

Exhibit A

Anchorage Wetlands Management Plan Public Hearing Draft March 2012

Track-changes version

June 3, 2013

Deleted text is indicated with a ~~double-strikethrough~~ line.

Red text indicates new text changes.

Prepared by

Physical Planning Division
Community Development Department
Municipality of Anchorage



***“WETLAND”** means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (Federal Clean Water Act, Section 404, Part 328.3, 7(b)).*





Table of Contents

PREFACE	iv
ACKNOWLEDGEMENTS	v
CHAPTER 1: OVERVIEW	1
I. PLAN RATIONALE	1
II. PURPOSE AND GOALS	2
III. PREVIOUS PLANS	3
IV. WETLAND ISSUES AND NEEDS	4
V. BOUNDARY DESCRIPTION AND STUDY AREA	5
VI. PHYSICAL SETTING	5
A. CLIMATE	5
B. GEOLOGY	6
C. SOILS	6
D. HYDROLOGY	9
CHAPTER 2: RESOURCE INVENTORY AND ANALYSIS	11
I. RESOURCE INVENTORY	11
A. 1982 PLAN	11
B. 1996 PLAN	11
C. 2012 PLAN	11
II. RESOURCE ANALYSIS	12
A. BACKGROUND	12
B. WETLAND SCORE RANGE	13
C. WETLANDS ACREAGE SUMMARY	15
III. CUMULATIVE IMPACTS	17
CHAPTER 3: CORPS OF ENGINEERS WETLANDS PROGRAM	19
I. PERMIT RESPONSIBILITY	19
A. INDIVIDUAL PERMITS	20
B. REGIONAL GENERAL PERMITS	20
C. NATIONWIDE PERMITS	21
D. LETTERS OF PERMISSION	21
II. WETLANDS DETERMINATION RESPONSIBILITY	21
III. CORPS OF ENGINEERS 404 PERMIT PROCESS	22
CHAPTER 4: MANAGEMENT STRATEGIES/ENFORCEABLE POLICIES	25
I. OVERVIEW	25
II. DEFINITIONS: BACKGROUND AND ENFORCEABLE POLICIES	25
A. BACKGROUND	25
B. WETLAND DESIGNATIONS	26
C. SETBACKS AND BUFFERS	30
D. DEFINITIONS	34
III. ADDITIONAL POLICIES	36
A. ADMINISTRATIVE AND PROCEDURAL POLICIES	36
B. BEST MANAGEMENT PRACTICES	37
C. SITE-SPECIFIC POLICIES AND MANAGEMENT STRATEGIES	40

CHAPTER 5: IMPLEMENTATION	125
I. PLAN IMPLEMENTATION RESPONSIBILITY	125
II. LOCAL IMPLEMENTATION	126
A. INSTITUTIONAL RESPONSIBILITIES	126
B. GENERAL PERMIT IMPLEMENTATION	128
III. APPEALS	129
A. MUNICIPAL-LEVEL APPEAL	129
B. FEDERAL-LEVEL APPEAL	129
IV. MONITORING AND ENFORCEMENT	129
V. PROGRAM AMENDMENTS	130
VI. WETLANDS PLAN REVIEW PROCESS	131

CHAPTER 6: MITIGATION	133
I. DESCRIPTION OF POTENTIAL MITIGATION MEASURES	133
II. RELATIONSHIP OF MITIGATION MEASURE TO PLAN DESIGNATIONS	138
III. MITIGATION RECOMMENDATIONS	139
IV. MITIGATION BANKING AND IN-LIEU-FEE PROGRAMS	140
V. SUMMARY	141

TABLES

TABLE 1:	1982 SUMMARY OF FRESHWATER WETLAND ACREAGE BY DESIGNATION	16
TABLE 2:	1996 SUMMARY OF FRESHWATER WETLAND ACREAGE BY DESIGNATION AND SUB-AREA	16
TABLE 3:	2012 SUMMARY OF FRESHWATER WETLAND ACREAGE BY DESIGNATION AND SUBAREA	16
TABLE 4.1:	WETLAND MANAGEMENT STRATEGIES: ANCHORAGE BOWL	43
TABLE 4.2:	WETLAND MANAGEMENT STRATEGIES: EAGLE RIVER-CHUGIAK	83
TABLE 4.3:	WETLAND MANAGEMENT STRATEGIES: TURNAGAIN ARM	99
TABLE 5:	INSTITUTIONAL RESPONSIBILITIES	127
TABLE 6:	MITIGATION MEASURES	135

FIGURES

FIGURE A:	PERMIT APPLICATION PROCESS	23
FIGURE 1:	VICINITY MAP	7
FIGURE 2:	WETLAND DESIGNATION MAP: ANCHORAGE BOWL—NE	109
FIGURE 3:	WETLAND DESIGNATION MAP: ANCHORAGE BOWL—NW	111
FIGURE 4:	WETLAND DESIGNATION MAP: ANCHORAGE BOWL—SW	113
FIGURE 5:	WETLAND DESIGNATION MAP: ANCHORAGE BOWL—SE	115
FIGURE 6:	WETLAND DESIGNATION MAP: EAGLE RIVER TO EKLUTNA	117
FIGURE 7:	WETLAND DESIGNATION MAP: TURNAGAIN ARM: INDIAN TO BIRD	119
FIGURE 8:	WETLAND DESIGNATION MAP: TURNAGAIN ARM: GIRDWOOD	121
FIGURE 9:	WETLAND DESIGNATION MAP: TURNAGAIN ARM: PORTAGE	123

APPENDIX

BIBLIOGRAPHY



PREFACE TO THE *ANCHORAGE WETLANDS MANAGEMENT PLAN—2012*

The Anchorage Wetlands Management Plan (AWMP) has been updated so that it can continue to serve several important functions for the Municipality. This revised Plan:

1. Provides an inventory and analysis of freshwater wetlands within the Municipality.
2. Acts as a vehicle for regulatory agency consensus on activities in wetlands, since the Corps of Engineers is required to consider comments from numerous state and federal agencies when evaluating a fill or dredging permit in wetlands. This consensus helps expedite and facilitate the permit process in all wetland designations.
3. Specifies the conditions set by the Corps of Engineers to authorize discharges under the General Permits. Use of the General Permits significantly reduces the time and expense needed to obtain permit approvals. However, if a project sponsor does not wish to pursue permitting via the General Permits, they may seek another type of Clean Water Act, Section 404 Permit through the Corps of Engineers.

Equally important are several things the updated Plan does not do:

1. It does not prevent a property owner from developing, or attempting to develop, in “A” wetlands. In no case does the Plan identify private property where ALL potential development is prohibited unless the property already has a conservation easement or similar preservation mechanism in place.
2. It does not force a property owner to comply with the Management Strategies in order to develop a wetland area. If the property owner does not agree with these Management Strategies, they may still petition the Corps of Engineers and apply for a Section 404 Individual Permit that modifies the Enforceable Policies.
3. It does not preclude the Municipality from amending the Plan in the event that federal wetland regulations are changed or modified through congressional action.

Update on the Alaska Coastal Management Program

Note: Alaska’s participation with the national Coastal Zone Management Act (known as the Alaska Coastal Management Program) ended on June 30, 2011. This federally funded program allowed coastal states to manage coastal and ocean resources for the benefit of coastal residents, and provided a local voice in resource management decisions. The Municipality of Anchorage, as well as 30 other coastal districts, had operated under the Alaska Coastal Management Program (ACMP) since 1979. The Anchorage Coastal Management Plan (ACMP 1979, 2007) was drafted by the Municipality as local guidance for that program. The Anchorage Wetlands Management Plan was initiated in 1982 per Alaska Statutes AAC 11.114 directing the ACMP, to address freshwater wetlands which have an influence on coastal resources. A recent federal Coastal Management Program amendment added a sunset clause. Because the Alaska legislature was unable to agree upon certain aspects of the program’s renewal, the State’s participation in the program ended. The Anchorage Wetlands Management Plan, with this update, will continue to be a guiding document for development in freshwater wetlands. Although the Anchorage Coastal Management Plan cannot be effectively applied without the state coastal management program, which oversaw the implementation of district plans, it remains a valuable informational source regarding coastal resources.



ACKNOWLEDGMENTS

This document represents a coordinated effort between state and federal resource agencies, the general public, and various departments in the Municipality of Anchorage (MOA). Numerous individuals from these groups contributed significantly to the development of this Plan. We would especially like to distinguish the following that deserve recognition and thanks for their commitment, perseverance, and contributions:

Heather Dean	U.S. Environmental Protection Agency
Mary Lee Plumb-Mentjes	U.S. Army Corps of Engineers
Nicole Hayes	U.S. Army Corps of Engineers
Estrella Campellone	U.S. Army Corps of Engineers
Shane McCoy	U.S. Army Corps of Engineers
Terry Lamberson	MOA Information Technology Department
Susan Perry	MOA Community Development Department, Long-Range Planning Section
Carol Wong	MOA Community Development Department, Long-Range Planning Section
Scott Wheaton	MOA Public Works Department, Watershed Management Section
Steve Ellis	MOA Public Works Department, Watershed Management Section

Thede Tobish and Karen Keesecker
Project Managers





CHAPTER 1: OVERVIEW

I. PLAN RATIONALE

The importance of wetland functions and values have been well documented through scientific study. Although there is much variability among wetlands, typical wetland values include:

- Providing highly productive ecosystems that support an abundance of fish and wildlife;
- Regulating and modulating surface water flows through retention of excess runoff and release of this water over extended dry periods;
- Protection from erosion and reducing the velocity of flood waters from erosion or waves;
- Purifying water through uptake of nutrients, through settling of particles, and as a sink for toxic substances; and
- Atmospheric regulation by a wetlands ability to store carbon within its peat biomass. When wetlands are drained or cleared, that carbon is released into the atmosphere as carbon dioxide, a greenhouse gas, which may affect global climates.

Recognizing the values, such as unique vegetation, wildlife and aesthetics associated with wetlands, people have often designated these features as open space, parkland, and conservation areas. Consequently, the natural benefits and functions of wetlands have been extended to include such uses as recreation and aesthetics, water supply, and protection from natural hazards. Because of these additional use values, the demand for urban development of land adjacent to and within wetlands has increased considerably. Indeed, most remaining undeveloped large tracts of land, especially within the Anchorage Bowl, are wetland areas. These are typically the only large areas now available for residential and commercial infilling development.

If not properly planned, this urban development can adversely impact wetlands and other watercourses or water bodies creating issues, such as flooding, in developed areas. Construction of housing, industrial or commercial establishments may require dewatering, dredging, or discharge of fill materials. Construction of transportation corridors frequently alters natural drainage patterns. These changes, in turn, have the potential to modify natural movements of water, damage or destroy fish and wildlife habitat, adversely affect biological productivity, reduce flood storage capacity, or alter nutrient exchange characteristics. The latter effect can lead to degradation of a downstream surface water supply or a subsurface aquifer.

Concern was originally expressed in the early 1980s that the growing demand for human development was causing the alteration of local wetland areas at an alarming rate. The need to balance existing wetland values and functions with expanding development infrastructure needs was strongly identified in the Anchorage Coastal Management Program (1979). This balance was a key theme of the original 1982 Anchorage Wetlands Management Plan (AWMP) and the earlier Anchorage 208 Area-wide Water Quality Management Plan (1979). A proper balancing of these conflicting needs required an understanding of wetland functions and values, plus complete and accurate maps of wetland locations. Both of these actions were presented and addressed in the original 1982 Anchorage Wetlands Management Plan and updated for both the 1996 and 2012 AWMP.

II. ANCHORAGE WETLANDS MANAGEMENT PLAN: PURPOSE AND GOALS

The Anchorage Wetlands Management Plan provides a basis of knowledge for freshwater wetlands within the Municipality such that sound land use decisions can be made to the benefit of the community and the environment.

The **purpose** of the Anchorage Wetlands Management Plan is threefold:

1. to provide accurate mapping and assessment of freshwater wetlands within the Municipality;
2. provide a hierarchy of values for wetland units based on function;
3. to derive management strategies that balance wetland integrity and function while allowing development that would not cause more than minimal adverse impacts.

The primary **goals** of the Plan are:

- Goal A.** To identify and provide protection for wetlands that support important ecological and hydrological functions.
- Goal B.** To ensure that development in wetlands minimizes water quality degradation and maintains wetland hydrologic functions.
- Goal C.** To provide a balance between protection of higher value sites and the development of lower value areas.
- Goal D.** To provide for timely and predictable authorization of development projects in low-value wetlands and to maintain use of the General Permits.

At its conception, the 1982 AWMP was adopted to address consistency with and supplement the following related wetland goals from the Anchorage Coastal Management Plan (1979):

- Goal E.** To protect the basic natural functions served by coastal marshes, freshwater marshes and wetlands.
- Goal F.** To prevent public liabilities associated with development in these areas.

While the Anchorage Coastal Management Plan dealt with management of the Municipality's *tidally influenced wetlands*, the Anchorage Wetlands Management Plan process focuses on the *freshwater wetlands* within the Municipality. The Anchorage Wetlands Management Plan has served as the basis for decision-making involving wetland development and/or protection since its adoption by the Anchorage Assembly in 1982.

At the time the Anchorage Wetlands Management Plan was adopted, the Municipality was in the early stages of a population and housing construction boom. A high level of residential and commercial development continued through the mid-1980s, especially in the Anchorage Bowl and on the lower Hillside where large, mostly un-platted tracts of land were utilized for community expansion. Much of this expansion was accommodated in wetland areas. It was primarily in response to this development boom and shortage of available, developable land that the Municipality prepared the 1982 Wetlands Plan.

III. PREVIOUS ANCHORAGE WETLANDS MANAGEMENT PLANS

The stated purpose of the original 1982 Wetlands Plan was to provide a balance between protection of higher value sites and the development of lower value areas. As evidenced from information compiled over the years, the Wetlands Plan has essentially helped to facilitate land use planning within the Municipality.

In order to guide development within lower valued “C” designated wetlands, the Municipality applied for and obtained two General Permits from the Corps of Engineers in 1983. These permits, one for roads and the other for structures, were necessary to facilitate more timely and predictable local processing of permits for community expansion during the boom period of the mid-1980s. The General Permits are administered by the Municipality of Anchorage’s Community Development Department. Municipal permit processing time has averaged 3-10 days, whereas an Individual 404 Permit from the Corps of Engineers averages 3-6 months. Because of our area’s short construction season, the General Permits were a vital tool in facilitating the 1980s boom. The first General Permits were issued for a period of five years and were renewed by the Corps of Engineers through June 1993. The Municipality then operated through December of 1993 with an Interim General Permit issued by the Corps of Engineers. The General Permits have since been renewed in 5-year cycles, most recently in 2010. Since obtaining the General Permits, the Municipality has permitted for development in approximately 1,200 acres.

