a water quality certification from the State of Oregon if the proposed activity may result in a discharge to surface waters.

DESCRIPTION OF DISCHARGES: See attached U.S. Army Corps of Engineers public notice on the proposed project.

WHERE TO FIND DOCUMENTS: Documents and related material are available for examination and copying at Oregon Department of Environmental Quality, Water Quality Division, 811 S.W. Sixth Avenue, Portland, Oregon 97204-1390.

While not required, scheduling an appointment will ensure documents are readily accessible during your visit. To schedule an appointment please call Ms. Alice Kavajecz at (503) 229-6962.

Any questions on the proposed certification may be addressed to the 401 Program Coordinator, (503) 229-5845 or toll free within Oregon at (800) 452-4011. People with hearing impairments may call DEQ's TTY at (503) 229-6993.

PUBLIC PARTICIPATION:

Public Hearing: Oregon Administrative Rule (OAR) 340-48-0020 (6) states that "The Director shall provide an opportunity for the applicant, any affected state, or any interested agency, person, or group of persons to request or petition for a public hearing with respect to certification applications. If the Director determines that new information may be produced thereby, a public hearing will be held prior to the Director's final determination. Instances of doubt shall be resolved in favor of holding the hearing. There shall be public notice of such a hearing."

Written comments:

Written comments on the proposed certification must be received at the Oregon Department of Environmental Quality by 5 p.m. on **September 16, 2004**. Written comments should be mailed to Oregon Department of Environmental Quality, Attn: 401 Program Coordinator, 811 S.W. Sixth Avenue, Portland, Oregon 97204-1390 or faxed to (503) 229-5408. ***People wishing to send written comments via e-mail should be aware that if there is a delay between servers or if a server is not functioning properly, e-mails may not be received prior to the close of the public comment period.*** People wishing to send comments via e-mail should send them in Microsoft Word (through version 7.0), WordPerfect (through version 6.x) or plain text format to 401publiccomments@deq.state.or.us. Otherwise, due to conversion difficulties, DEQ recommends that comments be sent in hard copy.

WHAT HAPPENS NEXT: DEQ will review and consider all comments received during the public comment period. Following this review, the permit may be issued as proposed, modified, or denied. You will be notified of DEQ's final decision if you present either oral or written comments during the comment period. Otherwise, if you wish to receive notification, please call or write DEQ at the above address.

ACCESSIBILITY INFORMATION: This publication is available in alternate format (e.g. large print, Braille) upon request. Please contact DEQ Public Affairs at (503) 229-5766 or toll free within Oregon at (800) 452-4011 to request an alternate format. People with a hearing impairment can receive help by calling DEQ's TTY at (503) 229-6993.

PUBLIC NOTICE
OREGON COASTAL MANAGEMENT PROGRAM
CONSISTENCY CERTIFICATION

Date: August 16, 2004

Corps of Engineers Action ID Number: 200300146

Oregon Department of State Lands Number: 32111-RF

NOTIFICATION

For projects subject to coastal zone review, notice is hereby given that the project is being reviewed by the Department of Land Conservation and Development (DLCD) as provided in Section 307(c) of the Coastal Zone Management Act. The applicant believes that the activities described in the attached materials would comply with and be conducted in a manner consistent with the Oregon Coastal Management Program. Project information can be made available for inspection at DLCD's Salem office.

DLCD is hereby soliciting public comments on the proposed project's consistency with the Oregon Coastal Management Program. Written comments may be submitted to DLCD, 635 Capitol St. NE, Suite 150, Salem, Oregon 97301-2540, attention consistency review specialist. Any comments must be received by DLCD on or before the comment deadline listed in the federal notice. For further information, you may call DLCD at (503) 373-0050, ext. 253.

REVIEW CRITERIA

Comments should address consistency with the applicable elements of the Oregon Coastal Management Program. These elements include:

- Acknowledged Local Comprehensive Plans & Implementing Ordinances
- Statewide Planning Goals
- Applicable State Authorities (e.g. Removal-Fill Law and Oregon Water Quality Standards)

INCONSISTENT?

If you believe this project is inconsistent with the Oregon Coastal Management Program, your comments to DLCD should explain why you believe the project is inconsistent and should identify the Oregon Coastal Management Program element(s) in question. You should also describe how the project could be modified, if possible, to make it consistent with the Oregon Coastal Management Program.

FIGURE 1: USGS map, Bandon Quadrangle

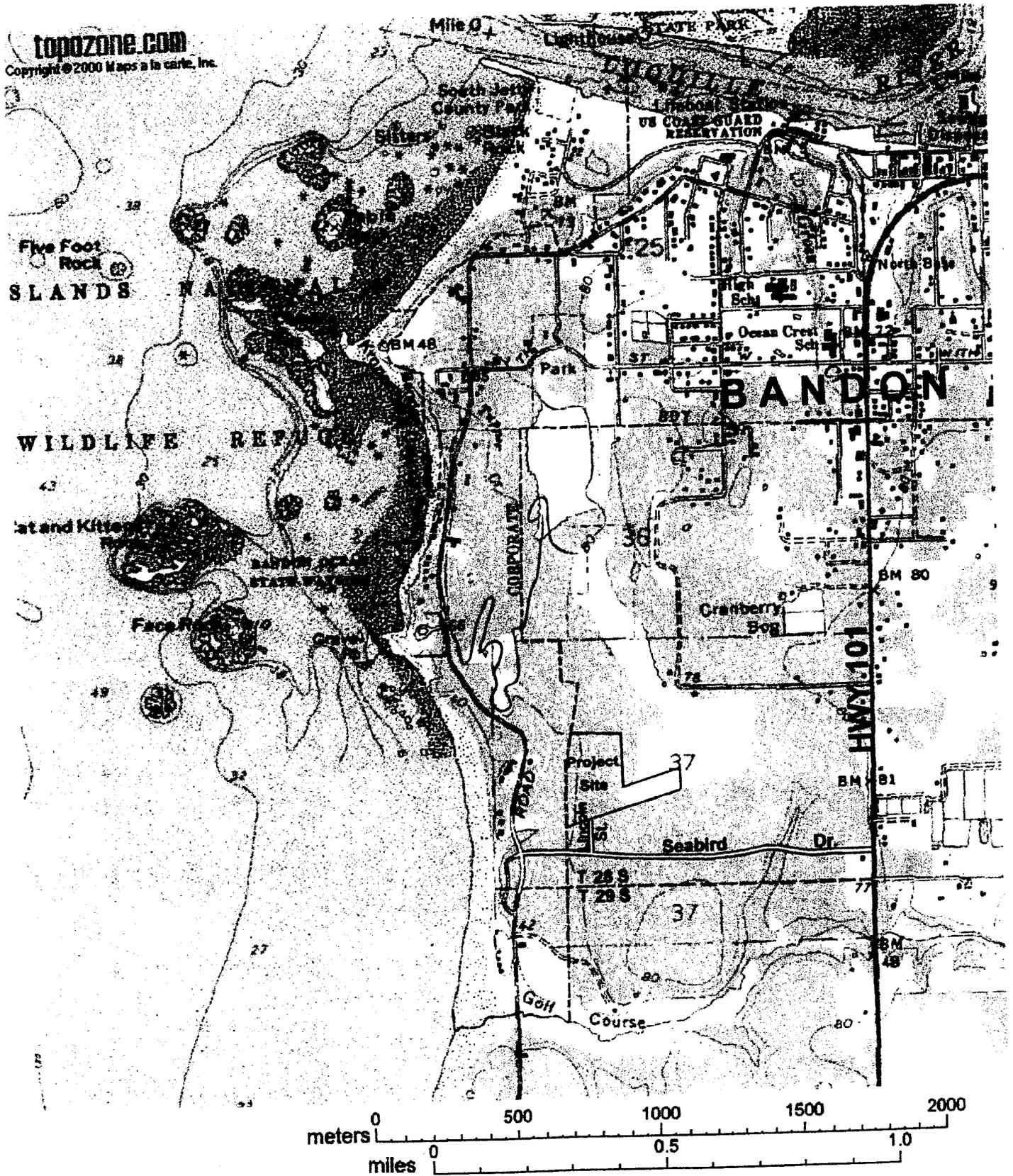


FIGURE 2: Pre-project Topography & Wetlands at the Par 5 Subdivision

Wetlands are shaded. Five ditch segments are identified 'A-F'.
 Total wetland acreage = 2.26 acres.

