

APPENDIX A

Municipal Assembly Approval

AO No. 95-129

AM 775-95

AIM 109-95

8-22-95 FAILED
NOTICE OF RECONSIDERATION GIVEN BY MR. CAMPBELL
RECONSIDERED 9-12-95

Submitted by: Chairman of the Assembly
at the Request of the Mayor
Prepared by: Department of Community
Planning and Development
For Reading: May 9, 1995

JR

CLERK'S OFFICE
AMENDED AND APPROVED
Date: 3-12-96

Anchorage, Alaska
AO No. 95-129

AN ORDINANCE ADOPTING THE ANCHORAGE WETLANDS MANAGEMENT PLAN AS AN ELEMENT OF THE ANCHORAGE COMPREHENSIVE PLAN AND AMENDING CHAPTER 21.05 AND 21.15 OF THE ANCHORAGE MUNICIPAL CODE.

THE ANCHORAGE MUNICIPAL ASSEMBLY ORDAINS that:

Section 1. The Anchorage Wetlands Management Plan, originally adopted and dated April, 1982, is hereby amended by the Anchorage Wetlands Management Plan 10 Year Revision, dated April 1995 (originally dated July, 1993, revised October, 1993, conceptually approved by the Municipal Assembly in December 1993, and approved by the State of Alaska Coastal Policy Council in October, 1994), and is hereby adopted as an element of the Anchorage Comprehensive Development Plan.

Section 2. AMC 21.05.030 is amended as follows:

21.05.030 Comprehensive Plan Elements

The Comprehensive Plan consists of the following elements, which are incorporated in this chapter by reference:

...

- L. Wetlands Management Plan (AO 95- , effective (month), 1995).

...

Section 3. AMC 21.05.115 B. & C. is amended as follows:

21.05.115 Implementation--Anchorage Wetlands Management Plan

...

- B. Municipal Zoning and Platting Actions.
 - 1. Municipal zoning and platting actions taken under this title shall be consistent with the Anchorage Wetlands Management Plan. It is the intent of the municipality that wetlands designated ["PRESERVATION"] "A" in Table [6-3] 2 will be

protected as indicated in that table and in Chapter [7] 4 of the Anchorage Wetlands Management Plan.

2. The provisions of AMC 21.80.100-110 may be applied to plats showing development of wetlands designated “[PRESERVATION] A” under the plan where fee simple acquisition is required by the plan. If at the end of the 15-month period for acquisition provided by AMC 21.80.110, the “[PRESERVATION] A” wetlands have not been acquired, by mutual agreement of the property owner and the municipality, the reserve tract designation may be extended, in consideration of which agreement the municipality shall pay an amount equal to the taxes accumulated on the property for the period of reservation. If the municipality and the property owner do not agree on an extension of the reserve tract designation, the property owner must obtain a Section 404 permit required by the Federal Clean Water Act of 1972, as amended, before submitting a plat for that property. In conducting the Section 404 review, the [PRESERVATION STANDARD] “A” Wetlands - Management Guidelines and Implications found in Section [6.6] II. B. of the Wetlands Management Plan shall be applied.
3. Any development of a [“PRESERVATION”] “A” wetland allowed by the platting authority after a developer has acquired a Section 404 permit shall be conditioned on use of the recommended mitigation techniques to the maximum extent practicable.
4. In order to maximize protection of wetlands designated [“CONSERVATION”] “B”, in addition to the criteria normally considered in subdivision and conditional use applications, the platting authority or the Planning and Zoning Commission must, prior to approval, make explicit findings that:
 - a. through c. (no change)
5. Whenever practicable, the platting authority or the Planning and Zoning Commission shall include the recommended construction mitigation techniques and conditions and Enforceable Policies in Table 2 when approving plats or

conditional use permits in wetlands designated ["DEVELOPABLE"] "C" under the plan.

- C. Application of plan to approved projects.
1. Conditional uses and preliminary plats approved prior to [APRIL 20, 1982] (month, day, 1995), the date of adoption of the revised Anchorage Wetlands Management Plan, shall not have additional conditions imposed upon them as a result of requirements of the plan except as follows:
 - a. the ["PRESERVATION"] "A" designation shall apply regardless of prior approvals;
 - b. approved plats or conditional uses in wetlands which are returned to the platting authority or Planning and Zoning Commission for major amendment may be examined for conformity with plan goals and Enforceable P[p]olicies.

Section 4. AMC 21.05.130 E. is amended as follows:

21.05.130 Implementation--Coastal Zone Management Plan.

The following elements of the Anchorage Coastal Zone Management Plan, dated July 1979, are adopted as elements of the Comprehensive Plan:

....

- E. Map 12, Vol. I and Map 12, Vol. II entitled "Coastal Management Zone: Preservation" found in the Anchorage Coastal Resource Atlas, with the exception that the designation of freshwater marshes and wetlands for preservation is superseded by [THE PRESERVATION DESIGNATIONS] wetlands designated "A" and shown on Map[S 6-4, 6-5, AND 6-6] Figures 3, 4, 5, 6 and as further described in Table [6-3] 2 of the Anchorage Wetlands Management Plan.

Section 5. AMC 21.15.030 C. is amended as follows:

21.15.030 Site Plans and Conditional Uses.

...

- C. 2. a. (3). site drainage within and adjacent to the property that is subject to the application, including the specific location of all water features, such as lakes, ponds, bogs, swamps, springs, intermittent (seasonal) or continuous streams, drainage courses, and the location of floodplain and wetland areas as defined in Chapter 21.60 and Section 21.05.[087]115, respectively;

...

- C. 3. Where the property that is the subject of the application contains wetlands designated ["CONSERVATION"] "B" in the Anchorage Wetlands Management Plan, the applicant shall submit the following:

...

Section 6. AMC 21.15.110 C. is amended as follows:

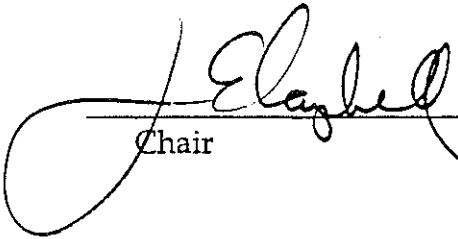
21.15.110 Preliminary plat--Application and submission requirements.

- C. For areas, if any, determined by the Corps of Engineers to require individual permitting within a subdivision proposed in a wetland designated ["CONSERVATION"] "B" under the Anchorage Wetlands Management Plan, in addition to the items required by subsection B, the following shall also be required whenever and to the extent that the municipality lacks data showing:

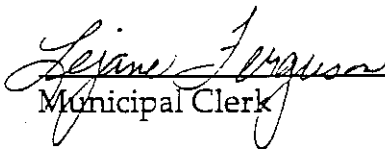
...

Section 7. This ordinance shall become effective immediately upon passage and approval.

PASSED AND APPROVED by the Anchorage Assembly this
_____ day of _____, 1995.


Chair

ATTEST:


Municipal Clerk

ASSEMBLY AMENDMENT:

The Assembly amended the plan as stated in AM 775-95 and AIM 109-95. The Assembly further amended the plan by changing the designation of Site #25 from B/C to C.



MUNICIPALITY OF ANCHORAGE

ASSEMBLY MEMORANDUM

No. AIM 109-95

Meeting Date: May 30, 1995

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From: MAYOR

Subject: WETLANDS PLAN ADDITIONS

Since the most recent Final Draft Anchorage Wetlands Management Plan was printed, a few corrections and changes have been identified and are presented below for consideration by the Assembly for adoption into the final plan document. None of these are significant or substantive, rather they are simple corrections and/or inclusions of information inadvertently omitted from the current Draft. Most important of these is the re-inclusion of several items from AM 1363-93, which were simply missed in the Concept Approved Draft version of the Plan that went into the State of Alaska review after Assembly adoption in early 1994. These items are not significant and should simply be added to the final version of the Plan here. None of these items are likely significant enough to warrant a new State and federal review, rather they will be considered simple routine plan changes. Where appropriate, an explanation is presented to explain why an item was omitted, rearranged, or rewritten between the December 1993 Assembly resolution and this current draft.

From the Assembly Memorandum #1363-93:

1. The following language was not completely added to the management strategy for site #149, and should be incorporated now. The wording is minimally changed based on the Corps GP language and for space limits. This paragraph should replace the version in the current draft.

“Portions of this wetland provide direct hydrological input to Eagle River. Stream channels, ponds, and surface flows shall be maintained with setbacks as open space, i.e. PC or cluster development techniques. Identification of permanent channels and general hydrology shall precede the plat and permit processes. Protection of site hydrology should emphasize more permanent surface waters because the water table in much of this wetlands varies widely during the year. Development should be directed and permitted in upland and lower value wooded wetlands. Northern spur into Sunny Valley Subdivision needs a wetland determination. Road crossings shall be minimized and non-dewatering techniques shall be incorporated into design in the area. The intent of the designation is to maintain higher value hydrology functions.”