The 1996 Wetlands Plan calculated the success of the previous plans’ implementation based on an analysis of wetland fills in the Anchorage Bowl, up to that time period. In the U.S. Fish and Wildlife Service’s Anchorage Wetland Trends Study (1993), a review of aerial photography revealed that 9,958 acres of wetlands (including intertidal sites) were filled between 1950 and 1990; 8,200 acres of which were filled between 1950 and 1976 (the Pre-Clean Water Act era). Between 1983 and 1990, a total of 2,143 acres were permitted; and 965 acres were actually filled. This period included the boom years when the Wetlands Plan was adopted and implemented. As outlined in the U.S. Fish and Wildlife Service’s trends study, it appeared that the Wetlands Plans had provided proper guidance for the balance between permitting and protection, as evidenced in the decrease of wetland acreage filled after the plans’ implementation.

Data compiled by the Corps of Engineers indicate that over 2,200 acres of wetlands were permitted for fill between 1976 and 2004, which covers the post-Clean Water Act era. The majority of these permits were issued for projects within the Anchorage Bowl. It should be noted that many of these permits were never, or only partially, used and some sites remained unfilled, or partially filled.

From these studies comparing wetlands acreage filled during the pre- and post- AWMP implementation eras, it can be concluded that the original Wetlands Plan systematically directed wetland fill projects into lower value sites and minimized fill in higher value areas. In addition, mitigation measures, including avoidance, minimization and compensation, were required during the Corps of Engineers permit process. Although wetland acreage was lost during the terms of the plans, the evidence points to an effective purpose and implementation of the Anchorage Wetlands Management Plan.

This 2012 update is intended to further the goals of the original plan. Wherever possible, it incorporates management details to extend protection and minimize impacts to higher value areas and to facilitate development in low value sites in a manner that also minimizes impacts.

IV. WETLAND ISSUES AND NEEDS

The original 1982 Anchorage Wetlands Management Plan ordinance required that the plan be revised at least once every ten years. For the 1996 revision, an extensive examination of alternative revision scenarios and methods was undertaken. On the basis of that examination, it was determined that a full review of all wetland designations was needed and issues relevant to reauthorizing the Municipality's General Permits would also be addressed. Thus, wetland evaluations were updated, wetland designations were reviewed and modified, when appropriate, and maps and management strategies were revised and updated at that time.

The original goals of the 1982 and subsequent 1996 Plans have not changed and remain inherent in this Plan update. The following needs were identified and provide some rationale behind the 2012 update:

- Need A.** To minimize alterations to wetlands that modify natural movements of both surface and subsurface water, damage fish and wildlife habitats, adversely affect biological productivity, reduce flood storage capacity, or alter nutrient exchange characteristics.
- Need B.** To provide for the demand for community expansion, including residential and institutional housing, commercial and industrial establishments, and transportation corridors on a land base that is largely wetlands.
- Need C.** To update the Anchorage Wetlands Management Plan with new information, including a review of all wetland designations, as appropriate.

Therefore, the chief objectives of this Plan update (2012) are:

1. Where appropriate, review and revise all wetland designations, incorporating new information.
2. To address and modify, aspects of the original plan which are outdated or which have proven ineffective.
3. To upgrade the management strategy information and guidance.
4. In anticipation of the next reauthorization (for 2015), update information relative to the General Permit based on a updated subset of lower value wetlands.
5. To produce updated wetland maps for the entire Municipality, which account for filled wetlands and detail new or revised wetland boundaries.

Chapter 4 of the 2012 AWMP presents updated wetland designations, management strategies, and definitions, as appropriate. As in the previous Anchorage Wetlands Management Plans, only freshwater wetlands have been addressed and most sites on Alaska State Park and National Forest lands and navigable waters have been excluded from this study. The following lands are included since they are preserved by the State: State of Alaska, Division of Parks and Outdoor Recreation, Eagle River Greenbelt and the Alaska Department of Fish and Game, Anchorage Coastal Wildlife Refuge at Potter Marsh.

Those military wetlands contiguous with or adjacent to private or other public wetlands, or located in areas of previous permit activity, especially at the boundaries of private wetlands with shared infrastructure, have been included in this plan. Most other military lands have been excluded because of U.S. Executive Order 11990 (the Protection of Wetlands). The Municipality has no authorization on military lands yet; military properties are subject to the Clean Water Act, Section 404 regulations.

All wetland sites delineated in previous plans have been reviewed here, as have sites that were not previously mapped. Updates in Geographic Information System (GIS) technology have allowed staff to map and quantify wetland acreage more accurately than before. Wetland delineations are based on the previous plan boundaries, new hydric soil information, updated aerial photography, and follow the Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Alaska Region, Version 2.0 (COE, 2007) for field determinations.

V. BOUNDARY DESCRIPTION AND STUDY AREA

The following is a general biophysical description of the area covered in this plan. The study area for the Anchorage Wetlands Management Plan includes the jurisdiction of the Municipality of Anchorage, which is bounded by the Chugach State Park on the east and extends from the Knik River to Portage, and by the Matanuska-Susitna Borough to the north and west, the Kenai Borough to the south and includes several small watersheds eastward along Turnagain Arm (Figure 1). As outlined earlier, Alaska State Park and National Forest wetlands were excluded from this plan. Federal military lands were generally excluded from the study area, but some wetlands that were positioned on both military and adjacent non-military properties were classified and mapped.

Within the study area, there are three distinct subareas:

1. Anchorage Bowl,
2. Chugiak-Eagle River (including Eklutna), and
3. Turnagain Arm.

The Anchorage Bowl and Chugiak- Eagle River subareas lie on a glacial plain, which slopes north and west from the mountains of Chugach State Park. These subareas are drained mainly by Eagle River and by Ship, Campbell, Chester, Fish, Potter, and Rabbit Creeks. The plain is generally less than 400 feet in elevation above sea level with very low topographic relief. The Girdwood Valley occupies a fluvial valley drained by Glacier and California Creeks. The mouth of that valley is at sea level and rises gently in elevation inland of the Seward Highway. Other communities along Turnagain Arm including Indian, Bird, and Portage, have terrain similar to the Girdwood Valley.

VI. PHYSICAL SETTING

The types of wetlands that are present in the Anchorage study area are strongly determined by the climate, geology, soils, and hydrology of the region. A description of these factors follows.

A. CLIMATE

The climate within the Anchorage study area is extremely variable from north to south and from lower to higher elevations. Rainfall increases with elevation in the Chugach Mountains and to the southeast of the Anchorage Bowl along Turnagain Arm. According to the Western Regional Climate Center website, mean annual precipitation in the western portion of the Anchorage Bowl is about 15.87 inches but, rapidly increases to 26.81 inches in the mountainous areas above 2,000 feet in elevation. In the Girdwood subarea, annual precipitation is 44.35 inches. By comparison, in Eklutna the annual precipitation is 11.89 inches. Mean annual temperatures in Anchorage are about 37°F, with summer temperatures ranging from about 49° to 63°F and winter temperatures ranging from about 10° to 23°F. Newman and Branton (1972)

reported that the ratio of mean annual precipitation to mean annual evaporation is approximately 1:1 for the Anchorage Bowl and Eagle River subareas; therefore, the mean annual water balance in these areas is approximately zero. The water balance becomes increasingly negative (evaporation greater than precipitation) to the north and positive to the south of Anchorage. In contrast to the zero water balance in the Anchorage Bowl and Eagle River subareas, Patric and Black (1968) report a 19-inch surplus of rainfall over evapotranspiration at Girdwood.

The climate of Anchorage is considered to be more continental than maritime (Newman and Branton 1972). For the Anchorage Bowl, the climate tends to be a dry sub-humid type, and that of Girdwood is humid with little or no water deficiency. The effects of such climatic differences on wetland development in the Anchorage Bowl and Girdwood subareas are most obviously manifested in the varying forms and species of vegetation; these differences necessitated differentiating between the Anchorage Bowl and Girdwood subareas in the wetland classification.

Recent trends indicate an overall shift in climatic conditions from wet and cool to warmer and drier. These effects have been widely documented throughout the arctic regions and particularly in Alaska where large tracts of undeveloped lands have been nearly untouched by humans, an ideal scenario for scientific research. Studies on the nearby Kenai Peninsula have shown changes in wetland vegetation based on climatic differences. An increase in 1-2 degrees Celsius and a 40% decrease in mean annual water balance has resulted in an increase in woody and facultative species, waterbody shrinkage and wetland drying (Klein, et al; 2005). Casual observations over the years have shown similar trends in the Municipality as well.

B. GEOLOGY

Past glacial activities have formed the geomorphic setting of the Anchorage wetlands. The Municipality includes a low-elevation, flat plain that is bordered on the east by the abrupt mountain front of the Chugach Mountains. There are a series of ridges and isolated hills between the mountain front and the Anchorage plain. Surficial materials were deposited over much of the Anchorage Bowl and Eagle River areas during the most recent glacial period by:

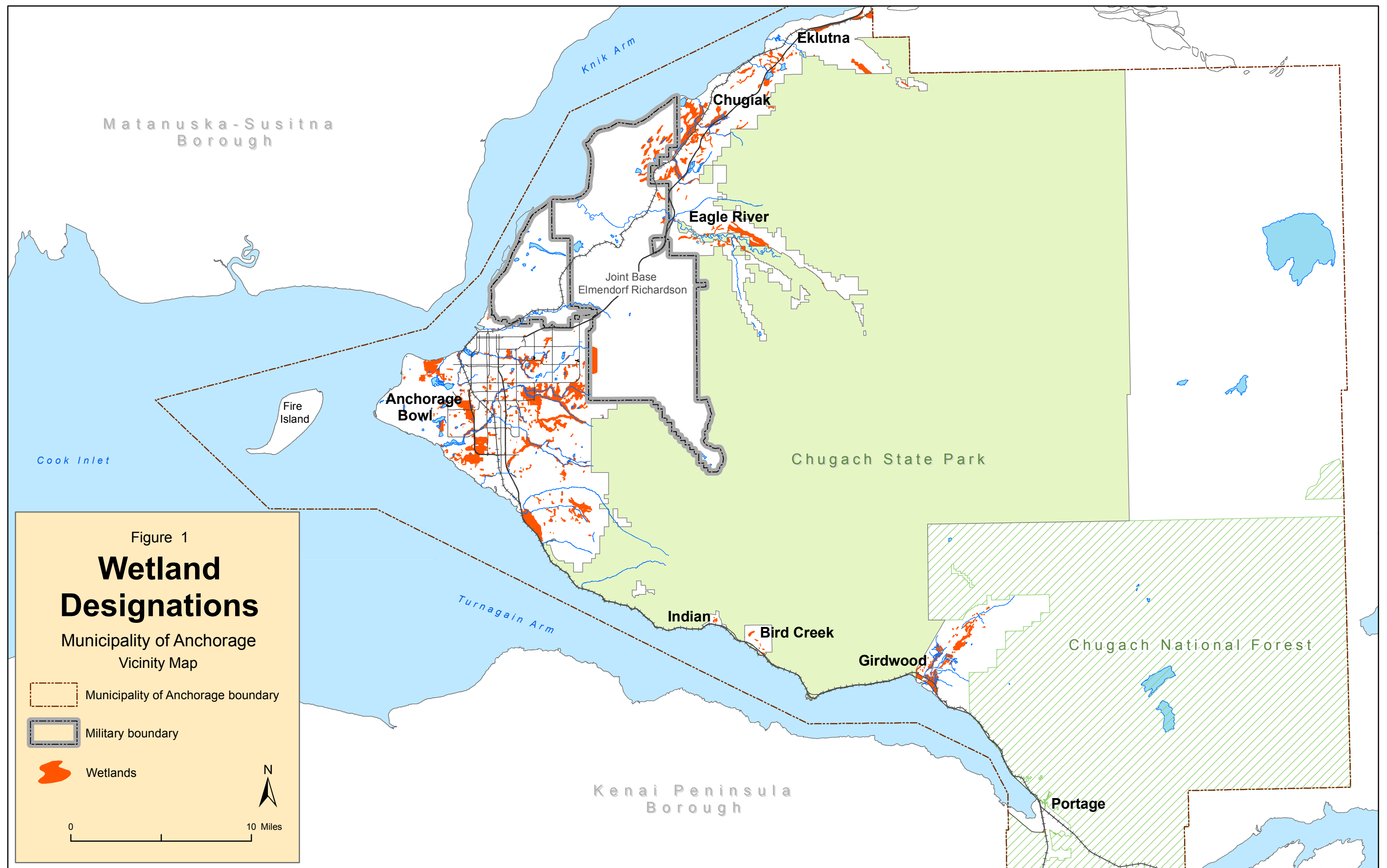
- Glacial ice along the Chugach Mountain front and the Eagle River area; and
- Flowing water in streams and deltas (between the two glacial ice deposits and in the hummocky region between Point Woronzof and Point Campbell).

Wetlands have developed mainly in the troughs and depressions found in the moraines and terraces, in the stream valley bottoms, and in areas overlying clays and fine silts. A generalized geologic map of Anchorage and vicinity (Schmoll and Dobrovolsky 1972) shows the surficial deposits, including peat deposits thicker than two feet. From this map, it is possible to determine the types of substratum that underlie the peat-lands. They are:

- Bootlegger Cove Clay in the Campbell Lake area;
- Sand deposits in a wide, low-lying belt centered around Connor's Lake, underlain by Bootlegger Cove clay; and
- Alluvium in historic stream channels and on terraces along current streams.

C. SOILS

Soil types underlying wetlands in the Anchorage area were mapped by the USDA Natural Resources Conservation Service and presented in the Soil Survey of Anchorage Area, Alaska (USDA-NRCS, 2001). Approximately eighteen types of hydric soils, contributing to wetland formation, are prevalent in the



Municipality. Most of these hydric soils are characterized by a fairly thick organic layer, consisting “largely of organic residues accumulated as a result of incomplete decomposition of dead plant constituents due to the prevailing anaerobic conditions” (Stanek, 1977). Therefore, most of the Anchorage area wetlands identified in this study are generally considered peat-lands (frequently called muskegs in northern regions). Although the Anchorage soil survey does not provide specific measurements of the thickness of the peat deposits underlying these peat-lands, Stanek (1977) defines a peat soil as “more than 30 cm (12 inches) thick when drained or 45 cm (18 inches) when undrained, the ash content not more than 80 percent.”

D. HYDROLOGY

Wetland types are determined in part by the hydrological characteristics of the area. These characteristics include inflow and outflow in addition to the evapotranspiration rate.

Surface water is abundant in the area with an average annual daily flow of 274 million gallons per day (mgd) discharging from Eagle River, 807 mgd discharging from Ship Creek, and 210 mgd from the South Fork of Campbell Creek (U.S. Geological Survey, 2011). Natural lakes are also abundant, but man-made Campbell, Westchester and University Lakes are the only known surface impoundments with continuous inflow and outflow (Zenone, 1976). Surface water is very important to the Municipality of Anchorage, with Eklutna Lake as the primary source of drinking water for most of the Municipality, Ship Creek, as a secondary source and numerous wells supplementing the remainder. Other lakes and streams provide fish and wildlife habitat as well as opportunity for recreation, private and commercial air transportation, and aesthetic value.

Groundwater occurs at depths of less than 50 feet throughout the Anchorage Bowl area and, in most areas, depth to groundwater is less than 10 feet. Two major aquifer systems have been identified by Cederstrom, et al. (1964): an upper unconfined aquifer and a lower artesian aquifer. The upper aquifer is composed of peat, glacial sand and gravel, varying in thickness from 10 to 50 feet and only moderately permeable. In wetland areas, this unconfined aquifer is composed principally of silt, clay, and peat and is only slightly permeable.