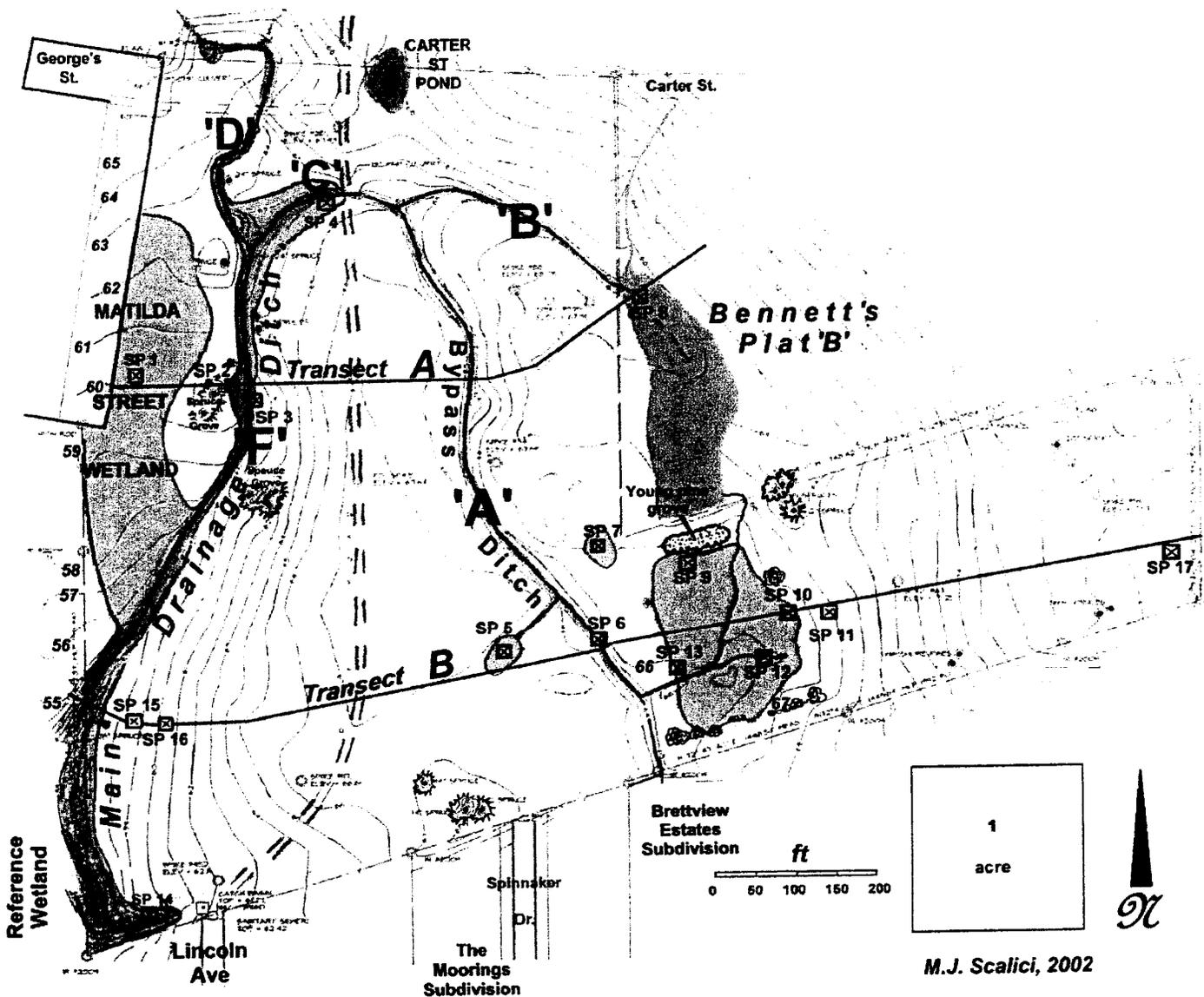


FIGURE 4c: Roger's Addition, Alternative 3, Preferred Alternative Addition of West-flowing Swales.

IMPACTS:

—Same as Alternative 2. Total wetland fill would still be 0.6 acres.

—An additional 0.2 acres of PEMC wetland would be created by creating west-flowing bioswales between lots instead of running east to west in one 540-ft long culvert. Only 120 ft of culvert would be required under Spinnaker Dr. & Lincoln Ave.

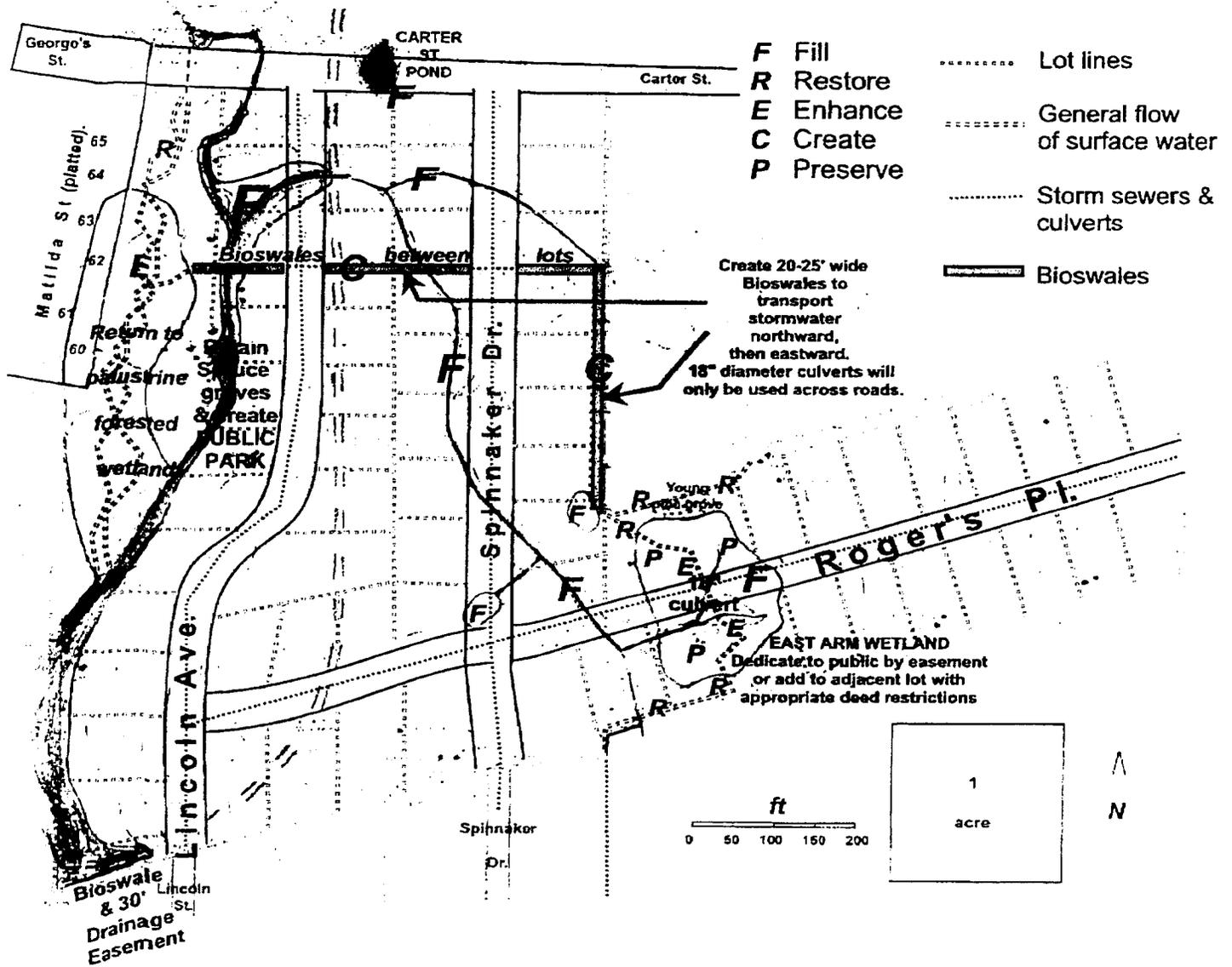


FIGURE 3: A hydrograph of the storm event of February 26-27 and dry 10-day period following it, depicting the rather 'flashy' nature of the hydrology at the project site.

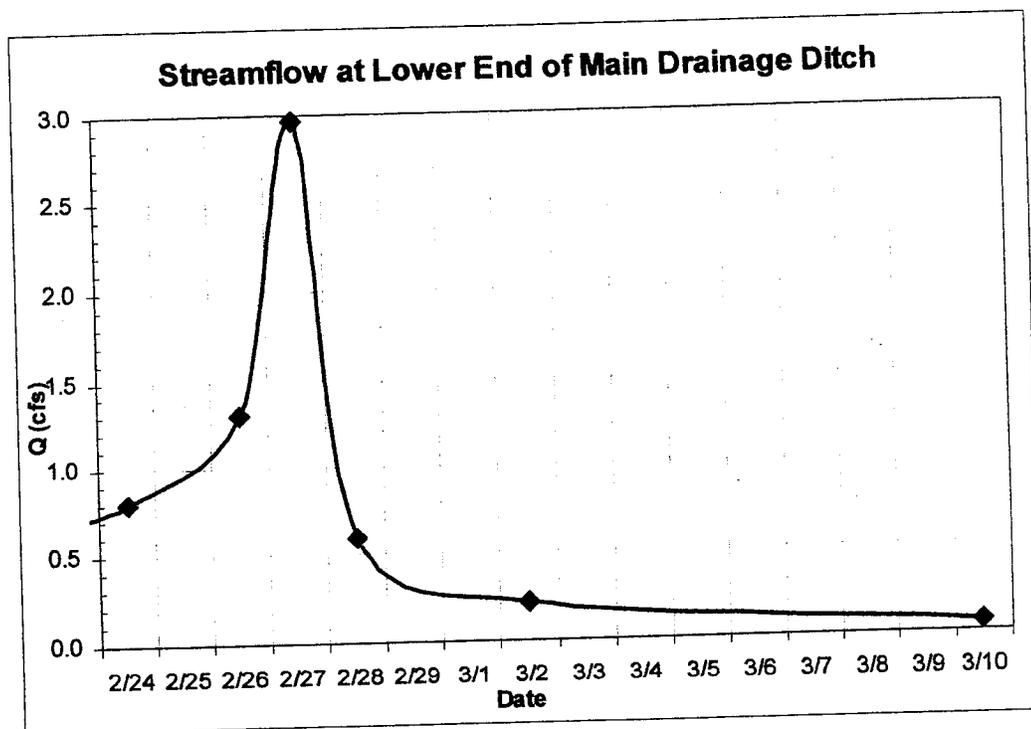


FIGURE 4a: Roger's Addition, Alternative 1- Maximum build-out and wetland impacts.

This alternative would maximize lot number & bring Lincoln Ave due north.

IMPACTS:

- 0.8 acres of wetland fill would result with five lots constructed in the Matilda St. Wetland.
- Several mature spruce trees that border this wetland would have to be removed.
- All ditches would be filled.

- Roger's Place would be constructed through the middle of the East Arm Wetland and it would be filled to maximize lot numbers.
- A storm sewer would be constructed on the south edge of the property to accommodate storm water from Ruby-Spinnaker.