1 2. Item #5 in AM 1363-93 recommended that four sentences from the discussion
2 section of "A" Wetlands be made into Enforceable Policies for "A" Wetlands.
3 After review with State and federal agencies, it was since determined that the
4 current draft Enforceable Policies for "A" Wetlands better incorporates the intent
5 of these issues in a more comprehensive manner. One of the four original items
6 (#d.) was added as an enforceable policy (see page 44). The other sentences were
7 left in the "A" Wetland discussion section (see page 36) to reiterate their
8 importance and provide continued guidance.
9

10
11 3. The following language was missed in the revision and should be added here as
12 the original recommendation. The section where it is to be added has changed: it
13 should now go on the third line in the last paragraph on page 32, between the
14 words "...flooding..." and "... foundation problems...".
15

16
17 "...., failed septic systems, and..."
18

19
20 4. The following was recommended originally in AM 1363-93 to be added to the end
21 of the first paragraph on page 13, and now should be added to the end of the third
22 paragraph on page 33:
23

24
25 "High-use moose areas extend in wetlands and upland areas east of
26 Goldenview Drive and south of Rabbit Creek. Prime bear corridors
27 include Rabbit, Little Rabbit, and Little Survival Creeks."
28

29
30 5. The following should be added to management strategies of site's 72, 78, 81, 84,
31 84. It was only added to site # 83.
32

33
34 "These corridors are important to large mammal movements, especially
35 bears. Linear fill crossing these areas should be minimized or configured
36 to avoid disrupting the migratory movements."
37

38 6. The following was inadvertently left out of the management strategy for site #60
39 South, and should be added to that section. The *italicized* sections of site #60
40 South's management strategy should remain as written in the final draft. These
41 *italicized* policies will be placed at the end of this paragraph.
42

43
44 "Site treats snowmelt runoff prior to discharge to 100th Avenue storm
45 drain system. Parcel has significantly lower values than the core of Klatt
46 Bog, located across Minnesota Drive. Historic hydrologic connection to
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1 Klatt Bog to 100th Avenue storm drain system. Parcel has significantly
2 lower values than the core of Klatt Bog, located across Minnesota Drive.
3 Historic hydrologic connection to Klatt Bog has been diminished by
4 Minnesota Drive and local drainage system improvements. Development
5 of parcel may consider directing surface water runoff to Klatt drainage
6 ditch, if needed to support other efforts to restore Klatt Bog hydrology.
7 This parcel contains areas of higher and lower value wetlands. Higher
8 value wetlands occur along the north and southwest boundaries of the
9 parcel and lower value wetlands occur in the central portion of the parcel,
10 generally coinciding with areas of mature paper birch and white spruce.
11 Higher value areas should be retained during development process for
12 snowmelt and storm water treatment and habitat purposes. Additional
13 assessment may demonstrate that the site has lower value areas that
14 warrant a "C" designation and that should be included within the general
15 permit. Access improvements to the parcel from Minnesota Drive and
16 100th Avenue should be accommodated. Emphasis during the
17 development process shall be on on-site mitigation efforts."
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22 ADDITIONAL CORRECTIONS:

- 23
- 24
- 25 7. Site #49A, TUDOR/MULDOON CURVE, has been remeasured and the wetlands
26 acreage should be changed from [10] acres, to 3 acres.
27
- 28
- 29 8. Site #58B has an error that has been carried through several versions of the Plan
30 and was recently uncovered. The third sentence was always meant to be a site
31 description and should read, "Approximate area of wetlands includes 400 feet
32 running south along Dimond exit ramp and for at least 125 feet to the east, e.g. the
33 lower corner." This sentence is not meant to be policy and should not be
34 italicized--it was meant to describe the limits of wetland on-site.
35
- 36
- 37 9. Site #59, SOUTH OF DIMOND CENTER MALL/WEST OF OLD SEWARD
38 HIGHWAY has two (2) conditions left out from the Corps General Permit. The
39 following should be added to reflect those conditions which were meant to be
40 included verbatim, as enforceable policies, for each "C" site. This language was
41 added to the GPs after the State approved the Plan in October 1994.
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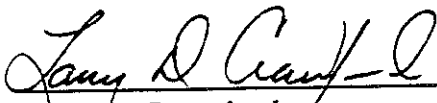
44 *"As long as a water body (greater or equal to 2,500 square feet in areal*
45 *extent) is present in the 3.5-acre site of formerly undesignated wetlands*
46 *west of the main area of wetlands, work proposed in the water body or in*
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the 65-foot setback around it shall require an individual permit. No fill shall be allowed under the GPs in the 3.5-acre site west of the main area of wetlands from April through July if there is evidence of active nesting by waterfowl."

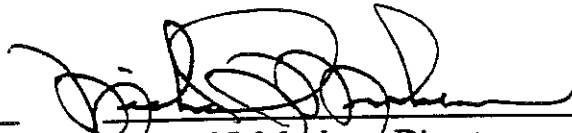
There may be additional changes once public testimony is concluded.

Concurred by:

Prepared by:




Larry D. Crawford
Municipal Manager



Michael J. Meehan, Director
Community Planning & Development

Respectfully submitted:



Rick Mystrom
Mayor

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MUNICIPALITY OF ANCHORAGE

ASSEMBLY MEMORANDUM

No. AM 775-95

Meeting Date: July 25, 1995

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From: Mayor

Subject: Anchorage Wetlands Management Plan

The Assembly is currently holding a Public Hearing for the Anchorage Wetlands Management Plan 10-year revision. The Administration has addressed this revision in Assembly Memorandum 528-95 and herein offers additional language to be incorporated into the new proposed Plan. Both of the following sections should be added to the final version of the proposed Plan as preface items to be placed before the Table of Contents.

A. Preface to the Anchorage Wetlands Management Plan

The 1982 Anchorage Wetlands Management Plan is amended to continue to serve several important functions for the Municipality. This proposed Plan:

1. Provides an inventory and analysis of wetlands within the Municipality as required by the Alaska Coastal Management Program per Alaska Statutes AAC 85.040.100.
2. Acts as a vehicle for regulatory body consensus on allowable wetland activities, since the Corps is required to consider comments from numerous State and Federal agencies when considering a fill or dredging permit in wetlands. This consensus helps expedite and facilitate the permit process in all wetlands designations.
3. Specifies the conditions set out by the Corps under which the Municipality can authorize discharges under the new General Permits. Use of the General Permits significantly reduces the time and expense needed to obtain project approvals. However, if a project sponsor does not wish to pursue permitting via the General Permits, he/she may seek an Individual 404 Permit through the Corps of Engineers.
4. Brings the Municipality into consistency with the State's Coastal Zone Management Program and avoids problems associated with wetland actions located within Coastal Zone Management areas that would otherwise arise. Without Municipal adoption of the proposed Plan, the Federal agencies would

1 follow the same Enforceable Policies as proposed in the new Plan but the State
2 would be required to adhere to the original 1982 Plan. Permit decisions would
3 take longer and otherwise predictable development would be jeopardized.
4

5 Equally important are several things the proposed Plan does not do:
6

- 7
- 8 1. It **does not** prevent a property owner from developing, or attempting to develop,
9 in "A" sites. In no case does the Plan identify private property where all
10 potential development is prohibited.
11
 - 12 2. It **does not force** a property owner to comply by the proposed Enforceable
13 Policies in order to develop a wetland area. If the property owner does not agree
14 with these Enforceable Policies, he or she may still petition the Corps and apply
15 for an Individual Permit that modifies the Enforceable Policies.
16
 - 17 3. It **does not** preclude the Municipality from amending the Plan in the event that
18 Federal Wetlands Regulations are changed or modified through Congressional
19 action.
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24 **B. Letter of Transmittal to the Residents of Anchorage**
25

26 The following is the second section that would appear as a letter from the Mayor in
27 front of the final document.
28

29
30 Date

31
32 To the Residents of Anchorage:

33
34
35 This 10-Year Revision of the Anchorage Wetlands Management Plan is
36 based on current Federal Clean Water Act regulations. It has been
37 crafted over a two-year period of public hearings and negotiations
38 with federal and State regulatory agencies. It represents the
39 Municipality's efforts to expedite and facilitate wetlands permitting.
40 This Plan is to be used as a guideline for the issuance of both
41 Individual and General Permits. Property owners are not precluded
42 by this Plan from applying for an Individual 404 Permit from the
43 Corps if they do not agree with the conditions of development
44 outlined herein. Although I would prefer more local flexibility and
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1 less restriction on the use of wetland properties within Anchorage, I
2 understand that until Federal law is changed, the Municipality's local
3 wetland planning effort is governed by existing regulations and permit
4 conditions.
5

6
7 If the Clean Water Act's wetland sections are changed, the
8 Administration will direct the Department of Community Planning
9 and Development to revise the Plan and request that the Assembly
10 adopt the appropriate changes.
11

12
13 Sincerely,
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16 Rick Mystrom
17 Mayor
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21 Concurred by:

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25
26 _____
27 Larry D. Crawford
28 Municipal Manager
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Prepared by:

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34 _____
35 Michael J. Meehan, Director
36 Community Planning & Development
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39 Respectfully submitted:
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44 _____
45 Rick Mystrom
46 Mayor
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APPENDIX B

Anchorage Wetlands Assessment Method

ANCHORAGE WETLANDS ASSESSMENT METHOD

Data Sheets

Date of Field Work _____ Investigators: _____

A. WETLAND NAME AND/OR NUMBER: _____

B. MAP # _____

C. DESIGNATION IN AWMP _____

(If not designated in the AWMP, check here _____)

D. MUNICIPALITY SUB-REGION, GEOZONE _____

E. LEGAL DESCRIPTION

Section _____ Township _____ Range _____ Quarter _____

Subdivision _____ Lot _____ Block _____

F. GENERAL LOCATION AND DESCRIPTION OF WETLAND BOUNDARY

G. MAP AND AIR PHOTO REFERENCES

1. USGS 1:63,360 Map # _____

2. National Wetlands Inventory Map # _____

3. Aerial Photos:

a. Date most recent photo taken _____

b. Scale _____

c. Flight Line # _____

H. WETLAND SIZE

Total Wetland Size: _____ Acres

SECTION 1. HYDROLOGICAL COMPONENT

FLOW STABILIZATION

1.1 TYPE OF STORMWATER THAT WETLANDS DETAINS (Check one)

- (10) _____ Man-induced and natural (ambient) storm flows
- (5) _____ Man-induced stormwater flows only
- (2) _____ Natural (ambient) stormwater flow
- (1) _____ Minimal stormwater detention

1.2 POSITION OF WETLANDS WITHIN WATERSHED (State Park or National Forest boundary as upper limit)

- (10) _____ In upper third of watershed
- (5) _____ In middle third of watershed
- (2) _____ In lower third of watershed

1.3 LAND USE ALONG WATERWAY OR WETLANDS FOR .5 MILES BELOW WETLAND (Check one)

- (10) _____ Developed residential/commercial/industrial area located within .5 miles of outflow
- (5) _____ Lands below outflow are undeveloped and/or outflow enters lake, stream or wetland
- (2) _____ Developed residential/commercial/industrial area located >.5 miles downstream of outflow

SIZE

1.4 SIZE EVALUATION

Wetland Size (Acres)	Total Points	Wetland Size (Acres)	Total Points
< 1	1	44 - 53	10
1 - 4	2	54 - 64	12
5 - 8	3	65 - 77	14
9 - 12	4	78 - 92	16
13 - 17	5	93 - 110	18
18 - 22	6	111 - 128	20
23 - 28	7	129 - 160	22
29 - 35	8	161 - 200	24
36 - 43	9	> 200	25