The artesian aquifer underlies most of the Anchorage area, but merges with the unconfined aquifer west of the Anchorage International Airport. The artesian aquifer is comprised of long, thin layers of sand and gravel, separated by confining layers of fine-grained glacial till. The artesian aquifer system is a major source of municipal groundwater supplies and most of the domestic supplies. The hydraulic head of the aquifer varies from 300 feet above sea level near the Chugach Mountains to less than 50 feet above sea level near the airport and the coastal area.

In the Eagle River area, a bedrock aquifer was reported by Zenone et al. (1974), but most well production comes from the unconsolidated sediments in alluvial fans. The relationship between the unconfined and artesian aquifers has not been defined, but water level elevations decline rapidly from 600 feet above sea level one mile east of Eagle River to 200 feet above sea level near Lower Fire Lake and the Glenn Highway.

This page intentionally left blank.



CHAPTER 2: RESOURCE INVENTORY AND ANALYSIS

I. RESOURCE INVENTORY

A. 1982 PLAN

Wetland sites within the Municipality of Anchorage were first located primarily by aerial photography dated from September, 1979. Wetlands were mapped for all lands that were not owned by the military, State Park, and National Forest Service within the Anchorage Bowl, Eagle River-Eklutna, and Girdwood Valley areas. Limited ground-truthing work was conducted in the summer of 1980 to verify the relationship between photo images and wetland boundaries. Wetland areas were delineated based on the most current wetland delineation methodology used by the Corps of Engineers at that time.

B. 1996 PLAN

For the 1996 plan, the original wetland base maps were updated using methods similar to those used in 1982. With a few exceptions, most freshwater wetlands in all privately owned, (not generally within State Park, National Forest, and military lands), from Eklutna to Portage were identified, mapped, and assessed. A subset of new wetlands identified by staff was added to the wetland map updates. All boundaries of the original wetland areas were revisited and/or adjusted to reflect actual conditions and any new verified wetland areas were incorporated into the maps. In addition, all sites filled since the 1982 plan were deleted or redrawn to reflect partial-filling, and new wetland boundaries were mapped for the 1996 Anchorage Wetland Management Plan. The 1996 wetland data set was loaded into and managed with GIS software.

C. 2012 PLAN

Since the 1996 plan, wetlands mapping has been updated as GIS technology has advanced. A 2004 project with the municipal Watershed Management Section resulted in printed and digital copies of the Anchorage Wetlands Atlas, which updated wetland coverage for the Anchorage Bowl and brought stream and other waterbody features into a more readily accessible format. That map was further revised in 2008 to include previously unmapped sites based on updated hydric soil information for the Anchorage Hillside. Volume 2: Eagle River was first produced in 2008, with updated wetland maps based on hydric soil information for Chugiak/Eagle River. A Turnagain Arm volume will be produced in the future as funding allows.

The 2008 Anchorage and Eagle River Wetlands Atlas can be found at the following link:

<http://wms.geonorth.com/library/LibraryMaps.aspx>

Wetland boundaries are available as a layer online under the **Municipal Watershed Management Website** Advanced Mapper tool at: <http://www.anchoragestormwater.com/maps.html>

http://munimaps.muni.org/mox52/advanced.cfm?&action=mox52-if_frameset

Note that wetland maps produced by the Municipality are not all inclusive. Wetland boundaries depicted on municipally produced maps are approximate. It is not possible to map all wetlands, especially on private property, without the ability to ground-truth suspected features. To obtain the most accurate information, it is incumbent on individual landowners to request a Jurisdictional Determination and/or wetland delineation from the Corps of Engineers or hire a professional wetland scientist to make a

determination for submission to the Corps. The Municipality of Anchorage, Long-Range Planning staff is responsible for maintaining wetland maps and datasets to service the Municipality. For the most accurate, up-to-date wetlands mapping information, contact the municipal Long-Range Planning Section staff at 343-7921.

For the 2012 Anchorage Wetlands Management Plan update, GIS data have been incorporated using the 2008 Wetlands Atlas boundaries as base data; field work confirmed certain areas of hydric soils as wetlands, Corps of Engineers jurisdictional determinations were mapped, and developed areas were removed from the coverage. Maps produced for this update used 2010 aerial photography, LIDAR and topographic information as further references. Site visits and field-work were conducted primarily in the 2010 field season using the Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Alaska Region, Version 2.0 (COE, 2007). As a joint effort by the Municipality of Anchorage's Community Development Department, the EPA and the Corps of Engineers staff, management strategies for existing and new wetland units were drafted updating information from the 1996 plan.

II. RESOURCE ANALYSIS

A. Background

Actual values and the significance of various functions performed by wetlands vary widely within and between sites and within the different subareas of the Municipality. Because of these individual variations, the Municipality undertook a wetland resource analysis that is documented in Chapter 4 of the original 1982 plan. The results of this 1982 resource analysis produced information used to develop high, moderate, and low scenarios of wetland management for the Municipality. The Municipality ultimately adopted the moderate management level, and each subsequent plan's wetland designations reflect this level.

Since adoption of the 1982 Anchorage Wetlands Management Plan, wetlands evaluation procedures and general knowledge of wetland functions have advanced considerably. The local understanding of the Municipality's individual wetland functions and values has also increased. It became apparent that resource evaluations contained in the 1982 plan were too subjective, inexact, and did not adequately represent each of the Municipality's wetlands. A new local wetland resource evaluation was therefore conducted for the 1996 plan.

The 1996 resource evaluation used the Anchorage Wetlands Assessment Methodology, (AWAM) which was developed by the Municipality and customized specifically for the greater Anchorage area. The methodology was developed in conjunction with federal and state resource agencies, and with additional peer review from resource evaluation experts from the U.S. Fish and Wildlife Service Western Field Office. The AWAM was adopted as part of the 1996 Anchorage Wetlands Management Plan, which contains a copy of the original version. The most recent copy of the Anchorage Wetlands Assessment Methodology is available online at:

<http://www.muni.org/Departments/OCPD/Planning/Physical/EnvPlanning/Pages/CreditDebitMethod.aspx>.

Actual field work sheets for each wetland site evaluation are on file with the Municipality of Anchorage's Community Development Department. For the 2012 plan update, the Anchorage Wetlands Assessment Methodology was applied only to select sites not previously mapped or assessed. Those scores generated preliminary designations, which are presented in **Table 4 – Wetland Management Strategies** and discussed in Chapter 4 of this plan.

The Anchorage Wetlands Assessment Methodology evaluates four wetland functions:

1. Hydrology,
2. Habitat,
3. Species Occurrence, and
4. Social Function.

Each category includes factors that address the most common wetland functions:

1. Sediment trapping (filtering for water quality);
2. Flood retention (flood and/or stormwater attenuation);
3. Erosion control;
4. Nutrient retention, and transport;
5. Fish, wildlife, and plant habitats; and
6. Recreation and heritage values.

Unlike the resource analysis contained in the original plan, the 1996 assessment method did not weight individual functions, nor did it add the four scores into a single total score for each site. Instead, each of the four category scores was listed independently. Evaluating scores in this manner facilitates the understanding of a site's ability to perform each of the key wetland functions. Adding the scores from each category to a single total would merge values, confuse the evaluation process, and obscure a site's specific wetland functions.

In order to place the assessment into proper perspective, wetland scores from each of the Municipality's three subareas (Anchorage Bowl, Chugiak-Eagle River, and Turnagain Arm) were grouped and compared only by each subarea. This method was appropriate since wetland areas within each of these subareas are noticeably different from each other; and the data are more meaningful if these associations are kept separate.

Throughout the Municipality, there are fairly simple wetland assemblages along most small streams and feeder tributaries. Turnagain Arm wetlands are characterized by lower plant diversity and are dominated by the coastal Sitka spruce-western hemlock forest community. There are also a few patterned ground bogs in the Girdwood Valley. Anchorage Bowl wetlands include large-scale, very diverse, patterned ground bogs and riparian complexes, mixed open meadows, and black spruce thickets. In the Chugiak-Eagle River subarea, there is a mix of wetland types with none being dominant. Along Eagle River, there is a mosaic of large open floodplain wetlands, old sloughs and river terraces and black spruce bogs. Large bog-like complexes exist adjacent to larger lakes in the northern area of the Municipality. Throughout the Municipality, wetland functions related to fish and wildlife habitat and biological productivity become reduced in significance with distance from tidewater and, especially, with increases in elevation.

B. Range of Wetland Scores

The basis for wetland designations (i.e., "A," "B," "C") is derived from a site's Anchorage Wetlands Assessment Methodology (AWAM) scores. Past plans defined the rationale behind decisions made on designations (see 1996 AWMP, Chapter 2). The four wetland function scores for each site served as the key indicators and basis for individual wetland designations. Final designations were reached using a combination of the scores, knowledge of on-site conditions (especially when these were weakly reflected or delineated in the AWAM assessments), and other parameters such as platting, zoning, existence of infrastructure, floodplain, coastal zone designations, and relation of site to local drainage studies. In no case, however, did the other site parameters alone determine a site's designation. They were always secondary to the main assessment scores and on-site conditions.

To clearly identify the Municipality's reasoning in the assignment of designations for each site, a separate report was produced, which outlined the key justifications used for every wetland designation. This report, entitled Anchorage Wetlands Management Plan-Background Information, Volume II, January, 1994, includes specific background information on the resource evaluation method and a justification and explanation section on wetland designations. The report is on file with the Municipality of Anchorage's Community Development Department.

To develop designation cut-off points within the range of wetland scores for each subarea, all scores from the new assessments were graphed by wetland function and by Municipality subarea. By this means, it was possible to identify groupings of scores in the general range of high, medium, and low totals. These natural groupings served as the break points for the identification of "A," "B," and "C" wetland sites. Most score cut-offs were close to the average scores calculated for wetlands under the original designations in the 1982 Plan. For example, the Anchorage Bowl wetlands originally classified in 1982 as "Preservation" averaged 108 points for the Hydrology category. The 1996 plan cut-off for "A" wetlands for the Hydrology function is a score greater than 100 points. That same score breakdown pattern was used for the 2012 plan update. Scores for sites not previously assessed in prior plans were evaluated and designated according to the guidelines previously used (see Chapter 4, section II.B. Wetland Designations).

As with previous plans, sites with very high scores for more than one function category were generally designated at least "B" and, most often, were given an "A" designation. These sites are important to public health and safety, and any fills are considered detrimental due to their potential impacts on hydrology and water quality functions.

Sites with a mid-range of scores typically reflect the "B" designation. Moderate scores were assigned to those sites where the wetland functions were not critical. However, most "B" sites provide at least periodic significant contributions to key wetland functions, usually on a more localized scale; i.e., within a watershed or drainage basin. Generally, cumulative losses associated with filling "B" wetlands would likely contribute to significant drainage basin or watershed water quality losses, flood problems, or loss of wildlife habitats and/or public uses.

Sites with low scores for more than one category were generally classified as "C." "C" wetland functions are not significant and are more often minimal or lacking. Individual and cumulative impacts from loss of "C" sites would be less than that of "A" or "B" wetlands, especially given the site-specific management strategies for "C" wetlands. Nevertheless, some sites with low scores were designated in a higher class if more than one significant species was present. Significant species are identified within the AWAM's Species Occurrence category.

For the 1996 plan, there were instances where the final wetland designations deviated from the general scoring break guidelines described earlier in this section. There were two main reasons for this.

First, in nearly all cases, these deviations occurred where the assessments did not accurately reflect existing on-site conditions. In such cases, final designations deviated to both higher and lower levels from the score break guidelines based on best professional judgments derived from knowledge of each site.

Second, many sites with score deviations included wetlands where the significant or higher value portions are concentrated on-site, either geographically or around a waterbody. With these particular sites, it seemed prudent to use the specifics in the management strategies to protect, or otherwise address, a high score or function.

Wetland areas along the central Little Campbell Creek watershed exemplify this second phenomenon, where black spruce wooded wetlands transition to Birch-Spruce riparian types along the channel. The

outer edges of the black spruce woods were generally lower in value than the immediate riparian zone wetlands, a distinction not delineated separately or represented clearly within the assessment scores.

C. Wetlands Acreage Summary

For comparison, **Tables 1, 2 and 3** summarize acreage totals from each previous plan (1982 and 1996) and this current update in 2012. For a definition of “A,” “B” and “C” designated wetlands, see Chapter 4, Section II.B. ~~“D” and “P” classified wetland sites are defined in Chapter 4, Section I.B.~~

NOTE: The wetlands acreage total for the current update appears to be much larger than what was presented in the 1996 plan. This discrepancy is mainly due to the inaccuracies of previous acreage estimates, which used out-of-date methods. In past years, municipal staff was not able to consistently use computer methods (GIS) to determine wetland acreage accurately; only gross estimates of wetland size were made, and hence, acreages were not accurate. With the advancement of GIS software, wetland acreage can now be determined with a greater degree of precision and confidence. Wetland maps were also updated to show previously unknown or unmapped wetlands, largely in the Eagle River valley and Turnagain Arm vicinity. Those additional acres balanced by historic wetland losses resulted in a net gain of wetland acreage overall. However, looking specifically at the “Developable” and “C” designations from 1982 to today, a consistent loss of wetland acres can be noted.

In the 1950s, it was estimated that over 18,000 acres of wetlands encompassed the **Anchorage Bowl** alone. Today, approximately 20,136 acres of wetlands are mapped and documented for the **entire Municipality**.

TABLE 1
1982 SUMMARY OF FRESHWATER WETLAND ACREAGE
BY DESIGNATION

Designation	"Preservation"	"Conservation"	"Developable/Mixed Developable" Designation	"Special Study"	Total Acreage
Acreage Totals:	3,793	1,066	3,949	600	9,408

Source: Municipality of Anchorage, Community Development Department, 2011.

TABLE 2
1996 SUMMARY OF FRESHWATER WETLAND ACREAGE
BY DESIGNATION AND SUBAREA

Subarea	"A" Designation	"B" Designation	"C" Designation	Total Acreage:
Anchorage Bowl	4,337	1,114	1,818	7,269
Eagle River to Eklutna	1,790	944	573	3,308
Turnagain Arm	468	113	134	716
TOTAL:	6,595	2,171	2,525	11,292

Source: Municipality of Anchorage, Community Development Department, 2011.

Note: Acreage figures are approximate. The Eagle River to Eklutna subarea does not include acreages for the Eagle River greenbelt and military land wetlands.

TABLE 3
2012 SUMMARY OF FRESHWATER WETLAND ACREAGE
BY DESIGNATION AND SUBAREA

Subarea:	“A”	“B”	“C”	“D”	“P”	Total Acreage
	Acreage:					
Anchorage Bowl	5,124	753	637	448	63	6,514 7,025
Eagle River to Eklutna	5,064	2,430	436	97	1,788	7,930 9,815
Turnagain Arm	717	120	59	1,037	1,363	896 3,296
TOTAL	10,905	3,303	1,132	1,582	3,214	15,340 20,136

Source: Municipality of Anchorage, Community Development Department, 2011.