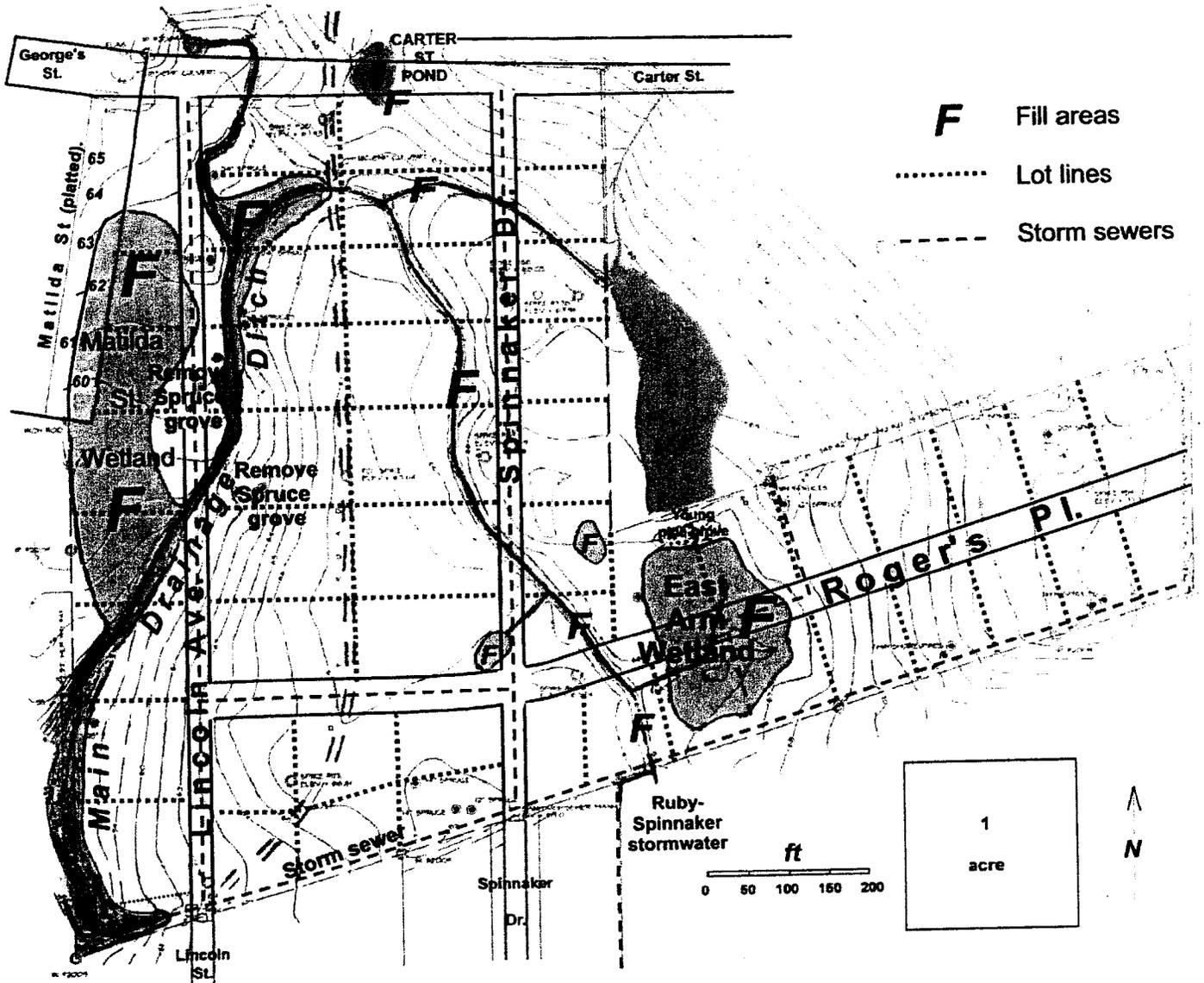


FIGURE 4b: Roger's Addition, Alternative 2, Minimizing wetland impacts.

This alternative would turn Lincoln Ave northeastward and away from the Matilda St Wetland.

IMPACTS:

--0.8 acres of the Matilda St. Wetland would be enhanced plus an additional 0.3 acres of filled wetland north of it restored.

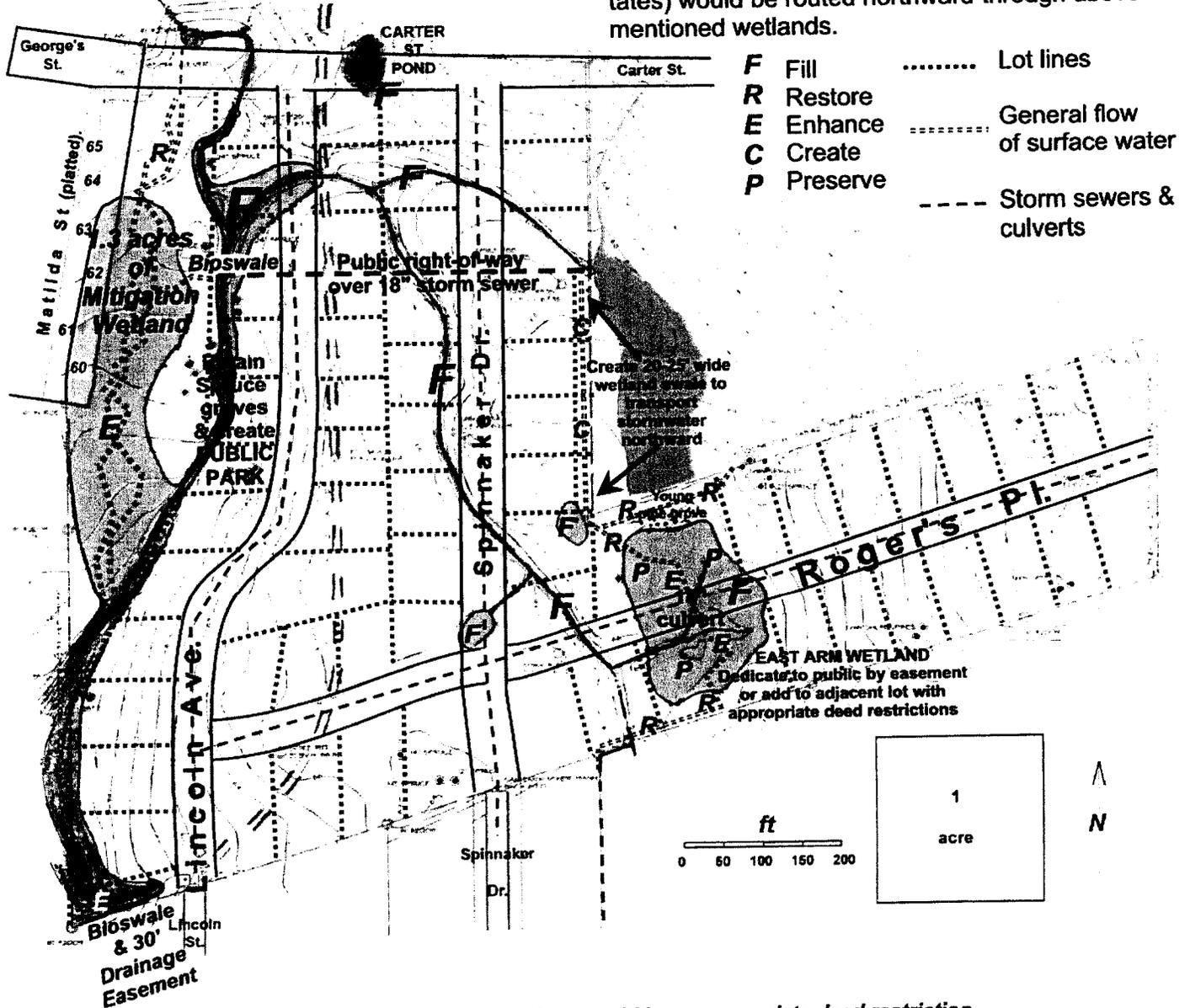
--The mature spruce trees that border this wetland would be preserved and an area surrounding the largest grove made into a park.

--Most of the length of ditches would be filled with the lower end preserved to connect with the Matilda St Wetland.

--Roger's Place would be constructed through the middle of the East Arm Wetland (0.25 acres of fill) but 0.4 acres of previously filled wetland restored. 0.2 acres of degraded wetland enhanced, & 0.15 acres of wet meadow preserved.

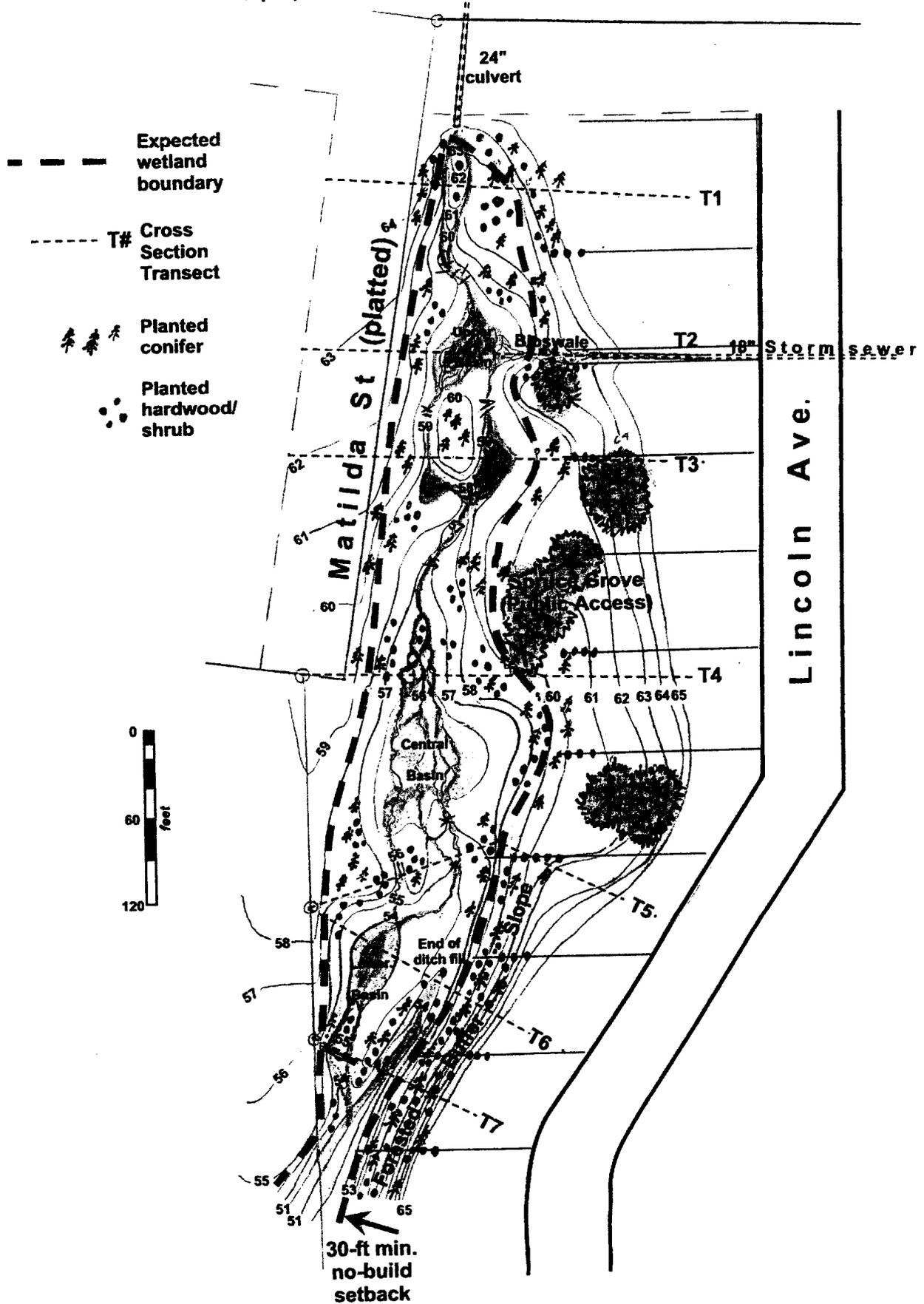
--0.2 acres of wetland would be created on the east property line by constructing a 20-25 ft wide swale.