Points: _____ (maximum = 25 points)

FLOW RETENTION/FLOOD CONTROL

1.5 SIZE OF CATCHMENT BASIN _____ acres

Wetlands area as a % of catchment basin size _____ %

Catchment Basin Evaluation Points Table

Basin Size (acres)	Wetland Area as % of Basin Size								
	<3	3-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80+
<1	1	1	3	5	7	9	11	13	15
1 - 3	2	4	6	8	10	12	14	16	18
4 - 9	4	6	8	10	12	14	16	18	20
10 - 27	6	8	10	12	14	16	18	20	22
28 - 81	9	11	13	15	18	21	23	25	25
82 - 243	12	15	18	21	24	25	25	25	25
244 - 729	15	19	23	25	25	25	25	25	25
730 - 2,100	18	22	25	25	25	25	25	25	25
2,101 - 6,500+	22	25	25	25	25	25	25	25	25

Points for Flow Augmentation: _____ (maximum = 25 points)

1.6 SUBJECT WETLANDS AS A PERCENTAGE OF TOTAL WETLANDS ACREAGE IN CATCHMENT BASIN

- (2) _____ 0-20%
- (5) _____ 21-40%
- (10) _____ 41-60%
- (15) _____ 61-80%
- (20) _____ 81-100%

WATER QUALITY

1.7 SITE TYPE (Check dominant site)

- (1) _____ Palustrine (isolated)
- (5) _____ Palustrine (with permanent or ephemeral flow)
- (7) _____ Riverine
- (10) _____ Riverine (at river mouth)
- (8) _____ Lacustrine (exposed to lake)

1.8 SENSITIVE AREAS BELOW SUBJECT WETLANDS (Identify types of areas/uses downstream of outlet or downgradient of groundwater outflow that are positively influenced by subject wetlands.)

Check all that apply.

- _____ Fish spawning and rearing habitat
- _____ Sport fishing area
- _____ Potable water sources
- _____ Contact water recreation area
- _____ Waterbird nesting habitat (high numbers and diversity of nesting species)

2 points each (maximum = 10 points)

1.9 ACTUAL WETLANDS AREA DOMINATED BY ROBUST EMERGENTS AND SUBMERGENTS (Check one)

- (1) _____ < 5% coverage
- (2) _____ 5-10% cov
- (3) _____ 10-20% coverage
- (6) _____ 20-40% coverage
- (10) _____ 40-60% coverage
- (15) _____ >60% coverage

1.10 GENERALIZED LAND USE IN CATCHMENT BASIN (Check one)

- (1) _____ Mainly parks and open space
- (3) _____ Mixture of parks/open space and residential
- (5) _____ Mainly residential
- (7) _____ Mixture of residential and commercial
- (9) _____ Mainly commercial
- (11) _____ Mixture of commercial and industrial
- (15) _____ Mainly industrial

1.11 LONG-TERM NUTRIENT TRAP (Check one)

- (10) _____ Wetland with organic soils on 50%+ of area
- (5) _____ Wetland with organic soils on < 50% of area, mineral soils or very shallow peat

1.12 WATER QUALITY MAINTENANCE (Check one)

- (20) _____ Inflow to wetlands is of poor quality (e.g., storm drains, snow disposal, industrial runoff) and detention time is several days and storage capacity is high. Wetlands is obvious filter and/or is a nutrient sink
- (12) _____ Inflow is from stream flows or from storm event overflow and detention time is moderate. Area has moderate storage capacity and moderate nutrient uptake
- (8) _____ Inflow is from stream flows or storm events but is from relatively undisturbed or undeveloped areas and detention time and storage capacity are moderate
- (2) _____ Essentially no inflow and/or very short detention time and low storage capacity

EROSION CONTROL

1.13 EROSION BUFFER (Lacustrine/Riverine only)

Riverine Wetlands (shoreland and floodplain) (check principal vegetation form)

- (10) _____ Trees or shrubs
- (5) _____ Emergents, submergents
- (1) _____ Sparsely vegetated

Lacustrine Wetlands (including floodplain)

- (10) _____ Trees or shrubs
- (8) _____ Emergents
- (4) _____ Submergents or floating
- (1) _____ Sparsely vegetated

TOTAL FOR HYDROLOGIC COMPONENT: _____
(Maximum = 200 points)

SECTION 2. HABITAT COMPONENT

HABITAT STRUCTURE AND FUNCTION

- 2.1 VEGETATION COMMUNITY STRUCTURE (see Figs., this Appendix.) Identify forms for each community type in subject wetland. Particular form must cover at least 5 percent of site. (Maximum points = 25)

Example: Subject wetlands has 4 communities. Within each community, identify each (and all) form(s) and fill in appropriate lines below:

- A. One Form (1 point per community)

Community # List Form

_____	_____
_____	_____
_____	_____

- B. Two Forms (2 points per community)

Community # List Forms

_____	_____	_____
_____	_____	_____
_____	_____	_____

- C. Three Forms (3 points per community)

Community # List Forms

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

- D. Four Forms (4 points per community)

Community # List Forms

_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

E. Five Forms (5 points per community)

Community # List Forms

_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

F. Six or More Forms (6 points per community)

Community # List Forms

_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

SPATIAL ATTRIBUTES

2.2 NUMBER OF WETLANDS PLANT COMMUNITIES (From Hogan and Tande, 1983, see Plant Communities list, this Appendix.) (Count only numbered plant communities.)

- (5) _____ > 7 List Communities:
(4) _____ 5 - 7
(3) _____ 2 - 4
(1) _____ 1

2.3 INTRASPERSION/EDGE EFFECT OF COMMUNITY TYPES (See Figures, this Appendix.) (Find pattern which most closely resembles subject wetlands)

- (1) _____ Type 1
(2) _____ Type 2
(3) _____ Type 3
(4) _____ Type 4

2.4 DIVERSITY OF SURROUNDING HABITAT (Check all that apply) (Within .25 mile of wetlands edge = Migratory Corridors) (maximum = 12 points)

- (1) _____ Pasture, open fields, nursery or sod farm
(2) _____ Mixed deciduous/coniferous forest
(1) _____ Urban residential development
(3) _____ Open lake
(2) _____ Undulating, undeveloped terrain and/or wooded ravines
(3) _____ Creeks, drainageways or ephemeral streams

2.5 PROXIMITY TO OTHER WETLANDS HABITATS

- (10) _____ Hydrologically connected by surface flow to other wetlands (different type) within .25 mile
- (8) _____ Hydrologically connected by surface flow to other wetlands (different type) from .25 to .5 miles away
- (6) _____ Hydrologically connected by surface flow to other wetlands (same type) or open water within .25 mile
- (5) _____ Hydrologically connected by surface flow to other wetlands (same type) or open water from .25 to .5 mile away
- (4) _____ Within .5 mile of other wetlands (different type) or open water, but not hydrologically connected by surface flow
- (2) _____ Within .5 mile of other wetlands (same type) but not hydrologically connected by surface flow
- (0) _____ No wetland within .5 mile

2.6 OPEN WATER TYPES (See Figures; this Appendix.) (Find pattern which most closely resembles subject wetlands.)

- (0) _____ No open water
- (4) _____ Type 1
- (5) _____ Type 2
- (7) _____ Type 3
- (9) _____ Type 4
- (12) _____ Type 5
- (4) _____ Type 6
- (7) _____ Type 7
- (3) _____ Type 8

WETLAND PRODUCTIVITY

2.7 HARDINESS ZONE (See Appendix B.) (Extrapolate for outlying areas.)

- (5) _____ Zone 5-6
- (3) _____ Zone 4
- (2) _____ Type 3
- (1) _____ Type 2

2.8 SOILS TYPE (In upper 3 feet, from SCS, or other soils survey) _____

% of Area			
Mineral	_____	X 5	_____
Organic	_____	X 2	_____
Clays	_____	X 1	_____

2.9 TYPE OF WETLAND (smallest unit = 4,000 sq ft)

<u>Approximate Area (acres)</u>	<u>% of Total</u>
_____ Palustrine (isolated)	_____ X 2 = _____
_____ Palustrine (with outflow)	_____ X 3 = _____
_____ Riverine	_____ X 4 = _____
_____ Riverine (at mouth)	_____ X 5 = _____
_____ Lacustrine (next to lake)	_____ X 4 = _____
_____ Lacustrine (open water)	_____ X 2 = _____
Total Points = _____	

2.10 NUTRIENT STATUS OF SURFACE WATER

A. Write conductivity reading and calculate Total Dissolved Solids (TDS) @ 25°C per tables in Appendix C. Readings to be taken at all outflows of subject wetlands.

<u>Location Sampled</u>	<u>Initial Specific Conductants</u>	<u>Temperature</u>	<u>TDS mg/l</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Average TDS: _____

B. Check category from A

Average TDS, mg/l

- (2) _____ < 100
- (6) _____ 100 - 300
- (3) _____ 301 - 500
- (2) _____ > 500 Type 2

WATER REGIME

2.11 SURFACE WATER PERSISTENCE (% probability of surface water present during the period April to July)

- (2) _____ 0 to 50% of April-July
- (6) _____ 50 to <100% of April-July
- (10) _____ 100% of April-July

2.12 WATER BODY SIZE (Estimate size of smallest open water body during period April-July)

- (2) _____ 400 sq ft or less
- (5) _____ 400 sq ft to .5 acre
- (10) _____ .5 acre to 4 acres
- (15) _____ > 4 acres

2.13 WETLAND CONTIGUITY WITH STREAM OR LAKE

- (0) _____ Wetland isolated from stream/lake
- (3) _____ Wetland drains/is connected to stream/lake
- (5) _____ Stream or lake lies within wetland

2.14 WETLAND SIZE

*Add points from 2.1 to 2.13

Size (Habitat Component) Evaluation Table

Acres	Sum of Habitat Component Points*						
	< 15	15 - 30	31 - 45	46 - 60	61 - 75	76 - 90	> 90
< 2	4	6	7	8	9	10	11
2 - 4	4	6	8	9	10	11	14
5 - 8	5	7	9	11	13	15	18
9 - 12	5	8	10	12	14	17	20
13 - 17	6	9	11	14	16	19	24
18 - 23	6	11	14	16	18	22	29
24 - 28	7	11	14	18	20	27	35
29 - 37	7	12	16	21	25	32	39
38 - 49	7	13	18	23	27	34	44
50 - 62	8	15	20	26	31	38	48
63 - 81	8	17	23	32	36	43	53
82 - 105	9	18	26	34	38	47	57
106 - 137	9	19	29	36	42	52	62
138 - 178	10	20	32	39	45	57	67
179 - 233	10	22	36	43	48	62	72
234 - 302	10	24	39	48	52	68	78
303 - 400	11	26	43	53	56	73	80
> 400	11	30	46	58	63	78	80

Total Points: _____ (maximum = 80)

TOTAL FOR HABITAT POTENTIAL COMPONENT: _____
(Maximum = 200 points)

SECTION 3. SPECIES OCCURRENCE COMPONENT

Note: Answers to all sections marked with an * should be listed on the final page score sheet.