III. CUMULATIVE IMPACTS

The Anchorage Wetland Trends Study (1950-1990) conducted by the U.S. Fish and Wildlife Service (USFWS) in 1993 analyzed historic aerial photography and permitting documents to gain a rough understanding of wetland acreage trends. As mentioned, they determined that in 1950 approximately 18,903 acres of wetlands existed in just the Anchorage Bowl area. From the 1950s through 1990, almost 10,000 acres of wetlands in the Anchorage Bowl were filled or altered.

As discussed in the 1996 Anchorage Wetlands Management Plan, other studies by USFWS attempted to qualify the cumulative impacts from these fills over time on Anchorage area wildlife habitat and plant communities. In general, those studies summarize an overall trend of habitat loss for several of the most sensitive waterbird species (e.g., Hudsonian Godwit) that nest in patterned ground bogs within the Anchorage Bowl. The vegetation studies show that in several of the larger, more impacted bogs an overall drying trend is allowing brushier, scrub-shrub plant species/communities to intrude into originally wetter bog cores, primarily grass species such as *Calamagrostis Canadensis*, Bluejoint grass.

Other less documented, but probable or assumed cumulative impacts from wetland fills since the 1950s include trends toward reduced water quality in Anchorage Bowl streams, especially for sediment and the more ubiquitous metals such as iron or aluminum. In past decades, the Alaska Department of Fish and Game had documented reduced anadromous fish populations in several Anchorage Bowl streams, which initiated a fish habitat enhancement program and policy for the Anchorage Bowl. Local hydrologic changes within individual wetlands, such as blocked surface and subsurface drainages, have resulted in local flooding within area floodplains during marginal storm events. The extent to which these hydrologic functions have been altered is not well documented, but certainly wetland fills, especially those before the 1982 Plan adoption, have contributed to this effect.

Anchorage Bowl streams with more extensive and regular flooding problems, notably Little Campbell/Campbell, Chester, Fish, and Furrow Creeks, are also the watersheds with the most wetland fills and channel alterations. As an example, the Corps of Engineers' Environmental Assessment for the 1987 reauthorization of Anchorage's General Permits included an accounting of past General Permits issued in each Anchorage Bowl watershed. Of the 75 permits issued, 50 were in the Little Campbell/Campbell Creek watershed, 10 were in the Furrow Creek watershed, and six were located in the Chester Creek watershed. That trend generally held true with this current AWMP update. For the 2010 General Permit reauthorization, the Corps of Engineers reported the largest proportion of General Permit impacts were documented for Campbell, Chester Fish and Furrow Creeks.

Most of these streams are also listed as impaired by the state Department of Environmental Conservation (DEC). The following watercourses/waterbodies have high levels of fecal coliform bacteria: Campbell Creek and Lake, Chester Creek, Eagle River, Fish Creek, Furrow Creek, Little Campbell Creek, Little Rabbit Creek, Little Survival Creek, Ship Creek, University Lake, and Westchester Lagoon. Lake Hood and Spenard Lake have issues with low dissolved oxygen levels, whereas Ship Creek, downstream from the Glenn Highway, has higher levels of petroleum hydrocarbons, oil and grease. Alaska DEC programs assist local entities in reaching acceptable goals for water quality. Since the previous plans, the Municipality has generated a Watershed Management Plan for Little Campbell Creek and a pending update of the Chester Creek plan. These plans outline goals and action items to improve water quality, and resolve other stream related issues within these watersheds.

In direct response to these cumulative impacts analyses and summaries, the Municipality, with its Wetlands Plan revisions, and the Corps of Engineers in the General Permits reauthorizations, has taken steps to reverse or minimize degrading trends and address future cumulative impacts. These steps are incorporated as conditions on the new General Permits and as site-specific conditions and guidelines in **Table 4** of this

plan. Many of the enforceable policies of Chapter 4 address past and future cumulative impacts. For example, stream setbacks and site restrictions are incorporated into all riparian wetlands, especially those sensitive areas within the Little Campbell/Campbell Creek watersheds. Also, the management strategies for upper Hillside wetlands call for site fill restrictions to further minimize impacts in headwater wetlands.

The “C” wetlands have been grouped because of their generally low wetland values and functions. Only those wetlands which, if developed, would have minimal individual and cumulative environmental impacts are included in this designation. This determination of no more than minimal impacts from future developments is appropriate since most of the “C” wetlands have comparatively low scores for all wetland functions, as delineated in the wetland assessment methodology, and the functional loss of those wetlands would not accumulate to substantial proportions. After reviewing the scores and known site values of the “C” wetlands, it was determined that if the “C” sites were filled according to conditions of the General Permits and enforceable policies that the sum of their lost functions would not represent a more than minimal cumulative environmental impact. Since most “C” wetlands do not provide particularly unique or productive wildlife habitat or water quality functions, wildlife habitat within the Municipality will not be adversely impacted if and when these sites are filled.

In those instances where “C” sites have moderate scores, those wetland functions are identified and addressed in the management strategies through site-specific setbacks, timing restrictions, and Best Management Practices. The plan also attempts, through the use of expanded buffers and other methods, to address secondary impacts of “C” site fills on adjacent “A” or “B” sites. An attempt was made with this plan update to prevent confusion regarding the management of “C” designated stream setbacks. Where “C” wetlands were coincidental with streams, the stream setback area was upgraded to a higher “A” wetland designation, which complements the management strategy of these stream associated wetlands. “C” wetlands are not intended to be totally filled without efforts to address and minimize individual and cumulative impacts. Fill avoidance and minimization are incorporated into the general management and guidance for “C” sites.





CHAPTER 3: CORPS OF ENGINEERS WETLANDS PROGRAM

I. PERMIT RESPONSIBILITY

The Department of the Army Regulatory Program is one of the oldest programs in the federal government. Initially, the Regulatory Division served a fairly simple, straightforward purpose: to protect and maintain the navigable capacity of the nation's waters, under Section 10 of the Rivers and Harbors Act of 1899. In 1972, the Clean Water Act was signed into law, and the Department of the Army was directed to administer Section 404 of the Act, which regulates the discharge of dredged and/or fill material in waters of the United States. In 1977, the U.S. Army Corps of Engineers jurisdiction included wetlands as part of "waters of the U.S."

The Corps of Engineers responsibility to regulate discharges of dredged and/or fill material in wetlands include the wetlands of the Municipality of Anchorage. This chapter is limited to freshwater wetlands because the Anchorage Wetlands Management Plan focuses only on freshwater wetlands not associated with State parklands, National Forest lands, and most military lands.

Through the Regulatory Program, the Corps of Engineers ensures that environmental impacts on aquatic resources from permitted projects are avoided, minimized or mitigated. The Corps of Engineers is dedicated to protecting Alaska's waters while allowing reasonable and necessary development to move forward.

The decision whether to issue a permit is based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision reflects the national concern for both protection and utilization of important resources. The benefit that reasonably may be expected to result from the proposal must be balanced against its reasonable, foreseeable detriments.

All factors which may be relevant to the proposal are considered. Those factors include, but are not limited to:

- | | |
|----------------------------------|---|
| • Conservation of wetlands | • recreation |
| • aesthetics | • water supply |
| • economics | • water quality |
| • general environmental concerns | • energy needs |
| • historic values | • safety |
| • flood damage prevention | • food production |
| • land use | • in general, the needs and welfare of the people |
| • navigation | |

It should be emphasized that a permit issued by the Corps of Engineers under Section 404 authorizes only the placement (discharge) of dredged or fill material into waters of the U.S., including wetlands. However, the applicant for a permit must specify the purpose and need for that discharge. A permittee may not change the use of his or her fill without permission from the Corps of Engineers.

Typical activities in waters of the U.S. requiring authorization under Section 404 include:

- Discharging dredged and/or fill material;
- Site development fill for residential, commercial or recreational projects, including mechanized land clearing;
- Construction of breakwaters, levees, dams, dikes and weirs;
- Placement of riprap; and
- Road fills.

Certain types of work have been exempted from the permit requirement by the Clean Water Act. However, these activities are exempt only if they do not change the use of waters of the United States, do not alter the flow or circulation of waters of the U.S., and do not reduce the reach of such waters of the U.S. These exemptions are outlined in Section 404(f) of the Clean Water Act.

There are three types of permits that the Corps of Engineers issues under Section 404 within the Municipality of Anchorage. These include Individual Permits, Regional General Permits, and Nationwide Permits. Though a project may qualify for use of a Regional General Permit or Nationwide Permit as described below, if it is expected there will be modifications and design changes throughout the life of a project, the applicant should request an Individual Permit as Regional General Permits and Nationwide Permits cannot be modified.

A. INDIVIDUAL PERMIT

Individual Permits are issued following a full public interest review of an individual application for a Section 404 permit. A public notice (usually 30 days in length) is distributed to all known interested parties. The permit decision is generally based on the outcome of a public interest balancing process, in which the benefits of the project are weighed against the detriments. A permit will be granted unless the proposal is found to be contrary to the public interest or fails to comply with the Environmental Protection Agency's Clean Water Act, Section 404(b)(1) Guidelines. The 404(b)(1) Guidelines allow the Corps of Engineers to permit only the least environmentally damaging practicable alternative. A practicable alternative is more feasible or capable of being implemented.

B. REGIONAL GENERAL PERMITS

Regional General Permits are issued by the Corps of Engineers, Alaska District Engineer for a general category of activities when the activities are similar in nature and cause minimal environmental impact, both individually and cumulatively.

The Corps re-issued five Regional General Permits in the Municipality of Anchorage on April 15, 2010, which cover permitting in "C"- designated wetlands as classified in the Anchorage Wetlands Management Plan. Depending on the specifics of the project, opinions of compliance for regulated activities under these Regional General Permits have been administered by the Municipality of Anchorage's Community Development Department or verified by the Corps. Regional General Permits are generally issued for 5-year periods. The current Regional General Permits for the Municipality of Anchorage will expire on April 15, 2015. Since the Regional General Permits expire every 5 years, it is important to ensure the latest Regional General Permits are reviewed for eligibility of projects. Copies of the current version can be obtained through the Municipality of Anchorage's Community Development Department or the Corps of Engineers. Note that verifications issued for particular projects are good for only two years. For further details on the Municipality's role in administering the GP, see Chapter 5, Section II.B. General Permit Implementation.

C. NATIONWIDE PERMITS

Nationwide Permits (NWP) authorize specific activities in areas under the Corps of Engineers regulatory jurisdiction. These activities are minor in scope and must result in no more than minimal adverse impacts, when considered individually or cumulatively. Individuals wishing to perform work under a NWP must ensure their project meets all applicable terms and conditions, including the regional conditions specific to Alaska. The Corps of Engineers will verify this, after receipt of a Pre-Construction Notification (PCN). Verifications issued for particular projects are good for only two years. If the conditions of the NWP cannot be met, a Regional General Permit or Individual Permit will be required. Certain NWPs do not require a pre-construction notification; however, the party performing the activity must still comply with the conditions of the NWP. A list of all NWPs currently authorized by the Corps of Engineers, as well as associated regional and general conditions, can be found at: <http://www.poa.usace.army.mil/reg/Permits.htm#Nationwide%20Permits>.

Additional details and specific conditions of verification are available from the Corps of Engineers local office in Anchorage.

D. LETTERS OF PERMISSION

Letters of Permission (LOP) is an alternate form of authorization used in a certain prescribed situations. LOPs are less frequently used as they apply only to Section 10 structures and only to certain activities, not fill placement. They are used when the proposed work would be minor, not have significant individual or cumulative impacts on environmental values, and would encounter no appreciable opposition. For an LOP, the proposal is coordinated with all concerned fish and wildlife agencies and adjacent property owners who might be affected, but the public at large is not notified. However, consideration of the public interest is central to the decision-making process. As a local example, the use of LOPs in Anchorage have been primarily for dock structures constructed in Campbell Lake.

II. WETLANDS DETERMINATION RESPONSIBILITY

The Corps' regulations pertaining to the issuance of Section 404 permits identifies wetlands as part of the waters of the U.S. over which the Corps has jurisdiction. The Corps and EPA define wetlands as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. Some wetlands, such as swamps or marshes, are often obvious, but other types such as forested wetlands, may not be easily recognized because they can be dry during part of the year or do not appear to be wet at the surface.

To delineate wetlands based upon this definition, a scientific process is followed using the Corps of Engineers Wetland Delineation Manual (1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region, Version 2.0 (COE, 2007). Only if an area exhibits positive criteria for wetland plants, soils and hydrology (three parameters) is it determined to be a wetland under the Regulatory Program.

Use of this three parameter approach allows an accurate identification and delineation of wetlands. For every project in an area that may be wetlands, the Corps is responsible for identifying of the area as either wetland or non-wetland as far as the need for obtaining a Section 404 permit is concerned.

Once an area is identified as a wetland (delineated), the Corps must determine if site is jurisdictional, and then whether the proposed discharge is covered under a Regional General Permit, a Nationwide Permit, or requires an Individual Permit. Additional information regarding the purpose and need of the project, as well as the size, is required before determination can be made concerning the type of permit the project may fall under.