--Storm water from Ruby-Spinnaker (Brettview Estates) would be routed northward through above-mentioned wetlands.



All wetlands contained in private lots would have appropriate deed restriction.

FIGURE 5: MATILDA STREET MITIGATION WETLAND; Proposed topography, transects, proposed planted vegetation, & expected wetland boundary.



Expected Ordinary High Water

Winter base level

Expected wetland boundary

Planted conifer, eg. *Pinus contorta*, *Picea sitchensis*

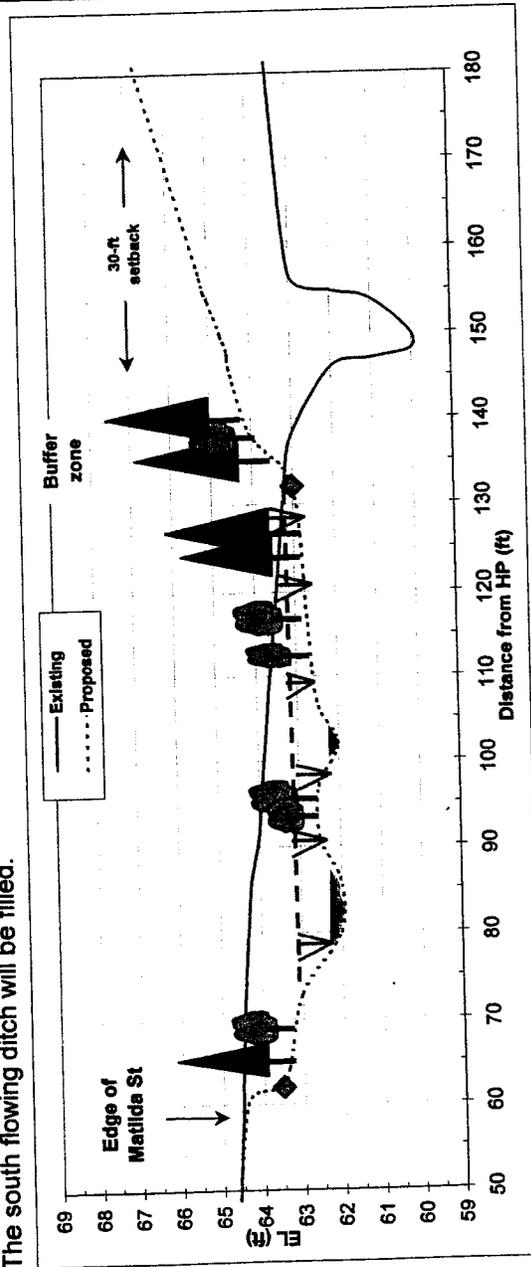
Planted hardwood trees & shrubs, eg. *Salix hookeriana*, *Rhamnus purshiana*, *Alnus rubra*

Herbaceous vegetation, eg. *Carex obnupta*, *Deschampsia cespitosa*

FIGURE 6: Proposed Profiles of the Matilda Street Mitigation Wetland, Transect 1.

Transect 1

This is the upper end of the mitigation wetland where water from the north discharges into it. OHW is expected to reach EL= 63.0 ft, with depths 0.3 to 1 ft. A low forested island will separate a bifurcated channel. The south flowing ditch will be filled.

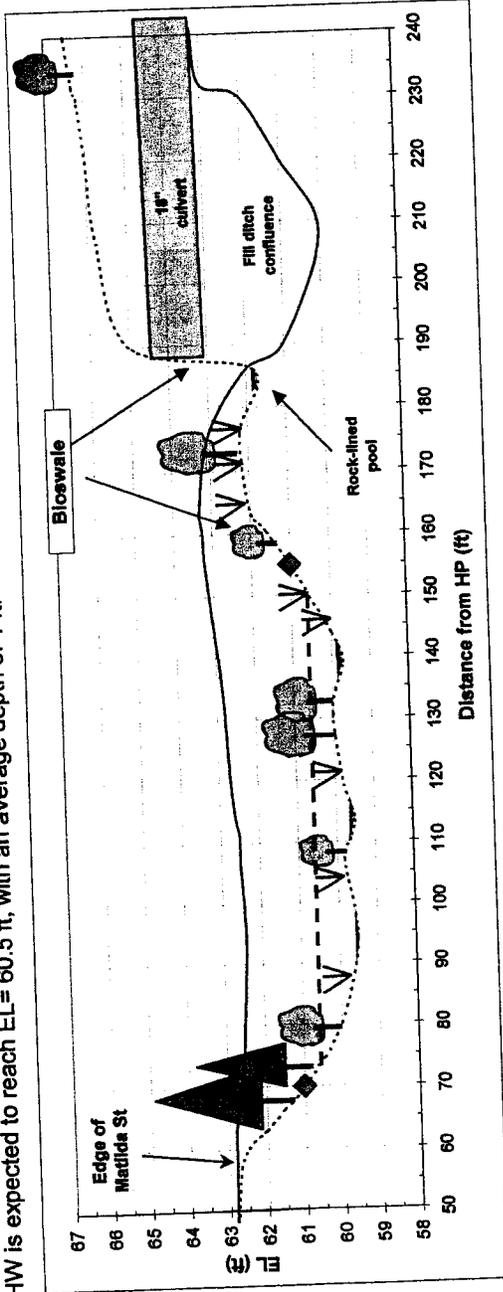


Dist.	Existing	Proposed	Cut-fill
0	66.0	66.0	0
22	65.0	65.0	0
60	64.5	64.4	-0.1
82	64.5	63.5	-1.0
73	64.4	63.0	-1.4
80	64.3	62.0	-2.3
86	64.2	62.0	-2.2
91	64.0	62.5	-1.5
97	63.9	62.5	-1.4
102	63.8	62.0	-1.8
107	63.7	62.5	-1.2
117	63.5	62.7	-0.8
132	63.2	63.0	-0.2
138	63.0	64.0	1.0
146	62.0	64.5	2.5
147	61.0	64.5	3.5
148	60.0	64.6	4.6
150	60.0	64.7	4.7
154	61.0	65.0	4.0
155	62.0	65.1	3.1
157	63.0	66.2	3.2
202	64.0	68.0	4.0
217	66.0	68.2	2.2

FIGURE 7: Proposed Profiles of the Matilda Street Mitigation Wetland, Transects 2 & 3.

Transect 2

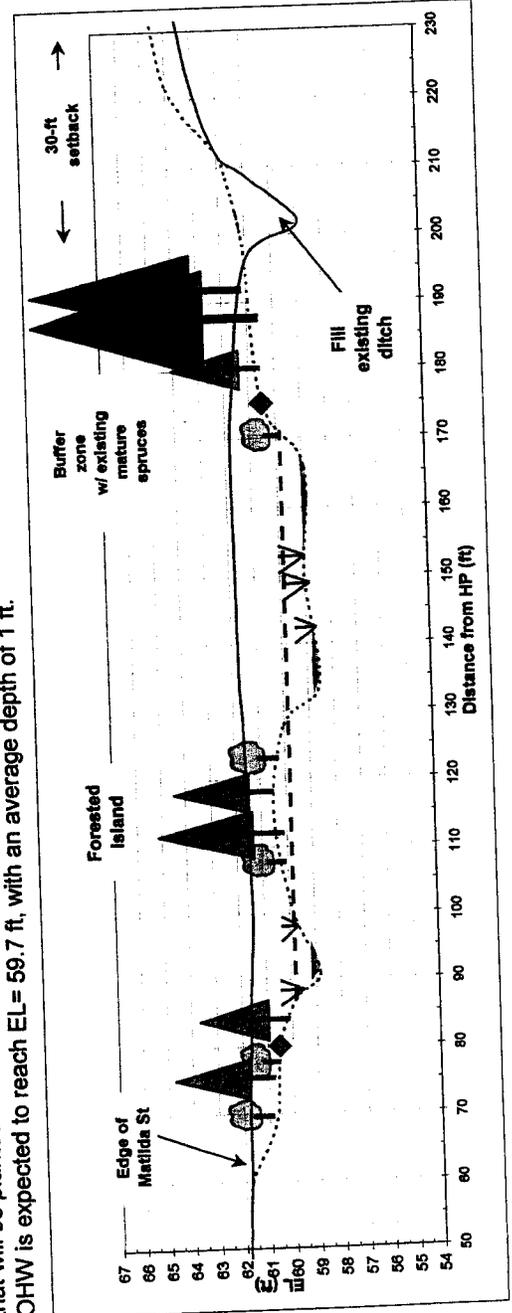
This W-E transect crosses the platted Matilda St., across the mitigation wetland near a 24" spruce and the confluence of two existing ditches. It also crosses the proposed bioswale through which runoff coming from a 18" storm sewer enters. This bioswale will have a rock-lined pool where the storm sewer outlet, then a 30-ft long, 10:1 H:V riffle to be lined with native herbs, shrubs and trees. The wetland at this location will have three thalwegs across a 60-ft width, with hardwoods planted between. OHW is expected to reach EL= 60.5 ft, with an average depth of 1 ft.



Dist.	Existing	Proposed	Cut-fill
0	64.0	64.0	0
18	63.0	63.0	0
57	62.8	62.7	-0.1
63	62.8	62.0	-0.8
70	62.5	61.0	-1.5
80	62.5	60.0	-2.5
84	62.4	59.5	-2.9
107	62.5	59.8	-2.7
111	62.5	59.6	-2.9
114	62.6	59.5	-3.1
120	62.7	59.8	-2.9
132	62.8	60.0	-2.8
139	62.9	59.7	-3.2
144	63.0	60.0	-3.0
155	63.2	61.0	-2.2
161	63.3	61.6	-1.7
164	63.3	62.0	-1.3
176	63.0	62.2	-0.8
188	62.0	61.8	-0.2
190	61.0	65.0	4.0
208	60.0	65.8	5.8
220	61.0	66.0	5.0
230	62.0	66.2	4.2
232	63.0	66.3	3.3
241	63.2	66.5	3.3

Transect 3

This W-E transect crosses Matilda St., through the center of the mitigation wetland and across an existing mature spruce grove. A central island, that will be planted with trees and shrubs, will separate two channels that converge a bit further south. OHW is expected to reach EL= 59.7 ft, with an average depth of 1 ft.