RARITY AND/OR SCARCITY

3.1* HABITAT FOR PLANT SPECIES OF STATEWIDE SIGNIFICANCE (See this Appendix.) (Species listed as threatened/endangered in Alaska; or known from a very few sites statewide)

Name of Species: _____ (1 species = 10 points)
_____ (2 species = 15 points)
_____ (3+ species = 25 points)
_____ (0 species = 0 points)

3.2* BREEDING, FEEDING, SPAWNING, OR REARING HABITAT FOR BIRD OR ANADROMOUS FISH SPECIES SIGNIFICANT TO THE MUNICIPALITY OF ANCHORAGE (Existing or historic within past 5 years) (See this Appendix.)

Name of Species: _____ (1 species = 5 points)
_____ (2 species = 8 points)
_____ (3+ species = 15 points)
_____ (0 species = 0 points)

3.3* HABITAT FOR PLANT SPECIES RARE OR UNIQUE IN THE MUNICIPALITY OF ANCHORAGE (See this Appendix)

Name of Species: _____ (1 species = 4 points)
_____ (2 species = 7 points)
_____ (3 species = 12 points)

3.4 SCARCITY VALUE (Subject wetlands type as % of total type in catchment basin; calculate % for all types in subject area.)

Wetland Type in Acres (A)	Total Acreage of Type in Basin (B)	A/B as %	A/B (%) X 10

Total Points: _____ (maximum = 16 points)

SIGNIFICANT FEATURES

3.5 NESTING OF COLONIAL WATERBIRDS (Red-necked Grebe, Canada Goose, Glaucous-Winged/Herring Gull, Mew Gull, Bonaparte's Gull)

- (12)* _____ Currently nesting; name species
- (9) _____ Known to have nested in past 5 years; name species
- (6) _____ Active feeding area in nesting season
- (3) _____ Staging area for colonial waterbirds
- (0) _____ None known

3.6 WATERFOWL STAGING (Check highest level)

- (15)* _____ High importance within Municipality; supports high numbers of several species
- (10) _____ Moderate importance
- (5) _____ Very local importance
- (0) _____ Not used for staging

3.7 WATERBIRD PRODUCTION (Check highest level)

- (15)* _____ High importance; produces several broods of several species
- (10) _____ Moderate importance
- (5) _____ Minimal or no significance

3.8 BREEDING BIRD DIVERSITY

- (25)* _____ Nesting occurs for >8 obligate wetlands species, and/or (circle one) >15 total species
(15) _____ Nesting occurs for 4 to 8 obligate wetlands species, and/or (circle one) 8-15 total species
(5) _____ Nesting occurs for <4 obligate wetlands species, and/or (circle 1) <8 total species

3.9 MIGRATORY BIRD STAGING AREA (Non-waterfowl species)

- (15)* _____ High significance (annual use by >25 species)
(5) _____ Moderate significance (can occasionally be significant; annual use by 10-25 species)
(1) _____ No significance (annual use by <10 species)

3.10 SIGNIFICANCE FOR FISH SPAWNING (Number of species that spawn in immediately adjacent waterbody)

- (25)* _____ 5+ species
(15) _____ 2-4 species
(5) _____ 1 species
(0) _____ No species

3.11 SIGNIFICANCE FOR FISH REARING (Number of fish species that use wetlands or immediately adjacent waterbody for rearing)

- (25)* _____ 5+ species
(15) _____ 2-4 species
(5) _____ 1 species
(0) _____ No species

TOTAL FOR SPECIES OCCURRENCE COMPONENT: _____
(Maximum = 200 points)

SECTION 4. SOCIAL FUNCTION COMPONENT

EXISTING RECREATIONAL ACTIVITIES

4.1 TYPE OF WETLAND-ASSOCIATED USE

Use Intensity (see definitions below)	Hunting	Passive Recreation	Fishing	Boating	Other
High (10 points)					
Moderate (5 points)					
Low (2 points)					
None Known/Not Possible (0 points)					

- Use Intensities:**
- High Used in several seasons by numerous individuals and/or groups
 - Moderate Used in one to two seasons by a few individuals (from local area) and/or by a single group
 - Low Used irregularly by a very few individuals

Points: _____ (maximum = 50 points)

4.2 EDUCATIONAL USE (Known or potential)

- (15) _____ Frequent: Used 5+ times per year by schools, clubs or tour groups
- (8) _____ Occasional: Used 2-5 times per year
- (4) _____ Infrequent: Used by organized groups once/year
- (2) _____ No known educational use but in close proximity to schools
- (0) _____ No known or potential use

List groups utilizing the wetlands:

4.3 FACILITIES AND PROGRAMS

- (5) _____ Area has interpretive trail or other educational function
- (0) _____ No facilities or programs

WETLANDS RECREATION POTENTIAL

4.4 LANDSCAPE DISTINCTNESS (Identify subject wetland's relative position and value to viewshed from all perspectives.)

- (15) _____ Clearly distinct in urban area
- (8) _____ Distinct in rural area
- (0) _____ Indistinct

4.5 TYPES OF DISTURBANCE (Check all that apply and total.)

- _____ Roads/trails
- _____ Buried utility corridor
- _____ Surface utility corridor
- _____ Channelization
- _____ Drainage
- _____ Filling
- _____ Water pollution
- _____ Clearing/grubbing
- _____ ORV use

Add and subtract from total points (either 0 or a minus number)

4.6 DEGREE OF DISTURBANCE/AESTHETIC VALUES

- (15) _____ Human disturbance absent or nearly so
- (10) _____ One or several single, or local disturbances
- (6) _____ Moderate disturbance or local water pollution
- (2) _____ Impaired natural quality is intense in some areas or severe local water pollution
- (0) _____ Extremely intense disturbance or widespread, severe water pollution

4.7 PUBLIC USE/OPEN SPACE VALUE (Deficiency is based on Municipal park plans)

- (15) _____ Wetland is within 1 mile of area known to be relatively deficient in parkland/open space or provides direct access to adjacent public lands
- (8) _____ Wetland is within 1 to 2.5 miles of an area known to be deficient in parkland or could (but does not) provide access to adjacent public lands
- (0) _____ Wetland is >2.5 miles away from area known to be deficient in parkland and does not provide access to public lands

4.8 LAND IDENTIFICATION AS PARKLAND (Specific to Municipality of Anchorage)

- (10) _____ Wetlands identified as dedicated parkland in Municipal document
- (5) _____ Wetlands identified as potential future park, open space or trail in Parks/Trails plan
- (2) _____ Wetlands is identified Municipal selection from State or is in Heritage Land Bank and of little commercial value
- (0) _____ Not applicable

4.9 RESEARCH AND STUDIES

- (5) _____ One or more wetland-related paper published
- (2) _____ One or more reports written about some aspect of the wetlands
- (0) _____ No reports or papers

List reports or papers _____

4.10 OWNERSHIP/ACCESSIBILITY (Estimate % of area, enter in the space, and multiply by points values (in brackets). Round off figures to nearest whole number and total points.)

	Ownership				
	Public/ Unrestricted	Public/ Restricted	Private/Open to Public	Private/Closed to Public	Private/ Posted
Easy by Road, Water or Trail	_____ (20)	_____ (15)	_____ (8)	_____ (3)	_____ (2)
Easy Only at Certain Times	_____ (15)	_____ (8)	_____ (4)	_____ (3)	_____ (2)
Limited, With Some Effort	_____ (8)	_____ (7)	_____ (4)	_____ (3)	_____ (2)
Difficult	_____ (7)	_____ (6)	_____ (3)	_____ (2)	_____ (0)

Total Points: _____

TOTAL FOR SOCIAL FUNCTION COMPONENT: _____
 (Maximum = 150 points)

POINTS TOTALS:

SECTION 1. HYDROLOGIC COMPONENT

SECTION 2. HABITAT COMPONENT

SECTION 3. SPECIES OCCURRENCE COMPONENT

SECTION 4. SOCIAL FUNCTION COMPONENT

List all significant features marked with an * in Sections 3.1 - 3.11

MANAGEMENT RECOMMENDATIONS:

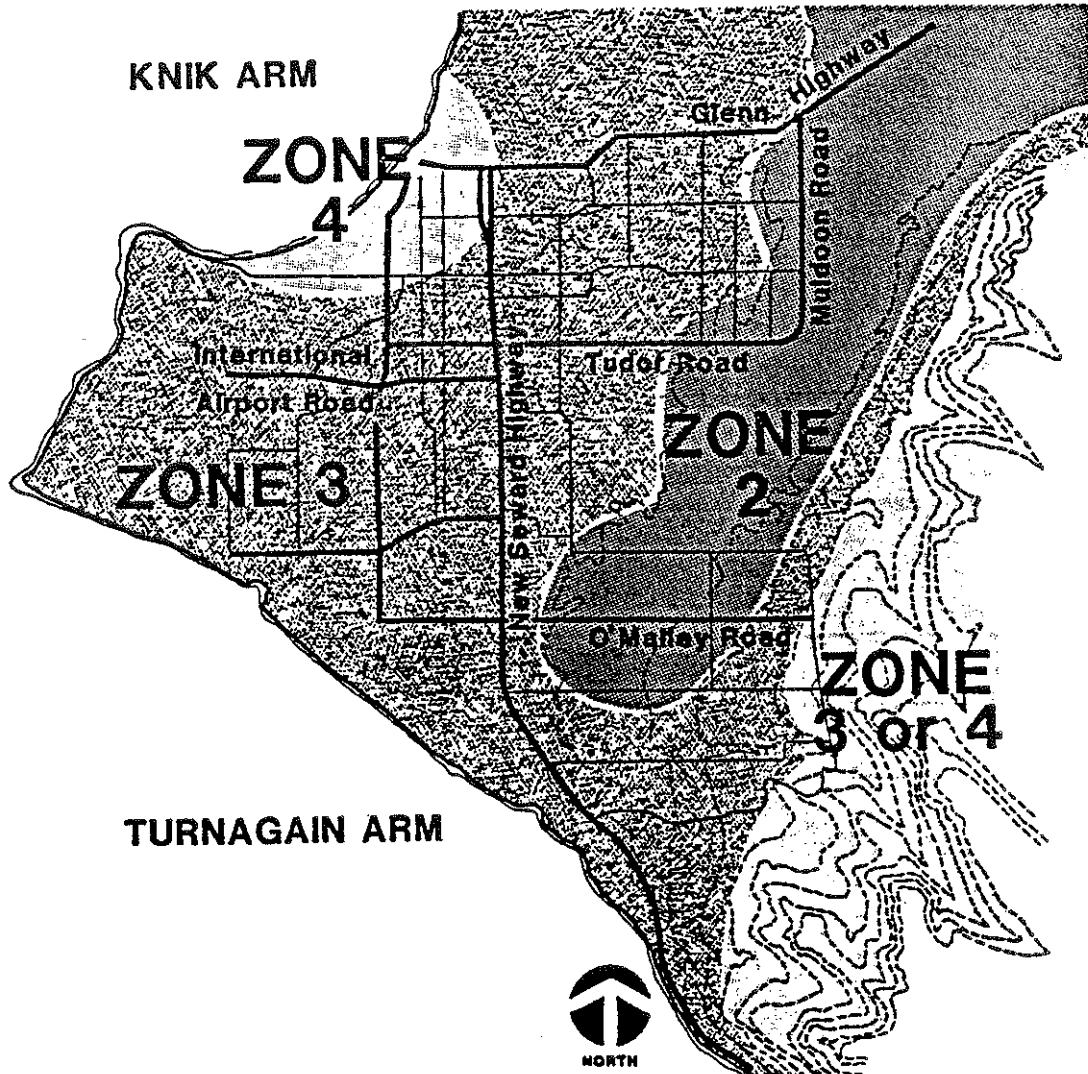
MISCELLANEOUS COMMENTS/EXISTING CONDITIONS:

SKETCH MAP OF AREA AND IMPORTANT FEATURES (on back of sheet, if appropriate):

APPENDIX C

Anchorage Bowl Hardiness Zone Map

Anchorage Bowl Hardiness Zone Map



ZONE 2 Cold-Air Basin

A cold-air basin is formed at the base of the Chugach Mountains from the downhill flow of cold air, and intensified by channelled winter winds from the North.

Zone 2 is classified with -50 to -35 degrees minimum annual temperature.*

ZONE 3 Predominant Climate

Zone 3 is the predominant and average climate for the Anchorage Bowl.

This area is classified with -35 to -20 degrees minimum annual temperature.

ZONE 4 Milder Pockets

Two micro-climates exhibit Zone 4 temperatures: a coastal pocket near the Knik Arm with milder winters, cooler summers, and a longer growing season; and a hillside thermal belt above the cold-air basin with milder winters, but a significantly shorter growing season.

Zone 4 is classified with -20 to -10 degrees minimum annual temperature.*

* Based on the hardiness zones for North America developed by the Arnold Arboretum in Boston.

APPENDIX D

Conductivity – TDS Conversion Chart

CELL TEMPERATURE °C

INITIAL SPECIFIC CONDUCTANCE umhos/cm

	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
15.0	17.2	16.6	16.1	15.6	15.1	14.7	14.3	13.9	13.5	13.1	12.8	12.5	12.2	11.8	11.6	11.4	11.1	10.9	10.6	10.4	10.2	10.0	9.8	9.6	9.4	9.3	9.1	15.0
15.5	17.8	17.2	16.8	16.1	15.8	15.2	14.7	14.3	13.9	13.6	13.2	12.8	12.6	12.3	12.0	11.7	11.5	11.2	11.0	10.8	10.5	10.3	10.1	9.9	9.7	9.6	9.4	15.5
16.0	18.4	17.8	17.2	16.6	16.1	15.7	15.2	14.8	14.4	14.0	13.7	13.3	13.0	12.7	12.4	12.1	11.8	11.6	11.3	11.1	10.9	10.7	10.4	10.2	10.1	9.9	9.7	16.0
16.5	18.9	18.3	17.7	17.2	16.8	16.2	15.7	15.3	14.8	14.5	14.1	13.7	13.4	13.1	12.8	12.5	12.2	11.9	11.7	11.4	11.2	11.0	10.8	10.6	10.4	10.2	10.0	16.5
17.0	19.5	18.9	18.3	17.7	17.2	16.8	16.2	15.7	15.3	14.9	14.5	14.2	13.8	13.5	13.2	12.9	12.6	12.3	12.0	11.8	11.6	11.3	11.1	10.9	10.7	10.5	10.3	17.0
17.5	20.1	19.4	18.8	18.2	17.7	17.1	16.6	16.2	15.7	15.3	14.9	14.6	14.2	13.9	13.6	13.2	12.9	12.7	12.4	12.1	11.9	11.7	11.4	11.2	11.0	10.8	10.6	17.5
18.0	20.7	20.0	19.3	18.7	18.2	17.6	17.1	16.6	16.2	15.8	15.4	15.0	14.6	14.3	13.9	13.6	13.3	13.0	12.8	12.5	12.2	12.0	11.8	11.5	11.3	11.1	10.9	18.0
18.5	21.2	20.5	19.8	19.3	18.7	18.1	17.6	17.1	16.6	16.2	15.8	15.4	15.0	14.7	14.3	14.0	13.7	13.4	13.1	12.8	12.6	12.3	12.1	11.8	11.6	11.4	11.2	18.5
19.0	21.8	21.1	20.4	19.8	19.2	18.6	18.1	17.6	17.1	16.6	16.2	15.8	15.4	15.1	14.7	14.4	14.1	13.8	13.5	13.2	12.9	12.7	12.4	12.2	11.9	11.7	11.5	19.0
19.5	22.4	21.6	20.9	20.3	19.7	19.1	18.6	18.0	17.5	17.1	16.6	16.2	15.8	15.5	15.1	14.8	14.4	14.1	13.8	13.5	13.3	13.0	12.7	12.5	12.3	12.0	11.8	19.5
20.0	23.0	22.2	21.5	20.8	20.2	19.6	19.0	18.5	18.0	17.5	17.1	16.6	16.2	15.9	15.5	15.1	14.8	14.5	14.2	13.9	13.6	13.3	13.1	12.8	12.6	12.3	12.1	20.0
22.5	25.8	25.0	24.2	23.4	22.7	22.0	21.4	20.8	20.2	19.7	19.2	18.7	18.3	17.9	17.4	17.0	16.6	16.3	15.9	15.6	15.3	15.0	14.7	14.4	14.1	13.8	13.6	22.5
25.0	28.7	27.7	26.9	26.0	25.2	24.5	23.8	23.1	22.5	21.9	21.3	20.8	20.3	19.8	19.4	18.9	18.5	18.1	17.7	17.3	17.0	16.6	16.3	16.0	15.7	15.4	15.1	25.0
27.5	31.6	30.5	29.5	28.6	27.7	26.9	26.2	25.4	24.7	24.1	23.5	22.9	22.3	21.8	21.3	20.8	20.3	19.9	19.5	19.1	18.7	18.3	18.0	17.6	17.3	17.0	16.6	27.5
30.0	34.4	33.3	32.2	31.2	30.3	29.4	28.5	27.7	27.0	26.3	25.6	25.0	24.4	23.8	23.2	22.7	22.2	21.7	21.3	20.8	20.4	20.0	19.6	19.2	18.8	18.5	18.2	30.0
32.5	37.3	36.1	34.9	33.8	32.8	31.8	30.9	30.1	29.2	28.5	27.7	27.1	26.4	25.8	25.2	24.6	24.0	23.5	23.0	22.5	22.1	21.6	21.2	20.8	20.4	20.0	19.7	32.5