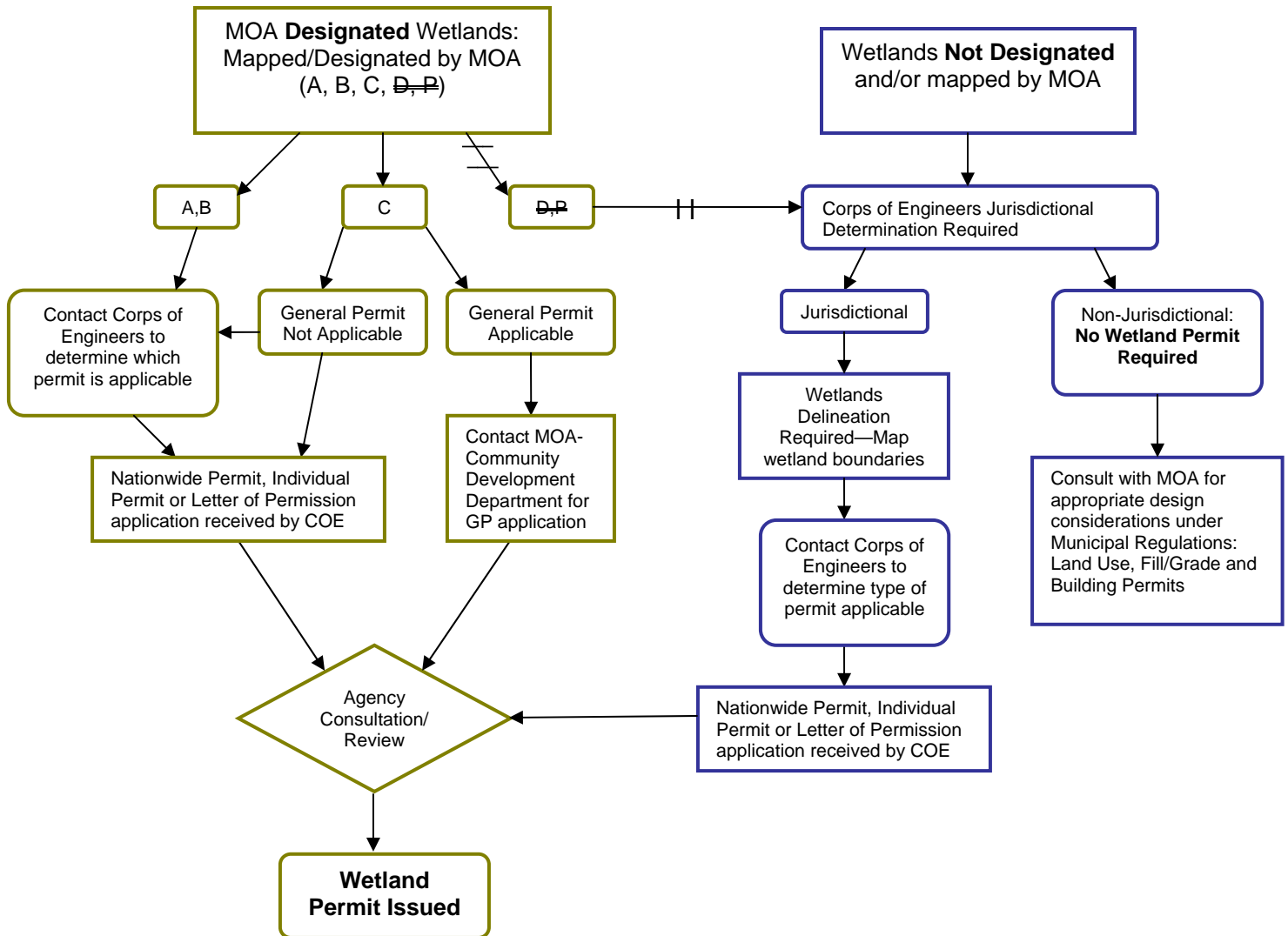
III. CORPS OF ENGINEERS 404 PERMIT PROCESS

The following summarizes the process involved in the Corps Regulatory Program:

1. A wetland delineation is complete and the area is identified as wetlands or non-wetlands. The Corps completes a further review to confirm that the wetland is jurisdictional (Jurisdictional Determination).
2. If a wetland, the proposed project will be reviewed so a determination as to the appropriate type of permit evaluation can be made.
3. When there is a proposed fill project in wetlands within the Municipality of Anchorage, the Corps encourages a pre-application meeting with the applicant at which the project is presented to the resource agencies responsible for the Section 404 review. Wetland values and functions, alternative sites, as well as ways of avoiding, minimizing, and compensating for potential wetland losses are discussed and explained at this pre-application meeting. The applicant should consider redesigning his or her proposal to respond to those concerns.
4. The applicant may then submit to the Corps a complete permit application, which includes a mitigation plan for agency review.
5. If an Individual Permit is required, an application for a Section 404 permit is evaluated. If the discharge is covered by a Regional General Permit or a Nationwide Permit, generally a pre-construction notification is required. In all cases, discretionary authority is retained by the Alaska District Engineer to require an Individual Permit review.
6. The review period commences, and depending on the evaluation, may include a general permit agency coordination notice or a public notice. At that time, the applicant has the option to respond to various incoming comments in the review period and alter the design if necessary. The resource agencies submit final comments to the Corps based on their agency mandate. The Corps develops a decision document that complies with the National Environmental Policy Act (NEPA), and serves as the basis for permit denial or issuance. Permit conditions including mitigation requirements may be added to bring an action into compliance with Section 404. The applicant receives notice of final permit issuance or denial shortly thereafter. Any appeal after permit denial must go to the Corps.

NOTE: Generally, permits for the placement of dredged and/or fill material into wetlands designated "A" will not be issued. The only exceptions will be to permit those activities in "A"-designated wetlands, which would enhance, restore, or preserve the natural character of the wetlands, or projects with substantive public benefit, as determined by the Alaska District Engineer.

Figure A
Permit Application Process







CHAPTER 4: MANAGEMENT STRATEGIES/ ENFORCEABLE POLICIES

I. OVERVIEW

The enforceable portions of this plan are presented in *italics* within this chapter and stated within the definitions, additional policies and the site-specific Management Strategies are in **Table 4**. These elements represent the heart of the Anchorage Wetlands Management Plan. The policies, when considered with federal Clean Water Act guidance and municipal regulations, provide final clarification and guidance to balance between the protection of and allowable use of Anchorage area wetlands. A potential developer, a permit reviewer, or the general public reviewing a particular wetland project should consider not only the site-specific Management Strategies in **Table 4**, but also the applicable enforceable policies within the appropriate definitions. Taken as a whole, the enforceable sections of this plan provide detailed, enforceable guidance on the management of the Municipality of Anchorage's wetland resources.

II. DEFINITION, BACKGROUND AND ENFORCEABLE POLICIES

A. BACKGROUND

This section of the plan presents definitions of key terms and phrases that are used within the enforceable policies. These definitions are, by adoption of the plan, enforceable and municipal policy. Many of these terms contribute significantly to the proper and accurate interpretation of the enforceable policies and management strategies, and are therefore essential components for the effectiveness of the Wetlands Plan. Rationale discussion has been included in this section for certain terms to further clarify and guide their usage.

Chapter 6 in the original 1982 Anchorage Wetlands Management Plan presented a review of wetland area management alternatives. These alternatives were based on an evaluation of low, medium and high levels of management. At that time, the Municipality selected the Moderate Management Level, which provided for a general balance of wetland protection and wetland development. This moderate management scheme continues through the current plan.

In addition to the management alternatives, four wetland categories or designations were developed in 1982 to show the future classification of wetlands. These included "Preservation," "Conservation," "Developable" and "Special Study" wetlands. The definitions of these wetland designations were developed in order to clarify the disposition of wetlands in the AWMP.

The 1996 AWMP revised the wetland designation nomenclature from "preservation" to "A" wetlands, essentially representing the higher value sites; from "conservation" to "B" for moderate to high value sites; and from "developable" to "C" representing the lower value areas. The basis for classifying "A," "B" and "C" sites were the results of applying the Anchorage Wetlands Assessment Methodology. The 1996 AWMP eliminated the "Special Study" designation. All previously identified "Special Study" areas were assigned one of the three new designations, "A," "B," or "C." Wetland designations also dictated which type of fill permit; either an Individual Section 404 for "A" and "B" sites or a General Permit for most "C" areas was required for future development. In general, the AWMP wetland designations

provided for a predictable method to determine what values a site may have and its development potential.

~~The 2012 AWMP update incorporates additional categories which identify areas of known or possible wetlands not previously assessed. Although not considered designated wetlands, the “D” and “P” categories are precursors to becoming “A,” “B,” or “C” designations and therefore, serve as placeholders alerting landowners to the possibility that wetlands are located in these sites.~~

~~“D” **Designation pending:** sites recently identified as wetlands, per Corps of Engineers definition, but have not been previously included or designated in the AWMP. These wetlands require a boundary delineation and/or Jurisdictional Determination by the Corps of Engineers. Wetlands were initially identified from updated hydric soils information and field tested to verify they were wetlands. At some point, the Anchorage Wetlands Assessment Methodology will be used to formally designate these sites.~~

~~“P” **Potential wetlands:** Areas containing hydric soil types, which have tested positively as wetlands in other areas of the Municipality. These sites are ‘potential’ wetlands and require a Corps of Engineers Jurisdictional Determination to ascertain whether wetlands are present. Formal wetlands boundaries should be delineated and mapped prior to any site improvements.~~

The “U” classification formerly served as a temporary category for sites that were previously unmapped but, were included in the latest General Permit reauthorization:

“U” **“Unmapped” wetlands:** are known wetlands, eligible for development under the General Permit. These sites were identified during the 2010 General Permit renewal process and evaluated using the Anchorage Wetlands Assessment Methodology. Based on that evaluation, the “U” classified wetlands would be appropriately assigned under “C” designations. They still retain the “U” classification under the General Permits public notice documents (Special Public Notice # POA-1993-10). However, this updated AWMP does not list them as “U” but instead assigns a “C” designation, which is highlighted in **Table 4**.

B. WETLAND DESIGNATIONS

The Municipality has retained the previous wetland designation scheme for this updated AWMP (“A,” “B,” “C”). Chapter 3 of the AWMP highlights the Corps of Engineers policy for Anchorage-area wetlands. Updated wetland designations were approved by the Corps of Engineers and the definitions are consistent with their policies and with Clean Water Act guidance and regulations.

“A” WETLANDS

***DEFINITION:** “A” wetlands have the highest wetland resource values. They perform at least two, but typically more, significant wetland functions. “A” wetlands are considered most valuable in an undisturbed state, as most uses or activities, especially those requiring fill, negatively impact known wetland functions. “A” wetlands are not to be altered or otherwise disturbed in any manner, except as outlined in the following discussion and in the enforceable policies.*

The following score breaks from the wetland assessment process serve as general guidelines for designating “A” wetlands:

Wetland Designation	Hydrology Values	Habitat Values	Species Occurrence Values	Social Function Values
Anchorage Bowl	More than 100 points	More than 85 points	More than 55 points	More than 55 points
Chugiak-Eagle River	More than 95 points	More than 90 points	More than 40 points	More than 50 points
Turnagain Arm	More than 90 points	More than 85 points	More than 60 points	More than 55 points

“A” WETLANDS - MANAGEMENT GUIDELINES AND IMPLICATIONS

“A” wetlands are generally not to be developed, cleared, or otherwise altered, although wetland fills could occur for actions that enhance or restore a site’s functions and values.

For public need projects, fill proposals could be reviewed and entertained, subject to an Individual Section 404 permit, for minor encroachments into “A” sites, if these sites are the only practicable alternative location for such use. These projects include utility, road or trail crossings, or park amenities and must be located at the wetland fringe or in the least functionally important sections of the wetlands to the maximum extent.

On-site physical conditions typically render “A” wetlands unsuitable for intensive land uses without major alteration. Typically, these sites are valuable to public health and safety as floodwater storage and water quality areas, significant or critical wildlife habitat, or as open space with less active public use. Any activity requiring fill or vegetation clearing must comply with the Clean Water Act Section 404 permit program and requirements.

Fill activities associated with typical residential or other developments in “A” wetlands are generally unacceptable. The plan does allow for recognition of potential exceptions. The Municipality recognizes that there may be instances where precluding fill placement in “A” wetlands might restrict all economic use of a property. **It is not the intent of the Municipality to completely restrict all economic use of privately held “A” wetlands.**

If a parcel contains part “A” wetlands and other designated wetlands or part uplands, permitting agencies will not entertain a fill project in the “A” portion unless all other portions of the property are undevelopable and all economic use of the parcel is precluded. There are also sites where fill might be required for which there are no other local practicable locations; for example, the Anchorage International Airport lands. Fill permits for these types of areas should be considered, subject to Section 404 regulations, if they follow the **Table 4** guidelines.

When conditions exist that call for the possibility of a fill project in “A” wetlands, the fill must be limited to the square footage needed for a principal structure, use or access. Minimum fill coverage for structures shall reflect the particular zoning district’s lot coverage restrictions for a principal structure. Such fills would not allow for a complete subdivision of residential homes or for several structures in another zoning

district. Rather, the intent of this exception is to simply provide a possible avenue for a landowner of an otherwise undevelopable wetland parcel the potential to receive some economic use of a lot. For example, this would typically mean the use for a single home. Fills for these structures shall be considered only if no upland alternatives exist on the subject lot.

All fill permit requests in “A” wetlands must comply with Section 404 guidelines, and any mitigation requirements will reflect current federal and state regulations. Mitigation must follow current Corps of Engineers guidelines. For permits requiring mitigation within Anchorage International Airport properties, ~~when not in conflict with FAA regulations/guidelines and applicable airport safety standards, and where feasible, a buffer shall be provided in wetlands permitted for development when abutting residential areas. The remaining undeveloped wetlands shall be shielded from permitted development to maintain social, habitat, and hydrology/water quality function values. the priority for compensation is off-site, in order to comply with federal guidelines for aircraft safety.~~

Enforceable policies:

1. *Unless site-specific policies in **Table 4** or exceptions outlined by the Corps of Engineers indicate otherwise, “A” wetlands shall be maintained in their natural state to the maximum extent.*
2. *A roadway, utility, trail, and park amenity with no practicable, less damaging alternatives and with a demonstrated public need may be allowed in “A” wetlands if wetlands values and functions are maintained to the maximum extent.*
3. *Residential and other development in “A” wetlands, subject to other AWMP policies and state and federal regulatory requirements, shall be considered only when no less damaging alternatives exist and if all economic use of a property would otherwise be precluded.*

“B” WETLANDS

DEFINITION: *Within each “B” site, there is typically a mixture of higher and lower values and functions and some portion of these wetlands have a fairly high degree of biological or hydrological functions and site development limitations. They possess some significant resources, but could possibly be marginally developed. The intent of the “B” designation is to conserve and maintain a site’s key functions and values by limiting and minimizing fills and development to less critical zones while retaining higher value areas. Development could be permitted in the less valuable zones of a “B” site, provided avoidance and minimization and Best Management Practices are applied to limit disturbance and impacts to the higher value non-fill portions.*

The following score breaks from the wetland assessment process serve as general guidelines for delineating “B” wetlands:

Wetland Designation	Hydrology Values	Habitat Values	Species Occurrence Values	Social Function Values
Anchorage Bowl	85 - 100 points	65 - 85 points	25 - 55 points	35 - 55 points
Chugiak-Eagle River	80 - 95 points	65 - 90 points	20 - 40 points	30 - 50 points
Turnagain Arm	70 - 90 points	70 - 85 points	35 - 60 points	40 - 55 points

“B” WETLANDS - MANAGEMENT GUIDELINES AND IMPLICATIONS

The individual management strategies listed in **Table 4** for “B” wetlands outline the known wetland values and functions for each site. The management strategies shall direct and serve as the basis for decisions on fill placement. Proposed land uses for “B” sites could be intensive within the less valuable wetland areas. It is, however, the intent of the Municipality to have the values and functions of “B” sites maintained. Development in less valuable zones of a “B” site must provide avoidance, minimization and Best Management Practices to limit disturbance and impacts to the higher value non-fill portions. Platting requirements for “B” areas include the submission of soils, hydrological and habitat data. There is no set formula as to the percentage of a “B” wetland that can be filled or will remain undisturbed.

Although the Section 404 permit process may produce a permitted development plan substantially different from a proposed subdivision plat, it is the Municipality's intent to minimize such discrepancies by conferring with the applicants on platting issues after submission of a Section 404 application. If plats reflect Section 404 permits, the technical review of preliminary plats will be far better served and most productive in facilitating a final plat. The practice of conditioning preliminary plats to reflect future Section 404 permits has proved confusing to the applicant, the staff reviewer, and the public. It has also proved to be both technically demanding and time consuming. Thus, the initial platting action *should follow* the Section 404 reviews and final permitting. The individual management strategies should provide sufficient guidelines for development of plat designs in “B” wetlands.