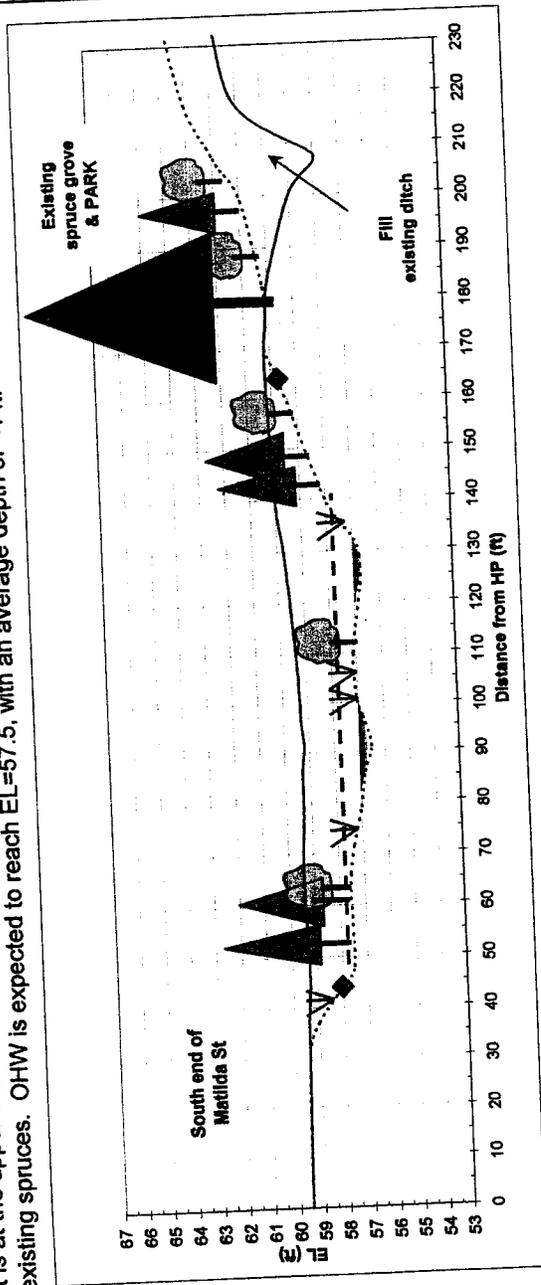
Dist.	Existing	Proposed	Cut-fill
0	62.0	62.0	0
54	61.8	61.8	0
60	61.7	61.7	0
69	61.7	60.7	-1.0
80	61.6	60.5	-1.1
87	61.6	59.8	-1.8
91	61.5	58.8	-2.7
100	61.4	58.8	-1.6
115	61.5	60.5	-1.0
128	61.6	60.0	-1.6
134	61.7	58.8	-3.2
150	61.8	59.0	-2.8
166	61.8	58.9	-2.9
175	61.7	60.5	-1.2
198	61.0	61.0	0
201	59.0	61.2	2.2
203	59.0	61.3	2.3
209	61.0	61.7	0.7
212	62.0	62.0	0
222	63.0	64.0	1.0
240	64.0	65.0	1.0
249	65.0	66.0	1.0

FIGURE 8: Proposed Profiles of the Matilda Street Mitigation Wetland, Transects 4 & 5.

Transect 4

This W-E transect runs from the south end of Matilda St., across the mitigation wetland and just south of a spruce grove and the Main Drainage Ditch. It is at the upper end of the central water detention zone. The wetland width will be about 100 ft, and care taken so as not to disturb the roots of the existing spruces. OHW is expected to reach EL=57.5, with an average depth of <1 ft.

Dist.	Existing	Proposed	Cut-fill
0	59.5	59.5	0
31	59.4	59.4	0
37	59.4	59.0	-0.4
44	59.3	58.0	-1.3
48	59.3	57.5	-1.8
66	59.4	57.5	-1.9
79	59.3	57.0	-2.3
86	59.3	56.8	-2.5
91	59.2	56.5	-2.7
97	59.3	56.8	-2.5
100	59.3	57.0	-2.3
110	59.4	57.1	-2.3
128	59.7	56.7	-3.0
140	60.0	58.0	-2.0
164	60.2	59.7	-0.5
170	60.2	60.2	0
178	60.1	60.1	0
183	60.0	60.2	0.2
200	59.0	61.0	2.0
206	58.0	61.8	3.8
208	58.0	62.0	4.0
218	61.0	63.0	2.0
238	62.0	64.0	2.0
256	63.0	65.0	2.0



Transect 5

This WSW-ENE transect runs through the middle of the lower detention basin. OHW is expected to reach EL=56.6, spreading 100 ft across with depths between 0.2 and 1 ft.

Dist.	Existing	Proposed	Cut-fill
0	58.3	58.3	0
10	58.2	57.2	-1
40	58.0	56.4	-1.6
48	58.0	56.5	-1.5
54	57.9	56.7	-1.2
60	57.8	56.5	-1.3
63	57.8	56.2	-1.6
66	57.8	56.0	-1.8
76	57.8	55.6	-2.3
86	57.8	55.8	-2.0
89	57.7	56.0	-1.7
94	57.7	56.0	-1.7
100	57.6	55.5	-2.1
110	57.7	54.3	-2.4
120	57.8	56.0	-1.8
127	57.7	56.2	-1.5
135	57.6	56.8	-0.8
140	57.0	58.0	1.0
142	56.0	58.1	2.1
146	56.0	58.3	3.3
148	56.0	58.4	3.4
161	56.0	58.5	2.5
154	57.0	58.6	1.6
158	58.0	58.8	0.8
170	59.0	59.5	0.5
176	59.4	61.0	1.6
180	58.6	62.0	2.4
180	60.0	62.7	2.7
208	61.0	64.0	3.0
226	62.0	65.0	3.0

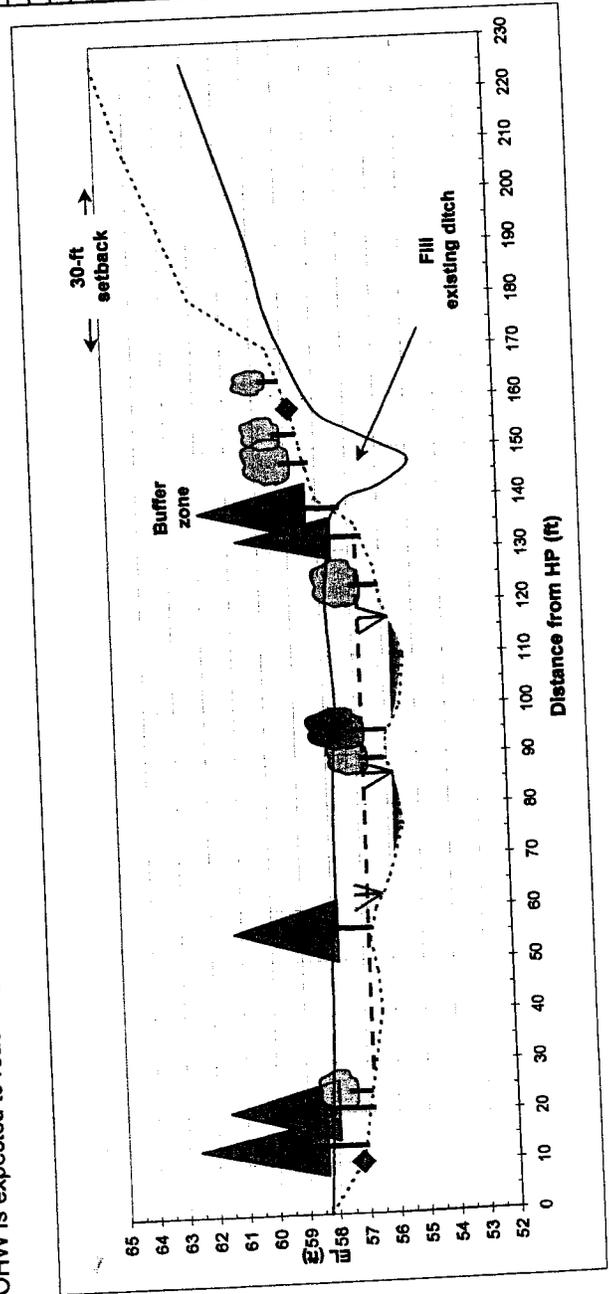
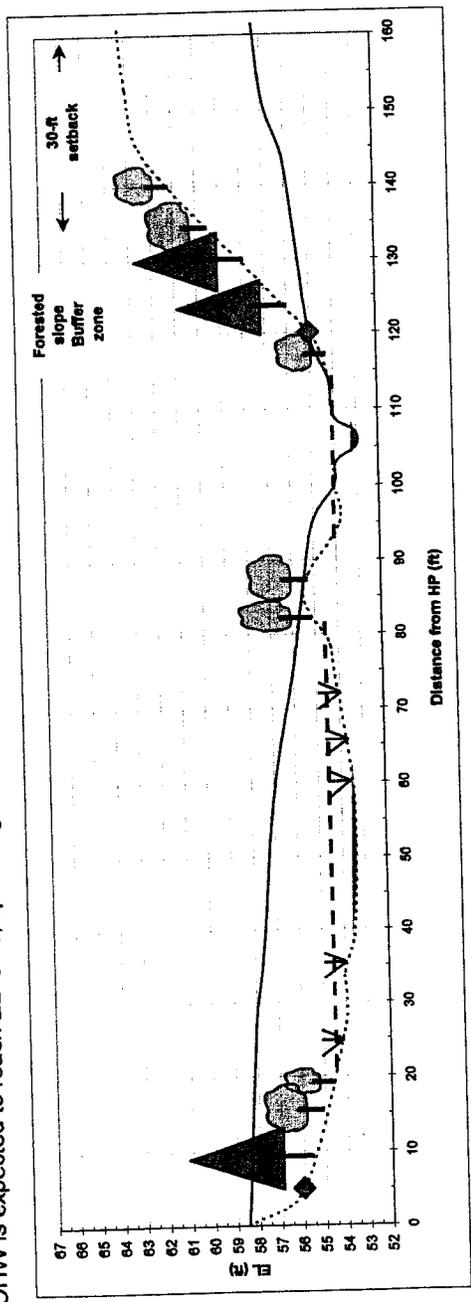


FIGURE 9: Proposed Profiles of the lower end of Matilda Street Mitigation Wetland, Transects 6 & 7.