35.0	40.2	38.8	37.6	36.4	35.3	34.3	33.3	32.4	31.5	30.7	29.9	29.1	28.4	27.7	27.1	26.5	25.9	25.3	24.8	24.3	23.8	23.3	22.9	22.4	22.0	21.6	21.2	35.0
37.5	43.1	41.6	40.3	39.0	37.8	36.7	35.7	34.7	33.7	32.9	32.0	31.2	30.5	29.7	29.0	28.4	27.7	27.1	26.6	26.0	25.5	25.0	24.5	24.0	23.6	23.1	22.7	37.5
40.0	45.9	44.4	43.0	41.6	40.4	39.2	38.1	37.0	36.0	35.1	34.2	33.3	32.5	31.7	31.0	30.3	29.6	29.0	28.3	27.7	27.2	26.6	26.1	25.6	25.1	24.7	24.2	40.0
42.5	48.8	47.2	45.7	44.2	42.9	41.6	40.4	39.3	38.2	37.2	36.3	35.4	34.5	33.7	32.9	32.2	31.4	30.8	30.1	29.5	28.9	28.3	27.8	27.2	26.7	26.2	25.7	42.5
45.0	51.7	49.9	48.3	46.8	45.4	44.1	42.8	41.6	40.5	39.4	38.4	37.5	36.5	35.7	34.8	34.1	33.3	32.6	31.9	31.2	30.6	30.0	29.4	28.8	28.3	27.8	27.2	45.0
47.5	54.5	52.7	51.0	49.4	47.9	46.5	45.2	43.9	42.7	41.6	40.6	39.5	38.6	37.7	36.8	35.9	35.1	34.4	33.7	33.0	32.3	31.6	31.0	30.4	29.8	29.3	28.8	47.5
50.0	57.4	55.5	53.7	52.0	50.5	49.0	47.6	46.2	45.0	43.8	42.7	41.6	40.6	39.6	38.7	37.8	37.0	36.2	35.4	34.7	34.0	33.3	32.6	32.0	31.4	30.8	30.3	50.0
55.0	63.2	61.0	59.1	57.2	55.5	53.9	52.3	50.9	49.5	48.2	47.0	45.8	44.7	43.6	42.6	41.6	40.7	39.8	39.0	38.2	37.4	36.6	35.9	35.2	34.6	33.9	33.3	55.0
60.0	68.8	66.6	64.5	62.4	60.5	58.8	57.1	55.5	54.0	52.6	51.2	49.9	48.7	47.6	46.5	45.4	44.4	43.4	42.5	41.6	40.8	40.0	39.2	38.4	37.7	37.0	36.3	60.0
65.0	74.6	72.1	69.8	67.6	65.6	63.7	61.8	60.1	58.5	57.0	55.5	54.1	52.8	51.5	50.3	49.2	48.1	47.1	46.1	45.1	44.2	43.3	42.4	41.6	40.8	40.1	39.4	65.0
70.0	80.4	77.7	75.2	72.8	70.6	68.6	66.6	64.7	63.0	61.3	59.9	58.3	56.9	55.5	54.2	53.0	51.8	50.7	49.6	48.6	47.6	46.6	45.7	44.8	44.0	43.2	42.4	70.0
75.0	86.1	83.2	80.8	78.0	75.7	73.5	71.4	69.4	67.5	65.7	64.0	62.4	60.8	59.5	58.1	56.8	55.5	54.3	53.1	52.0	51.0	49.9	48.9	48.0	47.1	46.3	45.4	75.0
80.0	91.9	88.8	85.9	83.2	80.7	78.4	76.1	74.0	72.0	70.1	68.3	66.6	65.0	63.4	62.0	60.5	59.2	57.9	56.7	55.5	54.5	53.3	52.2	51.2	50.3	49.3	48.4	80.0
85.0	97.8	94.3	91.3	88.5	85.8	83.2	80.9	78.6	76.5	74.5	72.6	70.8	69.0	67.4	65.8	64.3	62.9	61.5	60.2	59.0	57.8	56.6	55.5	54.4	53.4	52.4	51.5	85.0
90.0	103.3	99.8	96.7	93.7	90.8	88.1	85.6	83.2	81.0	78.9	76.8	74.9	73.1	71.4	69.7	68.1	66.6	65.2	63.8	62.4	61.2	59.9	58.8	57.6	56.5	55.5	54.5	90.0
95.0	108.1	104.4	101.0	98.0	95.0	92.0	90.4	87.9	85.5	83.2	81.1	79.1	77.2	75.3	73.6	71.9	70.3	68.8	67.3	65.9	64.6	63.3	62.0	60.8	59.7	58.6	57.5	95.0
100.0	114.8	111.0	107.4	104.1	100.9	97.9	95.1	92.5	90.0	87.6	85.4	83.2	81.2	79.3	77.4	75.7	74.0	72.4	70.9	69.4	68.0	66.6	65.3	64.0	62.8	61.7	60.5	100.0
125.0	143.5	138.7	134.3	130.1	126.1	122.4	118.9	115.8	112.5	109.5	106.7	104.1	101.5	99.1	96.8	94.6	92.5	90.5	88.6	86.7	84.9	83.2	81.6	80.0	78.5	77.1	75.7	125.0
150.0	172.2	166.5	161.1	156.1	151.4	146.9	142.7	138.7	135.0	131.4	128.1	124.9	121.8	118.9	116.2	113.5	111.0	108.6	106.3	104.1	101.9	99.9	97.9	96.1	94.2	92.5	90.8	150.0
175.0	200.9	194.2	188.0	182.1	176.6	171.4	166.5	161.8	157.5	153.4	149.4	145.7	142.1	138.7	135.5	132.4	129.5	126.7	124.0	121.4	118.9	116.5	114.3	112.1	110.0	107.9	106.0	175.0
200.0	229.7	222.0	214.8	208.1	201.8	195.9	190.3	185.0	180.0	175.3	170.8	166.5	162.4	158.6	154.9	151.4	148.0	144.6	141.2	138.7	136.0	133.2	130.6	128.1	125.7	123.3	121.1	200.0
225.0	258.4	249.7	241.7	234.1	227.0	220.4	214.1	208.1	202.5	197.2	192.1	187.3	182.7	178.4	174.2	170.3	166.5	162.9	159.4	156.1	152.9	149.8	146.8	144.1	141.4	138.8	136.2	225.0
250.0	287.1	277.5	268.5	260.2	252.3	244.8	237.8	231.2	225.0	219.1	213.5	208.1	203.0	198.2	193.6	189.2	185.0	181.0	177.1	173.4	169.9	166.5	163.2	160.1	157.1	154.2	151.4	250.0
275.0	315.9	305.2	295.4	286.2	277.5	269.3	261.8	254.4	247.5	241.0	234.8	228.9	223.4	218.0	213.0	208.1	203.5	199.1	194.8	190.8	186.9	183.1	179.6	176.1	172.8	169.6	166.5	275.0