Enforceable Policies:

- 1. Key wetland areas and functions in “B” wetlands shall be identified and maintained to the maximum extent for all development activities.*

“C” WETLANDS

DEFINITION: “C” wetlands are the lowest value wetlands within the Municipality. Some “C” sites may have moderate values for one or more wetland function, but they generally have reduced or minimal functions and/or ecological values. Such sites are suitable for development and are to be generally managed to support community expansion and infilling. “C” sites are intended to be permitted under General Permit authorization from the Corps of Engineers, administered by the Municipality of Anchorage’s Community Development Department. The development of “C” wetlands in accordance with **Table 4** and Enforceable Policies is considered to have a minimal cumulative impact on overall functions and values of Anchorage wetlands.

The following score breaks from the wetland assessment process serve as general guidelines for delineating “C” wetlands:

Wetland Designation	Hydrology Values	Habitat Values	Species Occurrence Values	Social Function Values
Anchorage Bowl	Less than 85 points	Less than 65 points	Less than 25 points	Less than 35 points
Chugiak-Eagle River	Less than 80 points	Less than 65 points	Less than 20 points	Less than 30 points
Turnagain Arm	Less than 70 points	Less than 70 points	Less than 35 points	Less than 40 points

“C” WETLANDS - MANAGEMENT GUIDELINES AND IMPLICATIONS

“C” wetlands fall within the definitions outlined in Sections 322.2 and 323.2 of the Clean Water Act, where conditions under which certain wetlands can be included in a Regional General Permit are identified. Specifically, such wetlands may be developed where filling would “cause only minimal individual and cumulative environmental impacts.” Thus, “C” wetlands may be developed to satisfy growth needs but are not to be filled automatically or speculatively. Fill activities in certain “C” sites are permitted under General Permit authorization by the Corps of Engineers, and administered by the Municipality of Anchorage’s Community Development Department.

Best Management Practices and fill avoidance or minimization may be required in permits for “C” sites. The more significant and valuable portions of “C” wetlands are identified in the **Table 4** Management Strategies, or will be delineated, as necessary and required by the Municipality of Anchorage’s Community Development Department during processing of a General Permit. Management strategies and General Permit conditions for many “C” sites include setbacks from watercourses. These are meant to be minimum distances to retain the functions of those watercourses under the impact guidelines of Section 404 regulations. Projects that require fill within setbacks would not be able to use the General Permit, but would instead require a Section 404 Permit from the Corps of Engineers.

All General Permits for “C” sites must comply with the stated terms and conditions of the General Permits and with additional conditions imposed by the Municipality of Anchorage’s Community Development Department and/or Corps of Engineers and at the time of permit processing.

Enforceable Policies:

1. *For “C” wetlands in large-lot, rural, residential zoning districts [zoned R-6 through R-11, under AMC 21.40.100-117 or upon adoption of the Provisionally Adopted Code (May, 2010), under AMC 21.04.020N.,O.,P.], fills shall be limited, to the maximum extent, to what is necessary for a principal structure and outbuilding, utilities, and driveway pad. Watercourses and other key wetland areas shall be identified in the General Permit process and avoided to the maximum extent.*
2. *For “C” wetlands in all other zoning districts [AMC 21.40, or the Provisionally Adopted Code (May, 2010): AMC 21.04.020], fills shall be subject to all applicable enforceable policies within this plan and fill avoidance and minimization techniques as otherwise identified during the General Permit processing by the Municipality of Anchorage’s Community Development Department.*
3. *To mirror federal Section 404 regulations, no wetland permits for projects in the Municipality (both General Permits and Individual or Nationwide Section 404 Permits) shall be issued for speculative fills; i.e., a specific project shall be planned, and the applicant shall have considered alternative sites and construction measures. Neither a General Permit nor a Section 404 Permit should be issued for a subject parcel prior to final action on a rezone or plat request from the Municipality of Anchorage’s Community Development Department.*

C. SETBACKS AND BUFFERS

For protection of watercourses/water bodies and key wetland areas and functions, the Municipality institutionalized the application of setbacks and buffers. These are discrete areas of wetlands, adjacent to a watercourse or waterbody or an area with important wetland functions, which are meant to shield it from impacts and disturbances.

Setbacks are standardized distances in wetlands from watercourses, measured outward from the water edge; whereas buffers are smaller non-disturbance zones at the interface of a “C” wetland and “A” or “B” wetlands. Setbacks and buffers are standardized under certain circumstances in this plan and are delineated, where necessary and applicable, within the **Table 4** Management Strategies. Setbacks and buffers serve as key measures for avoidance of watercourses and significant wetland sites and for minimization of impacts from adjacent wetland fills and developments.

Since the 1982 Wetlands Plan, the conditions on the Corps of Engineers' original General Permits have required a minimum 65-foot setback for “C” wetland areas adjacent to a watercourse. In order to develop within a setback, a General Permit cannot be used, only an Individual 404 or Nationwide Permit from the Corps of Engineers. In some instances, greater setbacks are required as part of a particular site's management strategy: 85 feet for wetland adjacent to an upper watershed stream, and 100 feet for wetlands associated with anadromous fish streams. For General Permits in “C” wetland areas, the Municipality also required a 25-foot buffer between fill authorized by the General Permits and an adjacent “A” wetlands, or 15-foot buffer for GP-authorized fill adjacent to “B” wetlands.

In the 1996 plan and subsequent General Permits, additional requirements for hydrologic and drainage analyses were required prior to verification of a General Permit. Since 1982, subdivision developments in and adjacent to wetlands have often experienced local flooding, failed septic systems and foundation problems related to groundwater intrusion. One method for reducing such impacts has been to review local hydrology in an area prior to permitting so that design changes and setbacks can be included in permit actions.

Since the 1982 plan was adopted, the Municipality has developed a clearer evaluation, understanding and identification of local flooding and water quality problems. Experience has shown that the loss of wetland areas within the drainage basins of the main creeks has potentially contributed to local flooding and water quality problems. This is particularly true in the Little Campbell and Chester Creek watersheds.

The U.S. Geological Survey has documented creek flows trends in the Anchorage Bowl, which show that annual volumes and average flows actually reduced slightly by the early 1980s. However, reductions in average flows were countered by faster peak flows derived from storm events. This phenomenon coincides with periods of faster growth in the Municipality, which saw the loss of both wetland and upland vegetation areas to fill and development and subsequent reductions in stormwater retention capacity.

On the basis of U.S. Geological Survey data, plus recent studies from around the country concerning protection of headwater areas for flood retention and for stream sediment reduction, the Municipality revised and attempted to standardize setback distances as a wetland management strategy. These setbacks also better reflect the intent of recommendations made in the 208 Water Quality Plan (1979) adopted by the Municipality as a precursor to the Wetlands Plan and supplement requirements of Anchorage's Pollution Discharge and Elimination System permit.

The extensive use of setbacks and buffers also provides better protection of key wildlife corridors along the riparian zones of most Anchorage creeks. High-use moose areas extend into wetlands and upland sites east of Goldenview Drive and south of Rabbit Creek. Prime bear corridors include the Rabbit, Little Rabbit, and Little Survival Creek systems. With the setback restrictions, development will cause less interference with these wildlife corridors.

SETBACK: *A discrete area of wetlands adjacent to a watercourse, typically having a width of 100 feet, 85 feet, 65 feet, or customized in a specific management strategy or as a condition of a General Permit. Setbacks are measured outward or away from the Ordinary High Water line or outer bank of a lake, pond or stream. A General Permit cannot be applied within a setback area, and all fill and disturbance are*

prohibited, except in cases of demonstrated public need for projects with no other practicable alternatives. Refer to the General Permits for further guidance regarding setbacks within GP-eligible wetlands. Setbacks are to be treated as "A" wetlands and require an Individual Section 404 or Nationwide permit review for fill. For subdivisions that are not platted, the setback area shall ideally be tracted out, or set apart in a separate tract, rather than being included within individual lots.

BUFFER: *A discrete area of wetlands, as measured inward from the boundary of a "C" wetlands and "A" or "B" wetlands. Except as customized and specified in the **Table 4** Management Strategies, the buffer between fill authorized in "C" wetlands and "A" wetlands is 25 feet, and the buffer between fill in a "C" wetlands and a "B" wetlands is 15 feet. All fill and disturbance is prohibited in a buffer except as permitted and/or conditioned in an Individual or Nationwide Section 404 Permit.*

After an extensive nationwide review of setback distances from watercourses, the following setback and buffer guidelines were adopted in the 1996 plan based on wetland type, position of a watercourse in a watershed, and fish resources of the subject watercourse. Where applicable, the following setbacks from a watercourse's ordinary high water mark or outer bank are specified for certain wetland units in the **Table 4** Management Strategies:

100-Foot Setback: This is the minimum setback that applies to "C" designated wetlands adjacent to a stream or watercourse that is listed as having anadromous fish in An Atlas to the Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes. For "A" and "B" designated wetlands, setbacks should generally follow this trend, but may be fine-tuned only via the Individual or Nationwide Section 404 Permit process. Uncataloged watercourses in any wetland area shall be trapped or otherwise checked for the presence of anadromous fish at the time of a permit review, by the Alaska Department of Fish and Game, to determine if the 100-foot setback is applicable.

RATIONALE: After conferring with the state and federal resource agencies with particular expertise in fish and wildlife habitat management, and after reviewing research data for setback distances around the country relative to fish and wildlife habitat, it is clear that 100 feet is the minimum standard setback distance for maintenance of fish and wildlife habitat and populations. This is particularly evident and applicable to sites where wetlands abut a watercourse with significant aquatic habitat and anadromous fisheries. The setback zone is vital to maintenance of local water quality and stream-side conditions so important to the habitat requirements for Anchorage area fish.

Enforceable Policy:

*Setbacks shall be **100 feet** from anadromous fish streams (as identified in "An Atlas to the Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes," Alaska Department of Fish and Game, or found to be anadromous at the time of a project review). Anchorage Municipal Code requires a 100-ft setback within the R-10 Alpine/Slope zoning district under AMC 21.40.115. Refer to the most current version of adopted municipal code for clarification.*

85-Foot Setback: Applies generally to "B" and "C" wetland areas in the upper one-third of watersheds, mostly on the Anchorage Bowl hillside, and in the upper reaches of watercourses elsewhere in the Municipality, adjacent to non-anadromous fish streams. Areas with an 85-foot setback are specified in **Table 4**. For "A" sites, setbacks should generally follow this trend, but may be fine-tuned only via the Individual or Nationwide Section 404 Permit process.

RATIONALE: Wetlands associated with first and second order streams/creeks, e.g., headwater areas, provide the highest flood control functions in that watershed. In the Municipality, this is most appropriate where wetlands with organic soils and shallow gradients have the most contact with flood waters and run-off in a headwater complex.

Throughout the country, and commonly in the Pacific Northwest, setbacks of 100 feet or greater have been determined to be ideal for sediment and fecal coliform removal. Furthermore, several studies have indicated that more than 90 percent of a stream's primary energy source is produced in headwater areas. Generally, the flatter a wetland's profile, the greater value it has to flood control and water quality of an adjacent stream.

In most cases in the Municipality, an 85-foot setback can be readily implemented since the areas where it would be applied are in rural, large-lot zoning districts. In addition, the 85-foot setback distance often closely coincides with the 100-year floodplain. During background studies for the 208 Water Quality Study and the 1996 plan, it was also determined that the principal stream flow and aquifer recharge zone for the Anchorage Bowl was the mid- and upper Hillside area.

Enforceable Policy:

*Setbacks shall be **85 feet** from certain headwater creeks and tributaries, as identified in **Table 4**.*

65-Foot Setback: This is retained for wetlands adjacent to non-anadromous watercourses, which are generally found in the lower sections of watersheds, or for isolated lakes/ponds where a greater setback distance is either not necessary or is more difficult to justify. This setback was generated during the first Anchorage General Permits authorization discussion as a minimum area of protection for water courses and waterbodies. The Corps determined that this distance allowed development fills to conform to the federal General Permit requirements to minimize impacts. It is applied generally to sections of streams within the lower portion of their watershed.

Enforceable Policy:

*Setbacks shall be a minimum of **65 feet** from all other streams generally located within the lower 2/3 of their watersheds.*

15- and 25-Foot Buffers: Where General Permits are issued for "C" wetlands that abut an "A" wetland, a 25-foot buffer will be required between fill authorized in the "C" wetland and the "A" wetland, unless otherwise specified in the **Table 4** Management Strategies. For General Permits issued in "C" wetlands adjacent to "B" designated wetlands, a minimum 15-foot buffer should be used. In both cases, the buffer requirement can be increased by the Municipality, as necessary, for on-site circumstances. Fill proposed within these buffer areas would instead need to use an Individual 404 or Nationwide Permit. Per the enforceable policies, these buffer zones are to be treated as the adjacent wetland designation, either "A" or "B."

RATIONALE: In order for the Municipality to comply with the regulatory requirements for General Permits and additional conditions guaranteeing the minimization of impacts from filling "C" wetlands, buffer zones were established at the interface of "C" and other wetlands. These buffer zones are intended to minimize local disturbances of land uses in areas of "C" wetlands that have been filled, to adjacent "A" and "B" wetlands. These buffers offer visual and noise screening, physical separation that minimize human and domestic animal interference, and protect habitat edges.

Enforceable Policy:

*Unless otherwise stated in **Table 4**, a Buffer of **25 feet** shall be required between fill authorized in "C" wetlands and the boundary of a designated "A" wetland; and **15 feet** from the boundary of a designated "B" wetland. The buffer area shall be managed as the adjacent wetland designation to which it applies (either "A" or "B").*

It is the Municipality's intention that identified setbacks and buffers shall remain undisturbed to the maximum extent, since these areas are important to flood control, water quality, and fish and wildlife habitat. Any and all potential fill projects identified in setbacks or buffers are required to go through an Individual 404 or Nationwide review. Such projects shall generally be limited to public transportation, recreation, utility, and other public facilities. Private developments proposed for setback areas shall be discouraged except where an overall development's physical and/or economic viability would be significantly harmed by such a restriction.

All fills identified in setbacks are subject to a Municipality of Anchorage, Public Works Department flood hazard review. Whenever feasible and prudent, wetland setbacks and buffers shall be placed in a separate tract in the platting process until an Individual 404 or Nationwide Permit, or similar fill and design authorization, has been granted by the Corps of Engineers.

Upland Setback:

*Setbacks are **25 feet** from streams in **uplands**, where no wetlands are adjacent or abutting per Anchorage Municipal Code 21.45.210; or **50 feet** under the Provisionally Adopted Code (May, 2010) regulations, 21.07.020B.*

Customized Setback:

*Where a setback distance has not been specified in **Table 4**, or as a condition of the General Permits, the Municipality of Anchorage's Community Development Department shall determine, if any, and what size setback will be required as a site-specific condition on a General Permit. Such setbacks shall also be determined by the agencies during a Section 404 Permit review. These setbacks shall be required where new information for a Permit application identifies a previously unknown permanent or ephemeral stream channel, drainageway, or other watercourse in or adjacent to the subject wetland. These customized setbacks shall be a **minimum of 50 feet** from a permanent watercourse and shall conform to the Provisionally Adopted AMC Code, Title 21 (May 2010).*

Note: An applicant may appeal a customized setback General Permit condition only by request to the Corps of Engineers.

D. DEFINITIONS

Additional terms used within **Table 4** Management Strategies and in other enforceable policies are defined below. Official definition of these terms will facilitate plan implementation.