Transect 6: Lower Detention Basin

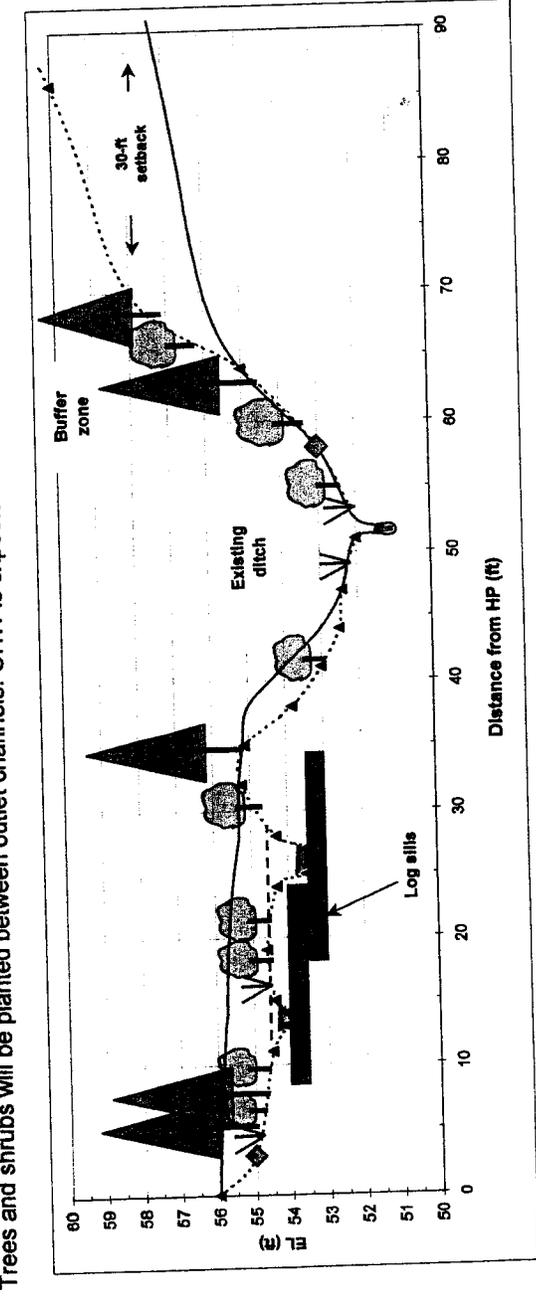
The lower end of the mitigation wetland will be constructed with a wide, shallow basin. A low mound will remain between the wetland and the existing ditch so as to prevent water from draining into it. The buffer zone will be a forested 3:1 V:H slope east of the ditch. OHW is expected to reach EL=54.5, spreading 60 ft across with depths between 0.5 and 1 ft.



Dist.	Existing	Proposed	Cut-fill
0	58.5	58.5	0
5	58.4	56.0	-2.4
27	58.0	54.0	-4.0
34	57.7	54.0	-3.7
40	57.5	53.8	-4.0
58	57.0	53.4	-3.6
75	56.0	54.2	-1.8
79	55.8	54.4	-1.4
86	55.5	55.5	0
96	55.0	53.8	-1.2
100	54.0	54.0	0
103	53.9	53.9	0
105	53.0	53.0	0
107	53.0	53.0	0
109	54.0	54.0	0
114	54.2	54.2	0
120	55.0	55.0	0
143	56.0	62.0	6.0
153	57.0	63.0	6.0
186	58.0	64.0	6.0

Transect 7: The Outlet for the Matilda Street Mitigation Wetland

This WNW-ESE transect runs across the outlet for the entire mitigation wetland. Two 2-ft wide outlet channels will be constructed with thalwegs at 53.5 and 54.0 ft, and based with sill logs and rock so as to prevent downcutting. The two different outlet levels will allow for minor freshets to spill over at EL= 53.5 ft while increased inflows will allow for an additional stormwater detention before spillover at EL=54.5 ft. Peak runoff here is expected to be 4-5 cfs, which two channels will easily be able to accommodate. Trees and shrubs will be planted between outlet channels. OHW is expected to not exceed EL=54.5 ft.



Dist.	Existing	Proposed	Cut-fill
0	56.0	56.0	0
3	56.0	55.0	-1.0
11	55.8	54.5	-1.3
13	55.8	54.1	-1.7
14	55.7	54.1	-1.6
15	55.7	54.4	-1.3
19	55.7	54.6	-1.1
24	55.5	54.3	-1.2
25	55.5	53.8	-2.0
27	55.4	53.6	-1.9
28	55.3	54.3	-1.0
32	55.3	55.2	0
35	55.2	55.1	0
38	55.0	53.8	-1.2
41	54.0	53.0	-1.0
44	53.0	52.5	-1
47	52.4	52.4	0
51	52.0	52.0	0
52	51.0		
52	51.0		
52.5	52.0	52.0	0
58	53.0	53.0	0
64	55.0	55.0	0
70	56.0	60.0	4.0
86	57.0	60.0	3.0
114	59.0	65.0	6.0

FIGURE 10: East Arm Wetland & Spinnaker Swale showing storm-water inputs & proposed wetland activities.

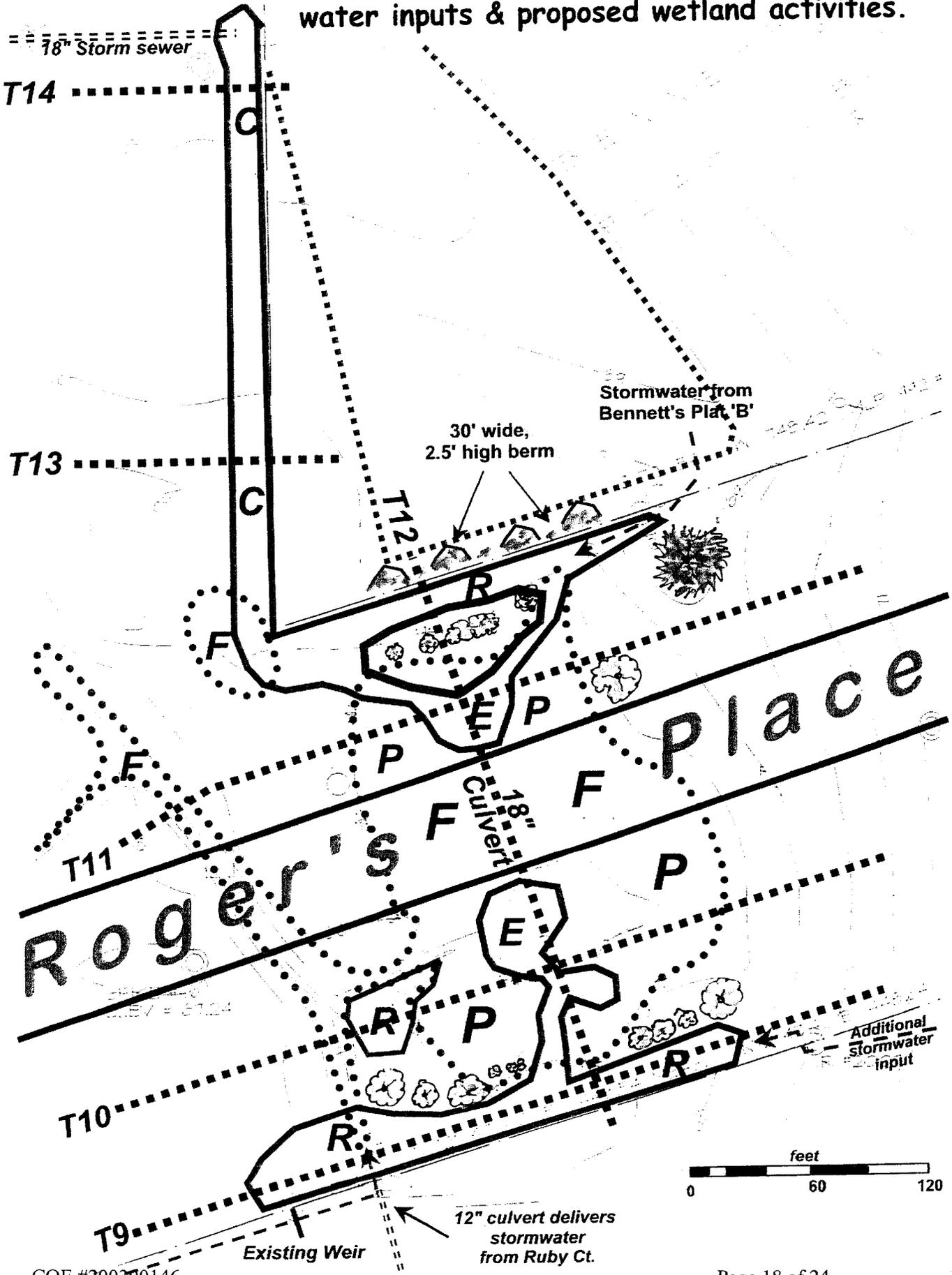
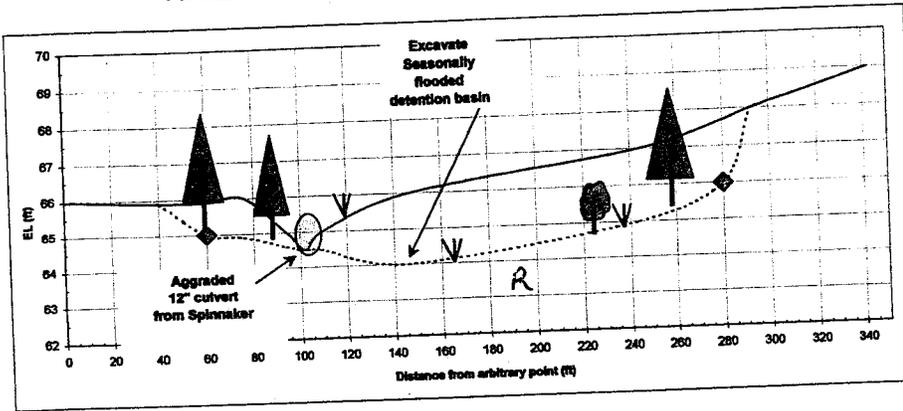


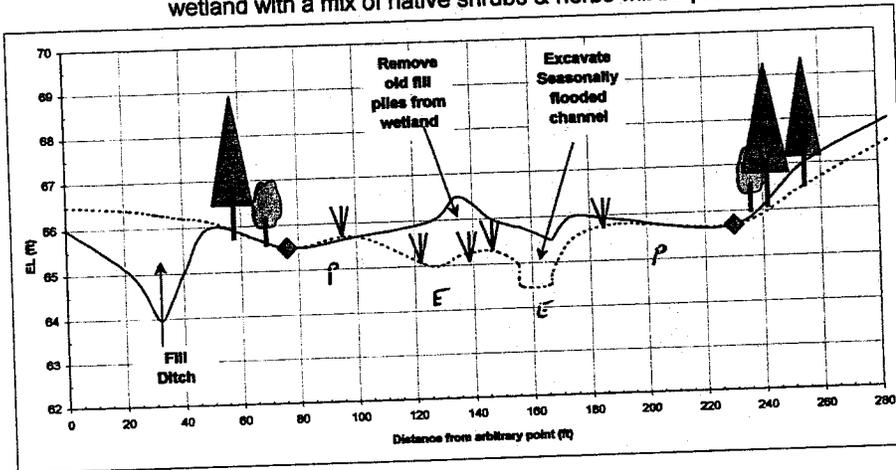
FIGURE 11: Three transects across East Arm Wetland

Transect 9: South side of East Arm Wetland.
About 0.2 acres of filled wetlands will be restored here.