Table A - CONDUCTIVITY - TDS CONVERSION CHART

March 1982

CELL TEMPERATURE °C

INITIAL SPECIFIC CONDUCTANCE umhos/cm

	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
300.0	344.5	333.0	322.3	312.2	302.7	293.8	285.4	277.5	270.0	262.9	256.2	249.7	243.7	237.9	232.3	227.0	222.0	217.2	212.6	208.1	203.9	199.8	195.9	192.1	188.5	185.0	181.6	300.0
325.0	373.2	360.7	349.1	338.2	328.0	318.0	308.2	300.6	292.5	284.8	277.5	270.8	264.0	257.7	251.7	246.0	240.5	235.3	230.3	225.5	220.9	216.4	212.2	208.1	204.2	200.4	196.8	325.0
350.0	401.9	388.5	376.0	364.2	353.2	342.8	333.0	323.7	315.0	306.7	298.8	291.4	284.3	277.6	271.0	264.9	259.0	253.4	248.0	242.8	237.9	233.1	228.5	224.1	219.9	215.8	211.9	350.0
375.0	430.6	416.2	402.8	390.2	378.4	367.3	356.8	346.9	337.5	328.6	320.2	312.2	304.6	297.3	290.4	283.8	277.5	271.5	265.7	260.2	254.8	249.7	244.9	240.1	235.6	231.3	227.0	375.0
400.0	459.3	444.0	429.7	416.2	403.6	391.8	380.6	370.0	360.0	350.5	341.5	333.0	324.9	317.1	309.8	302.7	295.8	289.6	283.4	277.5	271.8	266.4	261.2	256.2	251.3	246.7	242.2	400.0
425.0	488.0	471.7	456.5	442.3	428.9	416.2	404.4	393.1	382.5	372.4	362.9	353.8	345.2	337.0	329.1	321.6	314.5	307.7	301.1	294.8	288.8	283.0	277.5	272.2	267.0	262.1	257.3	425.0
450.0	516.7	499.5	483.4	468.3	454.1	440.7	428.1	416.2	405.0	394.3	384.2	374.6	365.5	356.8	348.5	340.6	333.0	325.8	318.8	312.2	306.6	299.7	293.8	288.2	282.7	277.5	272.5	450.0
475.0	545.4	527.2	510.2	494.3	479.3	465.2	451.9	439.4	427.5	416.2	405.6	395.4	385.8	376.8	367.8	359.5	351.5	343.9	336.5	329.5	322.6	316.3	310.1	304.2	298.4	292.9	287.6	475.0
500.0	574.1	555.0	537.1	520.3	504.5	489.7	475.7	462.5	450.0	438.2	426.9	416.2	406.1	396.4	387.2	378.4	370.0	362.0	354.3	346.9	339.8	333.0	326.5	320.2	314.2	308.3	302.7	500.0
525.0	602.8	582.7	564.0	546.3	529.8	514.2	499.5	485.6	472.5	460.1	448.3	437.1	426.4	416.2	406.6	397.3	388.5	380.1	372.0	364.2	356.8	349.6	342.8	336.2	329.9	323.8	317.9	525.0
550.0	631.6	610.5	590.8	572.3	555.0	538.7	523.3	508.7	495.0	482.0	469.6	457.9	446.7	436.1	425.9	416.2	407.0	398.2	389.7	381.6	373.8	366.3	359.1	352.2	345.6	339.2	333.0	550.0
575.0	660.3	638.2	617.7	598.4	580.2	563.2	547.1	531.9	517.5	503.9	491.0	478.7	467.0	455.9	445.3	435.2	425.5	416.2	407.4	398.9	390.8	382.9	375.4	368.2	361.3	354.6	348.1	575.0
600.0	689.0	666.0	644.5	624.4	605.5	587.6	570.9	555.0	540.0	525.8	512.3	499.5	487.3	475.7	464.7	454.1	444.0	434.3	425.1	416.2	407.8	399.6	391.8	384.2	377.0	370.0	363.3	600.0
625.0	717.7	693.7	671.4	650.4	630.7	612.1	594.6	578.1	562.5	547.7	533.7	520.3	507.8	495.5	484.0	473.0	462.5	452.4	442.8	433.6	424.7	416.2	408.1	400.2	392.7	385.4	378.4	625.0
650.0	746.4	721.5	698.2	676.4	655.9	636.6	618.4	601.2	585.0	569.6	555.0	541.1	527.9	515.4	503.4	491.9	481.0	470.5	460.5	450.9	441.7	432.9	424.4	416.3	408.4	400.8	393.5	650.0
675.0	775.1	749.2	725.1	702.4	681.1	661.1	642.2	624.4	607.5	591.5	576.3	561.9	548.2	535.2	522.7	510.9	499.5	488.6	478.2	468.3	458.7	449.5	440.7	432.3	424.1	416.3	408.7	675.0
700.0	803.8	777.0	751.9	728.4	706.4	685.6	666.0	647.5	630.0	613.4	597.7	582.7	568.5	555.0	542.1	529.8	518.0	506.7	496.0	485.6	475.7	466.2	457.1	448.3	439.8	431.7	423.8	700.0
725.0	832.5	804.7	778.9	754.5	731.6	710.1	689.8	670.6	652.5	635.3	619.0	603.6	588.8	574.8	561.5	548.7	536.5	524.8	513.7	503.0	492.7	482.8	473.4	464.3	455.5	447.1	439.0	725.0
750.0	861.2	832.5	805.6	780.5	756.8	734.6	713.6	693.7	675.0	657.2	640.4	624.4	609.1	594.8	580.8	567.6	555.0	542.9	531.4	520.3	509.7	499.5	489.7	480.3	471.2	462.5	454.1	750.0
775.0	889.9	860.2	832.5	806.5	782.0	759.0	737.4	716.9	697.5	679.1	661.7	645.2	629.5	614.5	600.2	586.5	573.5	561.0	549.1	537.7	526.7	516.1	506.0	496.3	486.9	477.9	469.2	775.0
800.0	918.6	888.0	859.4	832.5	807.3	783.5	761.1	740.0	720.0	701.1	683.1	666.0	649.8	634.3	619.5	605.5	592.0	579.1	566.8	555.0	543.7	532.8	522.4	512.3	502.6	493.3	484.4	800.0
825.0	947.3	915.7	886.2	858.5	832.5	808.0	784.9	763.1	742.5	723.0	704.4	686.8	670.1	654.1	638.9	624.4	610.5	597.2	584.5	572.3	560.7	549.4	538.7	528.3	518.3	508.6	499.5	825.0
850.0	976.0	943.5	913.1	884.5	857.7	832.5	808.7	786.2	765.0	744.9	725.8	707.6	690.4	673.9	658.3	643.3	629.0	615.3	602.2	589.7	577.7	566.1	555.0	544.3	534.1	524.2	514.6	850.0
875.0	1004.7	971.2	939.9	910.5	883.0	857.0	832.5	809.4	787.5	766.8	747.1	728.4	710.7	693.7	677.8	662.2	647.5	633.4	619.9	607.0	594.6	582.7	571.3	560.3	549.8	539.6	529.8	875.0
900.0	1033.4	999.0	966.8	936.6	908.2	881.5	856.3	832.5	810.0	788.7	768.5	749.2	731.0	713.6	697.0	681.1	666.0	651.5	637.7	624.4	611.6	599.4	587.6	576.3	565.5	555.0	544.9	900.0
925.0	1062.2	1026.7	993.6	963.6	933.4	906.0	880.1	856.6	832.5	810.6	789.8	770.1	751.3	733.4	716.3	700.1	684.5	669.6	656.4	643.7	628.6	616.0	604.0	592.4	581.2	570.4	560.0	925.0
950.0	1090.9	1054.5	1020.5	988.6	958.6	930.4	903.9	878.7	855.0	832.5	811.2	790.9	771.8	753.2	735.7	719.0	703.0	687.7	673.1	659.1	645.8	632.7	620.3	608.4	596.9	585.8	575.2	950.0
975.0	1119.6	1082.2	1047.3	1014.8	983.9	954.9	927.8	901.9	877.5	854.4	832.5	811.7	791.9	773.0	755.1	737.9	721.5	705.8	690.8	676.4	662.6	649.3	636.6	624.4	612.6	601.3	590.3	975.0
1000.0	1148.3	1110.0	1074.2	1040.6	1009.1	979.4	951.4	925.0	900.0	876.3	853.6	832.5	812.2	792.9	774.4	756.8	740.0	723.9	708.5	693.7	679.6	666.0	652.9	640.4	628.3	616.7	605.5	1000.0
1050.0	1206.7	1185.5	1127.9	1092.7	1059.5	1028.4	999.0	971.2	945.0	920.1	896.5	874.1	852.8	832.5	813.1	794.7	777.0	760.1	743.9	728.4	713.6	699.3	685.6	672.4	659.7	647.5	635.7	1050.0
1100.0	1263.1	1221.0	1181.6	1144.7	1110.0	1077.4	1046.6	1017.5	990.0	963.9	939.2	915.7	893.4	872.1	851.9	832.5	814.0	796.3	779.4	763.1	747.6	732.6	718.2	704.4	691.1	678.3	666.0	1100.0
1150.0	1320.5	1276.5	1235.3	1196.7	1160.5	1126.3	1094.1	1063.7	1035.0	1007.8	981.9	957.4	934.0	911.8	890.6	870.3	851.0	832.5	814.8	797.8	781.5	765.9	750.9	736.4	722.5	709.2	696.3	1150.0
1200.0	1377.9	1332.0	1289.0	1248.7	1210.9	1175.3	1141.7	1110.0	1080.0	1051.6	1024.6	999.0	974.6	951.4	929.3	908.2	888.0	868.7	850.2	832.5	815.5	799.2	783.5	768.5	754.0	740.0	726.5	1200.0
1250.0	1435.3	1387.5	1342.7	1300.8	1261.4	1224.3	1189.3	1156.2	1125.0	1095.4	1067.3	1040.6	1015.2	991.1	968.0	946.0	925.0	904.9	885.6	867.2	849.5	832.5	816.2	800.5	785.4	770.8	756.8	1250.0
1300.0	1492.8	1443.0	1396.5	1352.8	1311.8	1273.2	1236.9	1202.5	1170.0	1139.2	1110.0	1082.2	1055.9	1030.7	1006.7	983.9	962.0	941.1	921.1	901.9	883.5	865.8	848.8	832.5	816.8	801.7	787.1	1300.0
1350.0	1550.2	1498.5	1450.2	1404.8	1362.3	1322.2	1284.4	1248.7	1215.0	1183.0	1152.7	1123.9	1096.5	1070.4	1045.5	1021.7	999.0	977.3	956.5	936.6	917.4	899.1	881.5	864.5	848.2	832.5	817.4	1350.0
1400.0	1607.6	1554.0	1503.9	1456.9	1412.7	1371.0	1332.0	1295.0	1260.0	1226.8	1195.4	1165.5	1137.1	1110.0	1084.2	1059.5	1036.0	1013.5	991.9	971.2	951.4	932.4	914.1	896.5	879.6	863.3	847.6	1400.0
1450.0	1665.0	1609.5	1557.8	1508.9	1463.2	1420.1	1379.6	1341.2	1305.0	1270.7	1238.1	1207.1	1177.7	1149.6	1122.9	1097.4	1073.0	1049.7	1027.3	1005.9	985.4	965.7	946.8	928.6	911.0	894.2	877.9	1450.0
1500.0	1722.4	1665.0	1611.3	1560.9	1513.6	1469.1	1427.1	1387.5	1350.0	1314.5	1280.8	1248.7	1218.3	1189.3	1161.6	1135.2	1110.0	1085.9	1062.8	1040.6	1019.4	999.0	979.4	960.6	942.5	925.0	908.2	1500.0
1550.0	1779.8	1720.5	1665.0	1613.0	1564.1	1518.1	1474.7	1433.7	1395.0	1358.3	1323.5	1290.4	1259.9	1229.9	1200.3	1173.1	1147.0	1122.1	1098.2	1075.3	1053.4	1032.3	1012.1	992.6	973.5	955.8	938.5	1550.0
1600.0	1837.2																											

APPENDIX E
Plant Communities

PLANT COMMUNITIES

UF	Upland Forest
1	Closed Needleleaf Forest
2	Open Needleleaf Forest
3	Closed Broadleaf Forest
4	Broadleaf Woodland
5	Closed Mixed Forest
6	Needleleaf Woodland
7	Dwarf Tree Scrub Woodland
8	Open Dwarf Tree Scrub
9	Closed Tall Shrub Scrub a. Alder/Willow b. Alder
10	Open Tall Shrub Scrub a. Shrub Swamp b. Alder
11	Open Low Shrub Scrub a. Sweetgale - Sphagnum Bog b. Ericaceous Shrub - Sphagnum Bog c. Ericaceous Shrub - Sedge - Sphagnum Bog d. Sweetgale Sedge Fen e. Cinquefoil - Sphagnum Bog f. Dwarf Birch - Ericaceous Shrub - Sphagnum Bog g. Sweetgale - Sedge - Fan Moss Fen h. Cinquefoil - Sweetgale - Ericaceous Shrub - Feathermoss Bog i. Willow - Bluejoint Grass Moss Bog j. Low Willow Bog
12	Open Dwarf Shrub Scrub a. Ericaceous Shrub - Sphagnum Bog
13	Wet Graminoid Herbaceous a. Sedge Tussock - Mixed Shrub - Sphagnum Bog b. Subarctic Lowland - Sedge - Bog Meadow c. Subarctic Lowland - Sedge - Moss - Bog Meadow d. Subarctic Lowland - Sedge - Wet Meadow
14	Bryoid Moss - Wet Moss
15	Freshwater - Aquatic Herbaceous - Pond Lily
OW	Open Water

Note: Identify only numbered plant communities; e.g., if subject wetlands has community #11g, it should be identified as #11 only. Some areas may not fit into these communities, in which case extrapolation will be necessary to match subject community to the nearest identifier in this list.