"AVOIDANCE" means the action of taking all steps to prevent fill or disturbance from occurring in a specified area or an entire wetland.

"CONSERVATION SUBDIVISIONS" are intended to create a more compact residential development to preserve and maintain open areas, high value natural lands, and lands unsuitable for development, in excess of what would otherwise be required by code. (See Provisionally Adopted Code 21.08.070, and 21.03.080F)

"DISTURBANCE" means any action, including but not limited to, fill placement, vegetation clearing, excessive human use or interference, that damages or negatively impacts the natural functions, physical condition, and values of a wetland.

"DRAINAGEWAY" is a water course that does or is likely to convey storm water flows. Drainageways are characteristically ephemeral, conveying flows only in direct response to storm water runoff and for limited durations. They may carry perennial flows from intercepted ground water i.e. footing drains.

“EPHEMERAL FLOW” brief flows, temporal in duration or the presence of water in direct response to recent precipitation or highly localized snow melt.

“INTERMITTENT FLOW” is stream flow that is not perennial or continuous but, when occurring, still represents a volume greater than that from a single storm event. Flow may be discontinuous over time and/or area.

“JURISDICTIONAL WETLANDS” are those wetlands that are regulated by the Corps of Engineers under Section 404 of the Clean Water Act. Wetlands must exhibit all three characteristics: hydrology, wetland vegetation, and hydric soils (COE, 1987) to be classified as a ‘wetland’. **JURISDICTION** is formalized by the Corps following a determination done by a federal agency and/or approved by the Corps. It is important to understand that some areas that function as wetlands ecologically, but are not hydrologically connected to a navigable watercourse, and would not currently qualify as Corps of Engineers jurisdictional wetlands. Thus activities in these wetlands are not regulated under the Section 404 program. Such non-jurisdictional wetlands, however, may still perform valuable functions such as water quality maintenance.

“KEY OR CORE WETLAND AREA(S)” means the specific section of a site where the most important wetland functions and values are located.

“MAINTAIN” means to keep in existing or natural condition and functions.

“MAXIMUM EXTENT” means as much as can feasibly (both engineering-wise and economically) and lawfully be put into practice.

“MITIGATION” For every authorized discharge, the adverse impacts to wetlands, streams and other aquatic resources must be avoided and minimized to the extent practicable. For unavoidable impacts, compensatory mitigation is required to replace the loss of wetlands and aquatic resource functions in the watershed. Compensatory mitigation refers to the restoration, establishment, enhancement, or in certain circumstances preservation of wetlands, streams or other aquatic resources for the purpose of offsetting unavoidable adverse impacts.

“PARK AMENITIES” means specific structures placed in, or actions carried out in parkland or on public lands that enhance active or passive recreational uses of the site. This term is modified by “Minor” Park Amenities, which means park amenities excluding large structures, ballfield complexes, or pavilions; for example, benches, picnic tables, garbage facilities, lighting systems, and other minor enhancements.

“PRACTICABLE” is used in reference to project alternatives, under Section 404 guidelines. A Section 404 permit applicant must be able to demonstrate that there are no ‘practicable’ alternatives to filling wetlands. Practicable is the capability of being put into practice, to complete or accomplish.

“PRESERVE” means the strict prohibition of any alteration of a wetland function.

“REV” stands for Relative Ecological Value of a wetland. REV values are defined within the Anchorage Debit-Credit Methodology, a quantitative methodology to determine appropriate compensatory mitigation for projects in wetlands and jurisdictional waters. The Methodology can be found online at: <http://www.muni.org/Departments/OCPD/Planning/Physical/EnvPlanning/Pages/CreditDebitMethod.aspx>

REV values are a hierarchy from REV 1, highest functioning and valuable wetlands, to the lowest of REV 4, and correspond loosely to wetland designations in this plan. REV values are mentioned in the **Table 4** Management Strategies primarily to point out General Permit sites that require mitigation at a REV higher than the GP standard charge of REV 3.

“STREAM” as defined in the Anchorage Municipal Code and within MOA-Watershed Management Division’s parameters as any natural conveyance of water flowing in a definite course or channel and possessing a bed and banks. Includes any reaches of natural streams which have been modified or channelized but which still convey flows. A “Natural” permanent stream conveys more flow than can be attributed to a single snowmelt or rainfall event.

“WATER BODY” means any area of water with a permanent minimum surface area (ordinary high water mark) containing at least 2,500 square feet. This size corresponds to the smallest water body, i.e., lake or pond, which can be used, under normal circumstances, for nesting by more than one species or several pairs of one species, of local Anchorage area waterbirds. Defined as “still water features” by the MOA-Watershed Management Section.

“WATERCOURSE” is a natural channel produced by surface water flow, or an artificial channel constructed to convey surface water; including streams or drainageways.

“WETLAND” means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (Clean Water Act, Section 404, Part 328.3, 7(b)).

“WETLAND DELINEATION” means the technique of identifying the border between wetland and non-wetland areas. All wetlands noted with this plan were identified by using the Corps of Engineers 1987 Field Delineation Manual and the Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Alaska Region, Version 2.0 (COE, 2007).

III. ADDITIONAL POLICIES

A. ADMINISTRATIVE AND PROCEDURAL POLICIES

The following Administrative and Procedural Policies are not enforceable in permitting, but rather serve as guidelines for plan and policy implementation.

1. Anchorage Municipal Code, Title 21 is the Land Use Planning section of code for the Municipality. Title 21 has been undergoing revisions to modernize and improve its use; however, as of early 2012, the provisionally approved document had yet to achieve final approvals; as such, certain elements of the new code can only be mentioned in this document as informational. The current code remains in place and is hence referenced.
2. The platting and subdivision design processes will be used to provide for viable economic use of “B” wetlands while retaining key functions. The Planned Community zoning designation (AMC 21.40.250), Planned Unit Development standards (AMC 21.50.130), and the Cluster Housing Site Plan Review (AMC 21.50.210) shall be used whenever feasible to modify development densities and subdivision design in order to preserve key wetland functions, especially on large unplatted tracts. Under the Provisionally Adopted Code (May, 2010), Conservation Subdivision standards under AMC 21.08.070 and Planned Unit Development at 21.03.080F would apply.

3. To the maximum extent, subdivision plats and agreements shall be initiated after a Corps of Engineers Section 404 permit has been authorized.
4. Land uses within identified setbacks and buffers shall conform to the requirements of the municipal Stream Protection Ordinance (AMC 21.45.210) and the Floodplain Regulations (AMC 21.15.020 and 21.60) or subsequent sections of the Provisionally Adopted Code (May, 2010), (AMC 21.07.020 and 21.04.080.D).
5. All fill projects within identified setbacks and buffers shall be subject to Section 404 review by the Corps of Engineers. Setbacks shall also be required from watercourses in "A" and "B" wetlands.
6. The Municipality of Anchorage, Community Development Department, Long-Range Planning Section, shall be responsible for requiring site analyses and Best Management Practices, outlined in the following section, as part of a General Permit application, or in its response to a Section 404 review. The applicant shall be responsible for supplying the appropriate information and data, which shall in turn be reviewed and determined adequate by the municipal Public Works Department - Watershed Management (including Flood Hazard), and Design and Engineering Sections, and the Community Development Department.

B. BEST MANAGEMENT PRACTICES

BACKGROUND:

Over the past thirty years, the Municipality has developed a set of commonly used Best Management Practices, related to construction activities in local wetlands and upland areas. If applied properly and consistently, these practices contribute to minimizing impacts on wetland and waterbody resources and also ensure efficient, compatible developments. An outline of the most common Best Management Practices which may be required of new developments in wetlands follows. Many are integrated within the General Permits, as appropriate. Such practices will be required in addition to other conditions placed on municipal Fill Permits by the Public Works Department. Many of these and other Best Management Practices are included in the Anchorage's Pollution Discharge Elimination System (APDES) permit.

It is the Municipality's intent to list these practices here so that project cost estimates and designs can include and incorporate such requirements at the start and in the planning stages of a project. Certainly, many of these practices will not always apply to a particular site, and certain aspects of these Best Management Practices will need customizing based on conditions at each site. This will occur in the permitting stage and will be specified by either municipal staff for General Permits, or in the Corps of Engineers' process. When a particular management strategy in **Table 4** is listed, appropriate Best Management Practices listed in this chapter shall be required.

BEST MANAGEMENT PRACTICES:

In order to evaluate and minimize individual and cumulative impacts of wetland permit authorizations, Drainage Impact Analyses, Project Site Drainage Plans, Water Quality Control Plans, Site Restoration and Stabilization Plans, and Wetland Minimization and Habitat Avoidance Plans shall be required, as necessary, for Permit reviews. For a General Permit, site-specific Best Management Practices shall be applied as conditions of the permit. (See the General Permit for further information.)

1. **DRAINAGE IMPACT ANALYSIS.** When required as a specific permit condition or as deemed necessary for municipal reviews, a Drainage Impact Analysis (i.e., hydrogeologic analysis) shall be supplied by the applicant to the Municipality of Anchorage's Community Development Department with consultation by MOA-Watershed Management Section. Information for this analysis includes, but is not limited to:
 - a. Estimates of surface and subsurface water movement within and into the subject property;
 - b. Delineation of estimated on-site and off-site drainage impacts of the fill;
 - c. Outline of mitigating factors to offset adverse impacts;
 - d. Soil types, depth to groundwater, and seasonal water table information;
 - e. Existing topographic delineation and general surface drainage patterns;
 - f. Location of permanent and ephemeral watercourses and water bodies greater than 100 sq ft;
 - g. How development within and adjacent to the subject wetland may be affected by groundwater intrusion as a result of the proposal.

Note: The Drainage Impact Analysis provided by the applicant should include information, which conforms, at a minimum, to municipal policies in the most current municipal Design Criteria Manual.
2. **SITE DRAINAGE PLAN.** To evaluate and reduce the potential for groundwater intrusion and impacts to existing local hydrology, the following information shall be required when indicated in **Table 4**, or otherwise as a condition of a General Permit. This information may be applicable concerning both construction and full build-out of the project:
 - a. Identification of final surface drainage directions for a finished development;
 - b. Location and types of existing and proposed constructed and natural drainage facilities/features, including sub-drains, culvert size and catch basins, and location of connections and elevations where new drainage features tie into existing storm drains. Also, location and measurements of retained natural drainage features;
 - c. Identification and location of water quality treatment measures and facilities and levels/standards of water quality intended to be achieved with treatment;
 - d. Location and types of necessary dewatering controls (ditches, ditch blocks, etc.) to be used in construction and as part of finished design, to ensure maintenance of remaining wetland hydrology;
3. **WATER QUALITY CONTROL PLAN.** A water quality control plan shall be submitted for all wetland construction projects and shall indicate, as necessary:
 - a. Measures that will be taken during construction for water quality maintenance. These measures must include, but are not limited to:
 - 1) Placement of perimeter silt fence or other sediment control devices at the toe of any exposed fills;
 - 2) Identification of the location, size, and depth, of stormwater and construction site runoff treatment settling ponds;

- 3) *Identification of the location and type(s) of outlet features of water treatment for settling ponds, e.g., filtering swales; and*
 - 4) *Identification of temporary construction and fill slope stabilization measures.*
- b. *Measures that will be taken (by the applicant) for long-term site stabilization, including:*
- 1) *Minimum 2.5:1 slopes of fill which face or abut unfilled wetlands;*
 - 2) *Slope blankets; and*
 - 3) *Revegetation plans for exposed fills and slopes, including maintenance, as necessary.*
4. *SITE RESTORATION AND STABILIZATION.* *The following measures shall be included in any restoration plan submitted by an applicant, where the original wetland is being restored or enhanced:*
- a. *Final grading plan of disturbed and restored wetlands shall match remaining natural grades, or original grades as closely as practicable;*
 - b. *Include revegetation plan for disturbed fills and wetlands. Shall utilize native species per original condition to maximum extent practicable, and/or match guidelines of the Municipality of Anchorage Standard Specifications (M.A.S.S.).*
 - c. *Shall include topsoil placement, as necessary, on poorer soil areas, e.g., peat or silt, to insure revegetation.*
 - d. *Proposed coverage of revegetation plans: recommend 90% coverage after one season, plus appropriate maintenance and replacement scenarios. Consult with the current M.A.S.S. for the latest applicable guidelines. Site specific guidelines may be required.*
5. *MINIMIZATION AND HABITAT AVOIDANCE.* *The following measures shall be included in design plans for General and Individual Section 404 Permits in order to minimize or avoid disturbance to wetlands and to wildlife use of an area:*
- a. *Cluster housing design [or Conservation Subdivision per Provisionally Adopted Code (May, 2010) 21.08.070] and transition buffer standards, following the Anchorage Municipal Code (Section 21.45), shall be used wherever feasible and prudent to modify residential densities in order to avoid fills in key wetland areas.*
 - b. *Whenever practicable, commercial or residential subdivision design shall incorporate key wetland areas in separate tracts as open space or under other non-development designations.*
 - c. *In larger wetlands, subdivision development and fills shall be phased, where possible, to minimize impacts. Phasing shall begin at the portion of a wetland furthest from known sections of higher value wetlands.*
 - d. *General Permit and Individual Permit authorizations shall contain timing restrictions for fills, during the period from April 15 to July 15 in an effort to minimize impacts on nesting and migrant waterbirds.*
 - e. *Equipment shall not be serviced nor stored in wetlands or near watercourses/ water bodies, nor shall equipment encroach beyond the project area, in accordance with AMC 15.40 or the Provisionally Adopted Code (May, 2010) AMC 21.07.040F.2. and 21.07.040F.3.*

6. *Unless otherwise specified, when additional information or site analysis (e.g., drainage analysis, wetland delineation, avoidance measures) is required in **Table 4**, such information shall be provided by the applicant at the time of permit application.*
7. *The process outlined in this section and identified Enforceable Policies shall be used as the Municipality's key **mitigation** techniques. Where additional mitigation, beyond these key techniques, is considered during a Section 404 Review, then the mitigation shall be considered in the following order of preference according to EPA's standard for mitigation sequencing. The costs and engineering feasibility, relative to the benefit to the resource, shall be considered in the implementation of this policy. Additional information on mitigation can be found in Chapter 6 of this plan. The standard mitigation sequence is:*
 - a. **Avoid:** *Avoiding the adverse impacts altogether by not taking a certain action;*
 - b. **Minimize:** *Minimizing impacts by limiting the degree or magnitude of the action;*
 - c. **Compensation:** *Compensating for the impact by replacing or providing substitute resources or environments through:*
 - 1) *Rectifying the impact by repairing, rehabilitating or **restoring** the affected environment;*
 - 2) **Create** *or establish new wetlands where they did not exist before;*
 - 3) **Enhancement** *of existing degraded wetlands improving one or more of their functions.*
 - 4) **Preservation** *of wetlands in perpetuity using a conservation easement or other mechanism.*
 - 5) **Mitigation Banking** *allows developers who will incur wetland impacts to compensate by purchasing credits from a wetland mitigation bank prior to filling wetlands. Mitigation Banks basically preserve wetlands and sell the credits for a fee established by the bank.*
 - 6) **In-lieu-fee mitigation** *allows payment of a set fee to compensate for wetland impacts assessed by the Anchorage Debit-Credit Methodology or other method accepted by the Corps of Engineers. Fees are used to purchase wetlands to be preserved or to enhance or restore existing wetlands.*

C. SITE-SPECIFIC POLICIES AND MANAGEMENT STRATEGIES

Table 4 represents the heart of the Anchorage Wetlands Management Plan. It outlines applicable conditions of development, individual site designations, acreage figures, site characteristics, and individual site management strategies meant to both protect key areas and guide future fill and development action. This is the "land use" management section of the Wetlands Plan and serves as the guideline for protection and development of wetlands within the Municipality of Anchorage.