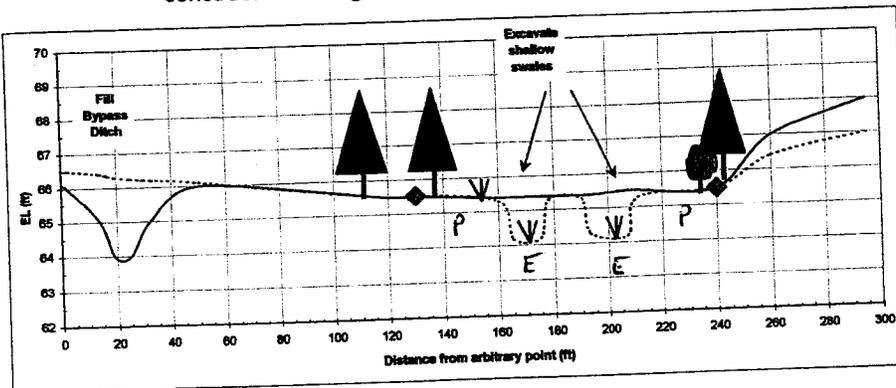
Dist.	Existing	Proposed	Cut-fill	Description
0	66		0	
40	66	66	0	
60	66	65.0	-1	Across from property corner
76	66	64.9	-1	
94	65	64.6	-0.4	
102	64.5	64.5	0.0	Thalweg of existing ditch
109	65	64.5	-0.5	
146	66	64.0	-2.0	
244	67	65.0	-2.0	
280	67.7	66.0	-1.7	
292	68	68.0	0	
342	69		0	

Transect 10: W-E transect across East Arm Wetland just south of proposed Roger's Place.
About 0.2 acres of filled/low-function wetlands will be restored/enhanced here, while 0.15 acres of wetland with a mix of native shrubs & herbs will be preserved.



Dist.	Existing	Proposed	Cut-fill	Description
0	66	66.5	0	Fill upland to grade
22	65	66.4	1.4	Fill Bypass Ditch
31	64	66.3	2.3	Fill Bypass Ditch
33	64	66.3	2.3	Fill Bypass Ditch
40	65	66.2	1.2	Fill Bypass Ditch
50	66	66.1	0.1	
76	65.5	65.5	0	WETLAND BOUNDARY
100	65.7	65.7	0	Preserve wetland here
126	66	65	-1.0	Remove old fill
135	66.5	65.2	-1.3	Remove old fill
146	66	65.3	-0.7	Remove old fill
155	65.8	65.0	-0.8	
156	65.8	64.5	-1.3	Channel transporting storm water northward.
166	65.5	64.5	-1	Preserve wetland here
167	65.5	64.8	0	Preserve wetland here
174	66	65.5	0	Preserve wetland here
190	65.9	65.8	0	Preserve wetland here
230	65.7	65.7	0	WETLAND BOUNDARY
254	67	66.5	0	Cut upland to grade
284	68	67.5	0	Cut upland to grade

Transect 11: W-E transect across North side of East Arm Wetland
1-ft deep swales will be excavated in areas that are already degraded. Areas with native wetland plants such as Camas lily, bog blueberry and mule's ear will be preserved. Native plants that will be impacted by the construction of Roger's Place will be transplanted in excavated swale areas.



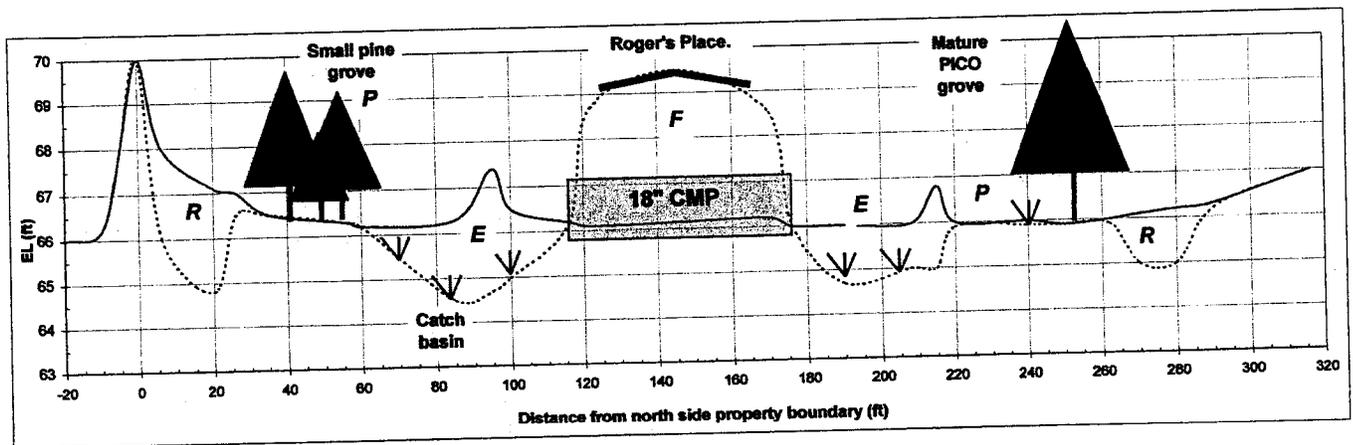
Dist.	Existing	Proposed	Cut-fill	Description
0	66	66.5	0.4	
2	66	66.5	0.5	
14	65	66.4	1	Ditch fill
19	64	66.3	2.3	Ditch fill
25	64	66.3	2.3	Ditch fill
32	65	66.2	1.2	Ditch fill
50	66	66	0	
120	65.5	65.5	0.0	
130	65.5	65.5	0	WETLAND BOUNDARY
160	65.4	65.3	0	Preserve wetland plants
165	65.4	64.2	-1.2	Swale thalweg
175	65.4	64.2	-1.2	Swale thalweg
178	65.4	65.3	0	Preserve wetland plants
190	65.4	65.3	0	Preserve wetland plants
193	65.4	64.3	-1.1	Swale thalweg
207	65.5	64.2	-1.3	Swale thalweg
211	65.5	65.3	0	Preserve wetland plants
240	65.5	65.5	0	WETLAND BOUNDARY
260	67	66.4	-0.6	Cut upland to grade
295	68	67	-1.0	Cut upland to grade

FIGURE 12: NNW-SSE transect across East Arm Wetland showing cross section of the proposed road, Roger's Place

Transect 12

A road, Roger's Place, will be constructed W-E across the East Arm Wetland. Degraded & filled wetland on either side will be enhanced by shallow excavation and transplanting native herbaceous vegetation (*E*). Areas with a diversity of native vegetation will be preserved (*P*).

Dist.	Existing	Proposed	Cut-fill	Description
-20	66.0			Wetland
-10	66.2			Berm
-5	68	68	0	Berm
0	70	70	0	Berm
6	68	66	-2.0	Edge of berm
20	67.1	64.8	-2.3	N side of pine grove
26	67	66.5	-1	
35	66.5	66.5	0	S side of pine grove
56	66.3	66.3	0	Start excavation
60	66.2	66.2	0	
85	66.3	64.5	-1.8	Edge of old fill
95	67.4	64.7	-2.7	Old fill
100	66.5	65	-1.5	Edge of old fill
116	66.2	66.2	0.0	N side of ROW
122	66.1	68.7	2.6	
146	66.2	69.5	3.3	
170	66.2	66.5	2.3	
176	66	66	0.0	S side of ROW
180	66	64.7	-1.3	
206	66	65	-1.0	Edge of old fill
215	66.6	65	-1.6	Top of old fill
220	66	66	0	Edge of old fill
240	66	66	0	
250	65.9	65.9	0.0	Excavate
262	66	66	0	
270	66.1	65	-1.1	
280	66.2	65	-1.2	
290	66.3	66.2	0	
316	67	67	0.0	



Close-up of cross section of Roger's Place

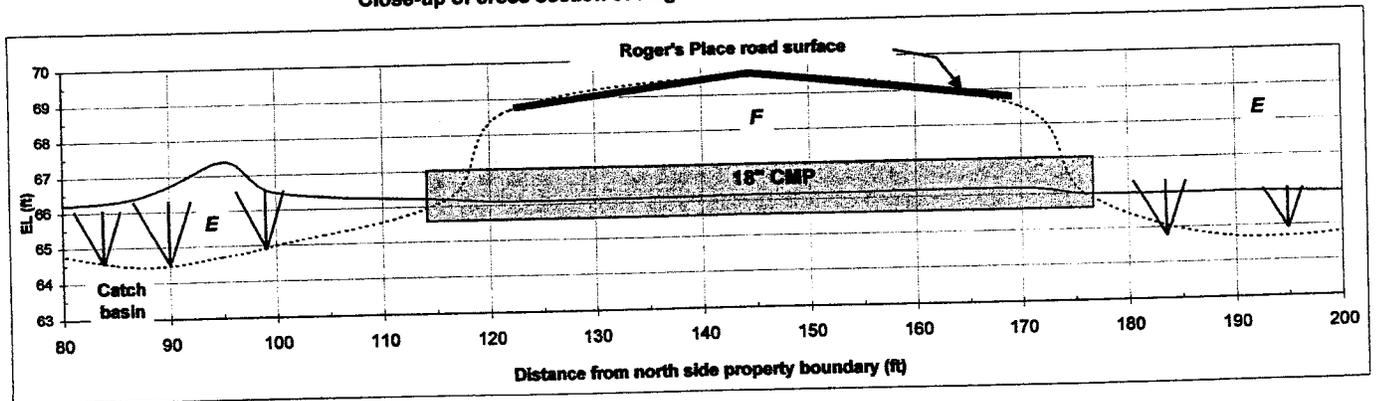
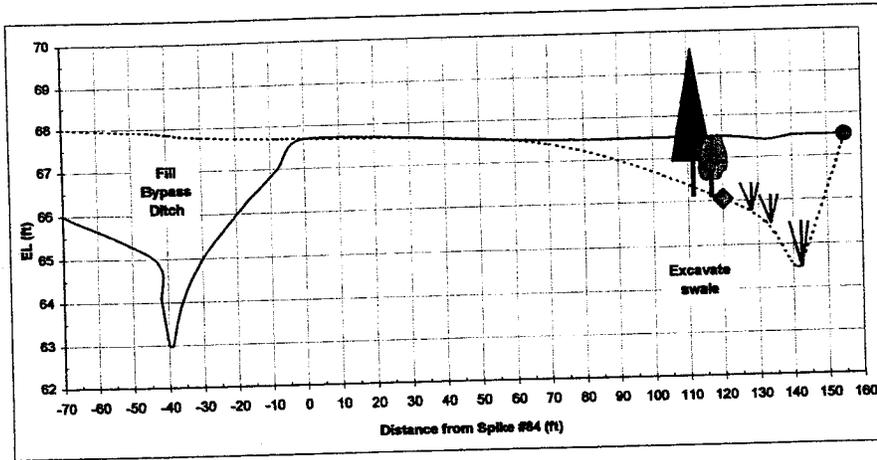