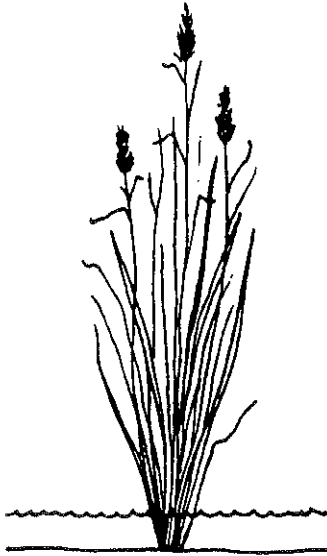
APPENDIX F

Wetland Vegetation Forms and Symbols

Wetland Vegetation Forms (and Symbols)

2m

1



Narrow-leaved
Emergents
ne



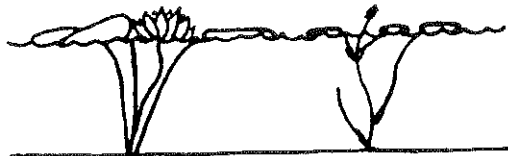
Broad-leaved
Emergents
be



Robust
Emergents
re



Free-floating
Plants
ff

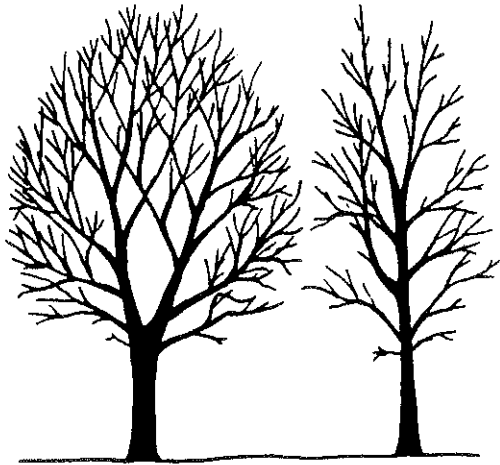


Floating Plants
(rooted)
f



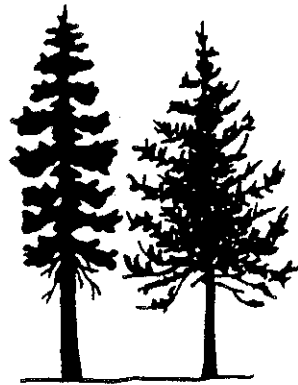
Submerged
Plants
su

Wetland Vegetation Forms (and Symbols)



Deciduous Trees
(Broad-leaved)

h



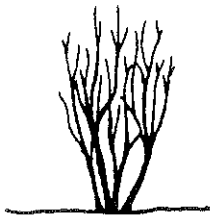
Coniferous Trees
(Needle-leaved)

c



Dead Trees

dh, dc



Tall Shrubs

ts



Low Shrubs

ls



Dead Shrubs

ds



Herbs

gc



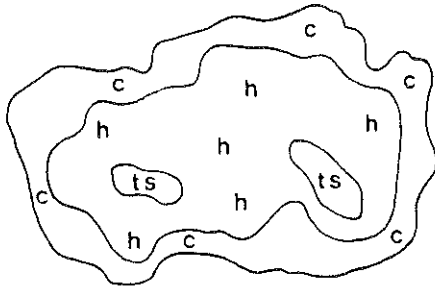
Moss

m

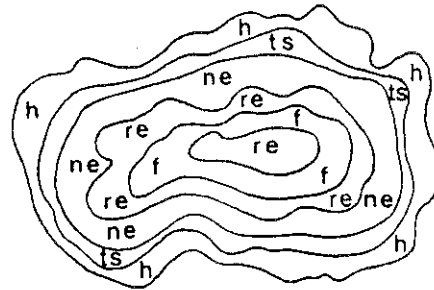
APPENDIX G
Interspersion Types

Interspersion Types

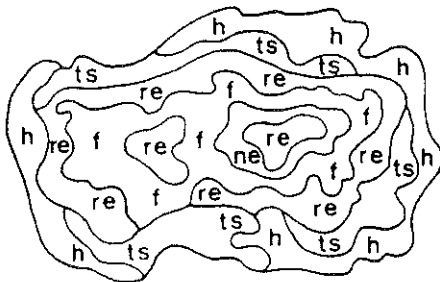
Type 1



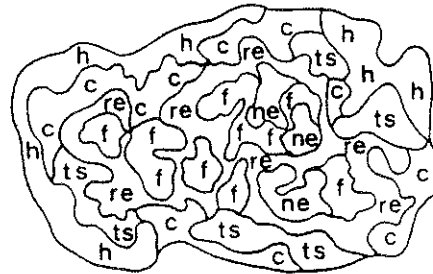
Type 2



Type 3



Type 4



KEY

- c - Coniferous Trees
- h - Deciduous Trees
- ts - Tall Shrubs
- ne - Narrow-leaved Emergents
- re - Robust Emergents
- f - Floating Plants (rooted)

Source: Adapted from Golet, 1976

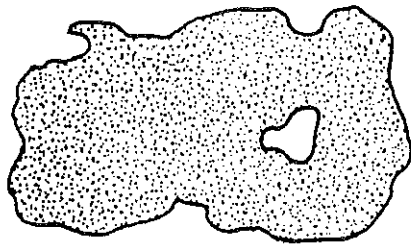
APPENDIX H

Open Water Types

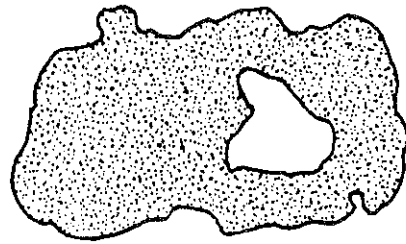
Open Water Types

White areas indicate open water (including floating and submerged plants).
Stippled areas indicate emergents, shrubs and trees.

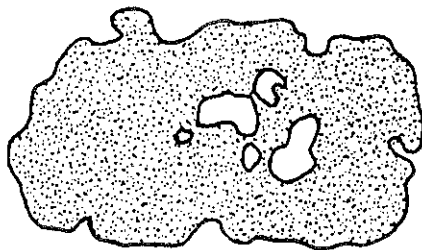
Type 1



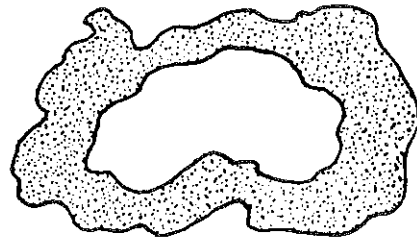
Type 2



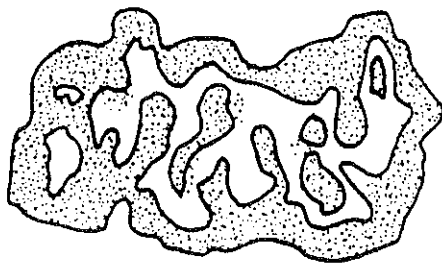
Type 3



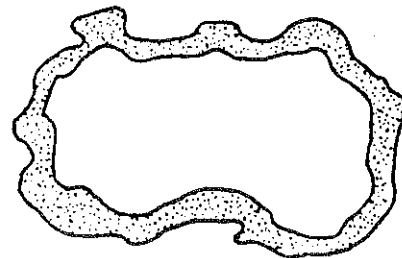
Type 4



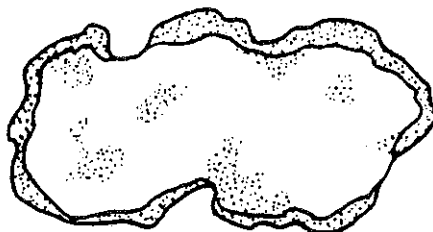
Type 5



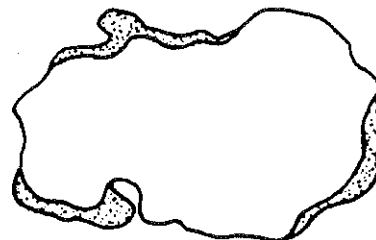
Type 6



Type 7



Type 8



APPENDIX I

Statewide Significant Plant Species Occuring in Southcoastal Alaska

**STATEWIDE SIGNIFICANT PLANT SPECIES OCCURRING IN SOUTHCOASTAL
ALASKA**

Note: Many of these forms are of questionable taxonomic status or occur typically in non-wetland conditions.

<i>Botrychium virginianum</i>	<i>Blysmus rufum</i>
<i>Scheuchzeria palustris</i>	<i>Smilacina stellata</i>
<i>Phalaris arundinacea</i>	<i>Malaxis monophylla</i>
<i>Glyceria striata</i>	<i>Hammarbya paludosa</i>
<i>Carex atrostachya</i>	<i>Ranunculus abortivus</i>
<i>Carex Preslii</i>	<i>Viola Selkirkii</i>
<i>Carex interior</i>	<i>Thalaspis arcticum</i>
<i>Carex Parrayana</i>	<i>Crassula aquatica</i>
<i>Carex lanuginosa</i>	<i>Papaver alboroseum</i>

APPENDIX J

Plants Significant to the Municipality of Anchorage Region or of High Public Interest

**PLANTS SIGNIFICANT TO THE MUNICIPALITY OF ANCHORAGE REGION OR
OF HIGH PUBLIC INTEREST**

Gymnocarpinium robertianum	Rhynchospora alba
Typha latifolia	Carex phyllomanica
Sparganium minimum	Carex Ramenskii
Potamogeton Friesii	Carex rariflora
Podagrostis Thurberiana	Carex (oederi) vividula
Calamagrostis nutkaensis	Juncus supiniformis
Danthonia intermedia	Cypripedium guttatum
Mitella pentandra	Sanguisorba Menziesii
Eriophorum gracile	Cladothamnus pyrolaefflorum
Eriophorum viridi-carinatum	Lysimachia thyrsoiflora
Scirpus microcarpus	Pedicularis parviflora
Eleocharis Kamtschiatica	Aster junciformis
Drosera anglica	

APPENDIX K

Significant Municipality of Anchorage Bird and Anadromous Fish Species

SIGNIFICANT MUNICIPALITY OF ANCHORAGE BIRD AND ANADROMOUS FISH SPECIES

Note: Rare, limited or unique in Southcentral, and especially in the Upper Cook Inlet Region. Species is localized, does not occupy all suitable habitat and/or suitable habitat is limited, or species is extremely sensitive to disturbance. * = Obligate wetlands species. Include if one or more from this list has used the subject wetlands within the past five years. Some of these represent species of National Concern.

Red-throated Loon *	Northern Harrier *
Pacific Loon *	Sandhill Crane
Common Loon *	Killdeer
Red-necked Grebe *	Solitary Sandpiper *
Horned Grebe *	Hudsonian Godwit *
Trumpeter Swan *	Short-billed Dowitcher *
Gadwall *	Red-necked Phalarope
Blue-winged Teal *	Short-eared Owl
Canvasback *	Black-backed Woodpecker
Redhead *	Belted Kingfisher
Ring-Necked Duck *	Song Sparrow
American Dipper *	American Tree Sparrow
	Red-winged Blackbird *
Chinook (King) Salmon	
Coho (Silver) Salmon	
Sockeye (Red) Salmon	

Note: These lists are subject to change based on new or revised information. The plant lists should be updated using the Alaska Heritage Program's Database as information becomes available. Mammals were originally considered for these lists but local mammalogists had no data to support inclusion of mammals at this time.

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