FIGURE 13: Two transects across east property boundary & proposed East Swale

Transect 13: Upper (south) end of East Swale

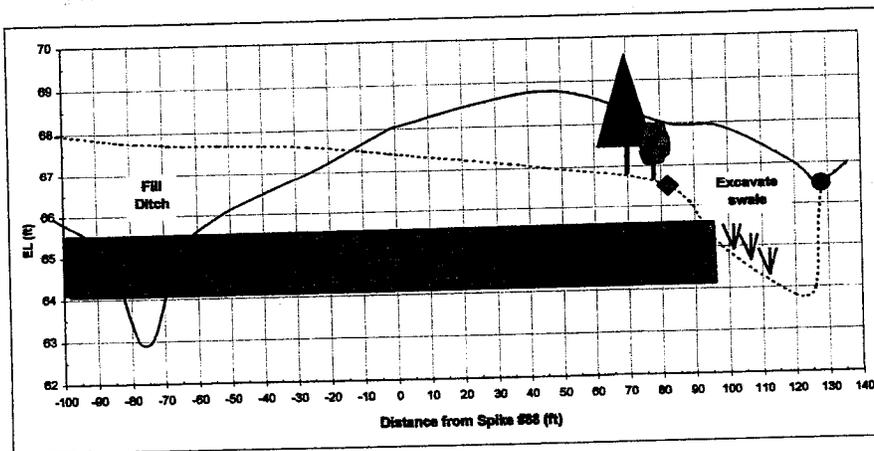
Fill bypass ditch and redirect hydrology through swale on east edge of property.



Dist	Existing	Proposed	Cut-fill	Description
-70	66	68.0		Ditch slope
-44	65	67.9		Ditch slope
-42	64	67.9	4	Ditch slope
-40	63	67.9	4.8	Ditch thalweg
-39	63	67.9	4.8	Ditch thalweg
-36	64	67.8	3.8	Ditch slope
-30	65	67.8	2.8	Ditch slope
-20	66	67.7	1.7	Ditch slope
-8	67	67.7	0.7	Top of ditch
0	67.69	67.7	0	Spike #84
70	67.5	67.4	-0.1	
120	67.5	66.1	-1.5	Edge of proposed swale
132	67.4	65.5	-1.9	
140	67.5	64.5	-3.0	Swale thalweg
142	67.5	64.5	-3.0	Swale thalweg
152	67.5	66.7	-0.8	
155	67.5	67.5	0.0	Property boundary

Transect 14: Lower (north) end of East Swale

Fill bypass ditch, cut upland to new grade, and redirect seasonal hydrology through swale on east edge of property.
A 24" storm sewer will capture the water at the north end of the swale and direct it west to the Matilda St Wetland.



Dist	Existing	Proposed	Cut-fill	Description
-104	66	68.0	2.0	Fill to grade
-84	65	67.8	2.8	Fill ditch
-82	64	67.8	3.8	Fill ditch
-78	63	67.8	4.8	Fill ditch
-74	63	67.7	4.7	Fill ditch
-70	64	67.7	3.7	Fill ditch
-68	65	67.7	2.7	Fill ditch
-53	66	67.7	1.7	Fill ditch
-26	67	67.6	0.6	
-2	68	67.4	-0.6	Cut to new grade
0	68.05	67.4	-0.6	Spike # 88
46	68.8	67	-1.8	Cut to new grade
82	68	66.5	-1.5	Cut to new grade
98	67.9	65	-2.9	Edge of proposed swale
120	67	63.8	-3.2	Swale thalweg
126	66.5	64.0	-2.5	Swale thalweg
128	66.5	66.3	-0.2	Property boundary
136	67	67	0.0	

FIGURE 14: W-E long-profile of the Lincoln Ave. Bioswale

Transect 15

A pre-existing swale will be augmented so as to capture and temporarily detain stormwater runoff from Lincoln Ave by excavating a 20 ft Catch Basin as shown in the long profile below. The invasive shrub, *Rubus discolor* will be grubbed out and native vegetation, including *Pinus contorta*, *Carex obnuta*, *Rhamnus purshiana*, *Alnus rubra* & *Lonicera involucrata* will be planted along the banks of the bioswale. Place a layer of rock catch basin to prevent downcutting and trap fine sediment.

Dist.	Existing	Proposed	Cut-fill	Description				
30	62.4			Lincoln Ave				
0	62.4			Manhole cover on Lincoln Ave				
-1	59.6	59.6	0	Invert of 12" culvert				
-12	61	61	0	No excavation, enhance with plantings				
-46	60	60	0	No excavation, enhance with plantings				
-60	59	59	0	No excavation, enhance with plantings				
-70	58	57	-1	Excavated bioswale catch basin				
-80	57.7	56	-2	Excavated bioswale catch basin				
-97	57	57	0	No excavation, enhance with plantings				
-112	56	56	0	No excavation, enhance with plantings				
-128	55	55	0	No excavation, enhance with plantings				
-144	54	54	0 </tr <tr> <td>-150</td> <td>53.8</td> <td>53.8</td> <td>0</td> <td>No excavation, enhance with plantings</td> </tr>	-150	53.8	53.8	0	No excavation, enhance with plantings
-150	53.8	53.8	0	No excavation, enhance with plantings				

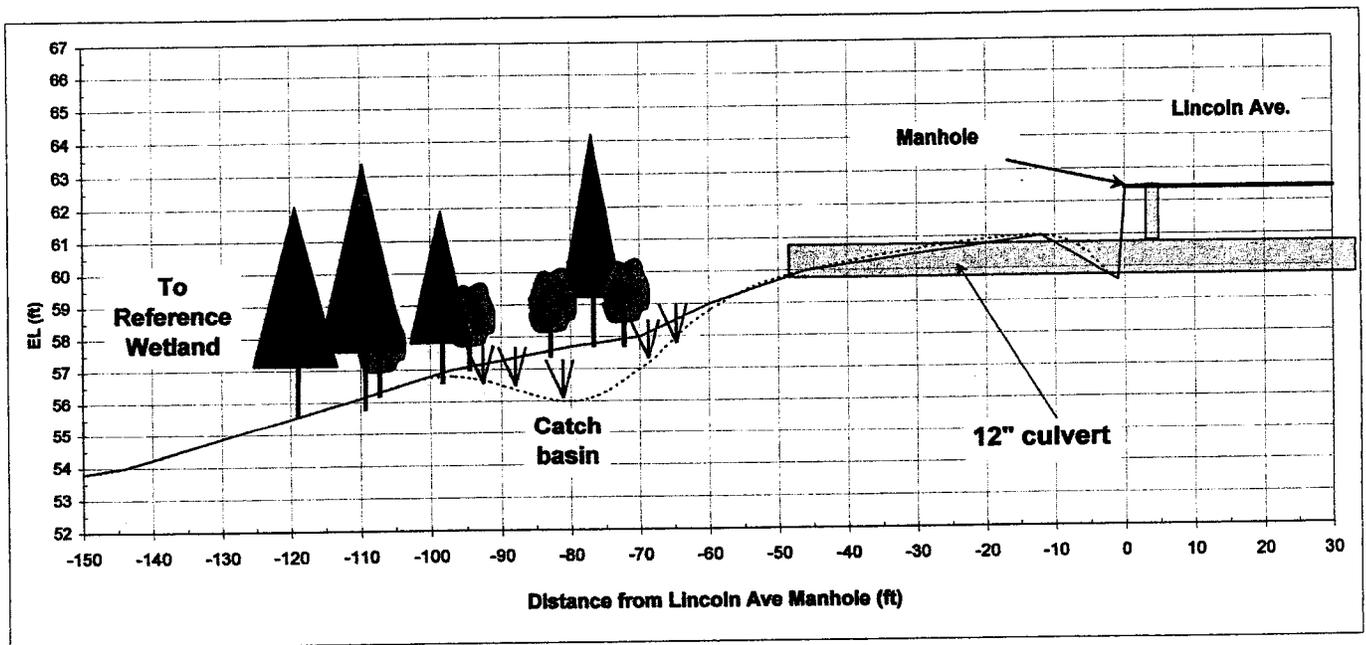


FIGURE 15: The Reference Wetland

A. North edge looking SW.

Gorse (*Ulex europaeus*), in flower, defines edge of Reference Wetland. Note the mature Sitka spruce (*Picea sitchensis*) grove. 80% canopy cover. Age of stand, 60-70 yrs.



B. Looking North from upstream end.

Mixed pasture grasses on higher elevation areas, willows (*Salix hookeriana*) sprouting at left & slough sedge (*Carex obnupta*) in lower areas. Multi-stem spruce on right side.



% Cover Estimates
of Reference Wetland
Vegetation

CANOPY		SHRUB	HERB		
<i>Picea sitchensis</i>	70	<i>Rhamnus purshiana</i>	10	<i>Festuca arundinacea</i>	60
<i>Pinus contorta</i>	10	<i>Rubus spectabilis</i>	10	<i>Carex obnupta</i>	20
		<i>Salix hookeriana</i>	20	<i>Lysichiton americanum</i>	10
				<i>Oenanthe sarmentosa</i>	5
				<i>Maianthemum dilatatum</i>	5

C. Depositional Reach

Skunk cabbage (*Lysichiton americanum*) & water parsley (*Oenanthe sarmentosa*) in mucky depositional reaches.



D.

Looking Downstream (SW) from multi-stem spruce.

Ground contours are quite variable with tufts of grass & sedge create hummocks.