All **Table 4** Management Strategies conveyed with the word "SHALL" are enforceable policies of this Plan. All other **Table 4** Management Strategies are administrative policies, and indicate the management intent of the Municipality.

All enforceable policies are italicized in Table 4. Each "C" wetland unit within the Table also has conditions for development listed, which are the same conditions identified by the Corps of Engineers in the Municipality's General Permits. Any General Permit for development in these "C" wetlands must comply

with the conditions and policies listed for that site in **Table 4**. Whenever an applicant is required, or chooses to obtain an Individual or Nationwide Section 404 Permit, in lieu of a General Permit, Individual Permit conditions can modify the **Table 4** Management Strategies as long as a site's values and functions and key wetland area(s) are maintained, avoided or otherwise addressed.

Wetland maps for the entire Municipality are presented at the end of **Table 4**. These maps are at a scale such that exact wetland boundaries may not be discernable. Updated wetland maps are available online at: www.muni.org/maps, under 'quick maps' or 'interactive maps.' For the most accurate and updated wetland map information, contact the Wetlands Coordinator, MOA Long-Range Planning Section, at 343-7921. Any wetland area not shown in these maps would require a Corps of Engineers jurisdictional determination and could only be filled with either an Individual or Nationwide Section 404 Permit. **The General Permits cannot apply to a previously undesignated site.**



Table 4.1

ANCHORAGE BOWL

WETLAND DESIGNATIONS, ENFORCEABLE AND ADMINISTRATIVE POLICIES
AND MANAGEMENT STRATEGIES**Note:**

General Permits: The Corps of Engineers issued five separate General Permits (GPs) to the Municipality that covers development projects in “C” wetlands in Anchorage. The GPs are reviewed and renewed every five years. The most recent Anchorage GPs were issued in April, 2010. Under current GP procedures, the Municipality determines whether a proposed fill project in “C” wetlands is consistent with the GP terms and conditions. The Anchorage GPs are applied to only “C” wetlands as designated in the AWMP. The GPs do not apply to “A” or “B” wetlands and some “C” sites are excluded. *Attachment A-Table 1* of the Anchorage GPs identifies which “C” wetland parcels are eligible for and which are excluded from the GPs. *Attachment B-Table 3* of the GPs assigns site specific restrictions and design criteria to each eligible “C” wetland. The AWMP **Table 4.1** management strategies notes which “C” wetlands are eligible for the GPs and reference applicable site-specific restrictions and design criteria assigned to each site in the GPs. Refer to the current GPs for details and explanations of these requirements. Link: <http://www.muni.org/departments/ocpd/planning/physical/envplanning/Pages/default.aspx>. During the issuance of the current General Permits, the Corps included several previously unmapped wetlands as eligible for the GP. These are referenced as “U” wetlands in the General Permit documents. This AWMP revision includes these “U” sites and designates them as “C.” ~~*(New sites now classified as “D” or “P” and former “U” sites now designated “C” are listed in blue.)~~

Site #, listed in column 1 of the table, references individual wetland sites or collective groups of wetlands that are in the same geographic area and perform similar functions. These wetland sites or groups were generally assessed together and share the same or similar management strategies.

Map # in the table references map pages from the Anchorage Wetlands Atlas, 2008. The atlas can be found on the MOA Watershed Management Services Library website under ‘maps’ at: <http://wms.geonorth.com/library/LibraryMapsWetlandsAtlasANC08.aspx>. The atlas may also be viewed at the Planning public counter, Municipal Planning and Development Center, 4700 Elmore Road, Anchorage, Alaska.

Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, approximate Acreage of wetland unit, Ownership, and “Scores,” which refer to the Anchorage Wetlands Assessment Methodology scores (reference Chapter 2, II. Resource Inventory, A. Background, for AWAM scoring information). ~~AWAM assessment scores are listed from the previous Wetlands Plan of 1996. The scores for former “U”, undesignated sites now classified as “C”, were generated most recently.~~

Designation or Classification: Reference Ch.4, II. Definitions, A. Background on page 25 of the plan for definitions of *designations* and *classifications*. ~~Other previously unmapped sites not eligible for the General Permit are classified as “D” or “P.” “D” sites have been determined to be wetlands, yet have not been designated as “A,” “B,” or “C” using the Anchorage Wetlands Assessment Methodology (MOA, 1991). The “P” sites are “potential wetlands” based largely on hydric soils information and aerial photography interpretation. They have yet to be delineated as wetlands by field investigations. These “D” (undesignated) and “P” (potential) wetlands require a Corps of Engineers Jurisdictional Determination and wetland delineation to gain information on whether the wetland falls under the Corps’ jurisdiction and the location of the wetland boundaries. This is noted within the management strategy it applies.~~

Given continued field work and advancement of new information, especially soils mapping and high quality aerial imagery, new wetlands and/or modified boundaries of existing mapped wetlands will continue to be found especially on the hillsides and remote areas of the Municipality. Landowners and developers of hillsides and more remote areas of the Municipality should consult with Planning staff and/or the Corps of Engineers during development plans for excavation of potential wetlands on site. It is the Planning Department’s intent to continue working with the Corps of Engineers to systematically identify, map, and then assign formal designations for these areas over the course of the current plan’s life, and to have these new areas delineated and designated by the time the Municipality undertakes a review and revision of this Plan in the future.

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
1	1	<u>PORT AREA: NORTH OF TERMINAL ROAD</u> (1.96 acres; Public & Private Ownership) (Scores: Hydrology = 100; Habitat = 73; Species Occurrence = 49; Social Function = 24) Because the site provides migratory and limited nesting habitat for several species attenuates stormwater flows and performs water quality functions for an area with contaminated groundwater, <i>the site shall be maintained to the maximum extent possible.</i> Values for Stormwater attenuation and water quality.	B
1	1	<u>PORT AREA: SOUTH OF TERMINAL ROAD</u> (1.95 acre; Public & Private Ownership) (Scores: Hydrology = 60; Habitat = 44; Species Occurrence = 45; Social Function = 11) Site in Terminal Road ROW classed as "C" wetlands. General Permit applicable: <i>Site Restrictions and Design Criteria: Construction timing window, identify surface water features, BMPs for local flooding and stormwater controls required.</i> A toxics evaluation shall be done if excavation is proposed, and it shall meet the acceptable standards of the Alaska Department of Environmental Conservation in order to prevent degradation of water quality in adjacent water bodies and wetlands. <i>Wetland south of Terminal Road is designated "B" and should be retained to the maximum extent possible.</i> Values for Stormwater attenuation and water quality.	B,C
2	1, 2 and 9	<u>SHIP CREEK FLOODPLAIN</u> (above CEA dam) (3.29 acres; Public & Private Ownership) (Scores: Not Assessed) Wetlands values for water quality, flood and stormwater attenuation, and habitat. Alaska Department of Fish and Game timing stipulations may be imposed to limit disturbance to anadromous fish. Further information may be obtained from the <u>Ship Creek Waterfront Land Use Plan</u> (1991). Executive Order (EO) 11990 and 11998 apply to protection of wetlands on military land.	A
2	1, 2 and 9	<u>SHIP CREEK BEAVER POND</u> (1.05 acres; Public & Private Ownership) (Scores: Hydrology = 118; Habitat = 68; Species Occurrence = 68; Social Function = 24) Values for water quality, flood and stormwater attenuation, and habitat. <i>Functions shall be preserved to maximum extent possible by avoiding ponded areas.</i>	A
3	3	<u>SHIP CREEK: NW REEVE/VIKING</u> (3.63 acres; Public Ownership) (Scores: Hydrology = 74; Habitat = 80; Species Occurrence = 63; Social Function = 76) Values for flood control, water quality and habitat. Site is an old slough of Ship Creek. Fill within slough shall be avoided. ADFG stocks the creek with Chinook and Coho Salmon.	A
3	3	<u>SHIP CREEK: NE REEVE/VIKING</u> (5.46 acres; Public Ownership) (Scores: Hydrology =90; Habitat = 67; Species Occurrence = 51; Social Function =25) Requires COE Jurisdictional Delineation and additional information to map wetland boundaries. Values for flood control, water quality and habitat. Provides additional filtering of snow disposal site runoff before it enters Ship Creek. <i>Retain wetlands to maximum extent practicable.</i>	B
4	3	<u>NORTH OF RAILROAD TRACKS, NORTH OF INTERSECTION: REEVE/POST ROAD</u> (2.76 acres; Public Ownership) (Scores: Hydrology = 111; Habitat = 73; Species Occurrence = 35; Social Function = 25) Because the pond and adjacent wetlands are an important filter area, the site provides habitat for several species. <i>The drainageways and pond areas shall be maintained and avoided to the maximum extent possible.</i> The site's filtering values shall be protected, since the pond drains directly into Ship Creek. <i>A previously unmapped perennial channel, exiting the wetland and flowing into Ship Creek, requires a 25-foot minimum setback.</i>	B

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
4a	2	<u>GOVERNMENT HILL</u> (0.9 acres; ARR ownership)(Scores: Hydrology = 84 ; Habitat = 56; Species Occurrence= 21; Social Function= 18) Recently mapped springs and streams from hillside are ponded with wetlands at ARR tracks, below bluff. Values for stormwater and flood attenuation, and water quality. <i>Maintain streams with 85-foot setbacks.</i>	A
5	11	<u>NE MOUNTAIN VIEW DRIVE/GLENN HIGHWAY INTERSECTION</u> (2.82 acres; Public & Private Ownership) (Scores: Hydrology = 86; Habitat = 47; Species Occurrence = 18; Social Function = 59) Values for Stormwater retention and water quality. General Permit applicable. <i>Site Restrictions and Design Criteria: Construction timing window, BMPs for local flooding and stormwater controls required.</i>	C
6	14	<u>TURPIN PARK</u> (0.7 acres; Public Ownership) (Scores: Hydrology = 70; Habitat = 34; Species Occurrence = 18; Social Function = 60) Municipal park land. COE Jurisdictional Determination required. Values for stormwater attenuation and water quality.	A
7	12	<u>NORTH RUSSIAN JACK PARK</u> (34.56 acres; Public Ownership) (Scores: Hydrology = 102; Habitat = 60; Species Occurrence = 18; Social Function = 75); Includes site at SE Debarr and Pine Streets. Values for stormwater attenuation and water quality. General Permit applicable. <i>GP Site Restrictions and Design Criteria include: Setback = 25 feet from drainageways, Construction Timing Window, Identify Surface Water Features and BMPs to prevent Local Flooding and Stormwater Functions.</i>	C
8	15a, 36	<u>MULDOON: EAST OF FOOTHILLS SUBDIVISION</u> (446.85 acres; Private Ownership) (Scores: Hydrology = 124; Habitat = 95; Species Occurrence = 75; Social Function = 38) Remaining undeveloped wetlands at Chester Creek classed as "A" to military boundary. Setback 65 feet from Chester Creek. Tract C-5 platted as open space (plat #93-55); wetlands preserved via plat 93-55. Stormwater shall be treated before entering stream setbacks.	A
9	25	<u>MULDOON ESTATES SUBDIVISION, NORTH OF TURF CT.</u> (3.31 acres; Public /Private Ownership) (Scores: Hydrology = 104; Habitat = 89; Species Occurrence = 71; Social Function = 71) Values for flood attenuation, water quality, and habitat. Storm drain detention system feeds into Chester Creek. <i>Stream setback of 65 feet</i> encompasses most of remaining wetlands, which warrants "A" designation.	A
10	25 and 36	<u>HIDEAWAY HILLS, TRACT A</u> (31.32 acres; Private Ownership) (Scores: Hydrology = 104; Habitat = 71; Species Occurrence = 60; Social Function = 50); Includes southwest lobe to 32 nd St. Values for hydrology, flood attenuation, and habitat. Enhancement potential possible in northern portions of the "B" wetlands; i.e., ditches could be filled and area can serve more for stormwater retention. Wetland lobe (designated "C") extending south of the main "B" site provides water quality and flood control values. A General Permit may be applicable for fill in the "C" wetlands. GP Site Restrictions and Design Criteria include: <i>Setbacks 65 feet from ponds, 25 feet from drainageways; 15-foot buffer from "B" wetlands. BMPs to prevent Local Flooding, Dewatering of Adjacent Wetlands, and address Stormwater Functions. Requires Construction Timing Window, Wetland Delineation and Identification of Surface Water Features.</i>	B/C

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
10A	36	<p><u>SOUTH OF 36TH, NORTH OF PIONEER, EAST OF MULDOON</u> (Private and Public Ownership) (Scores: Hydrology = 74; Habitat = 48; Species Occurrence = 18; Social Function = 40)</p> <p>"A" wetland: SW corner of Tract C-1, Chugach Foothills Subdivision Addition (0.24 acres) preserved by COE permit #2006-1268-4. East side of Tudor/Muldoon curve, ADOT ponds are preserved by permit #POA-2004-1220.</p> <p>"C" wetland: Chugach Foothills Subdivision Park (0.48 acres) COE Jurisdictional Determination required. Values for stormwater attenuation and water quality. General Permit applicable. GP Site Restrictions and Design Criteria include: <i>Construction timing window; BMPs to prevent Local Flooding, and address Stormwater Functions.</i></p> <p>Previously unmapped wetlands on Muldoon Road, from East 36th to Pioneer Drive, now designated as "C" (2.09 acres; State Ownership)(Scores: Hydrology = 61, Habitat = 50, Species Occurrence = 24, Social Function = 36) and are eligible for the General Permit. Noted as site #U-2 in the GP. GP Site Restrictions and Design Criteria include: <i>Construction timing window; identify stormwater features; BMPs to prevent Local Flooding, dewatering of adjacent wetlands and address Stormwater Functions.</i></p>	A/C
11	25	<p><u>SUSITNA SCHOOL POND</u> (0.17 acres; Public Ownership) (Scores: Hydrology = 69; Habitat = 50; Species Occurrence = 17; Social Function = 55)</p> <p>Values for Stormwater retention, water quality and habitat. Retain pond to maximum extent possible.</p> <p>A General Permit may be applicable for fill in the "C" wetlands. GP Site Restrictions and Design Criteria include: <i>BMPs to prevent Local Flooding and address Stormwater Functions. Requires Construction Timing Window.</i></p>	C
11	25	<p><u>NORTHWEST INTERSECTION OF NORTHERN LIGHTS/MULDOON</u> (3 sites) (1.75 acres; Private Ownership) (Scores: Hydrology = 69; Habitat = 50; Species Occurrence = 17; Social Function = 55)</p> <p>Values for Stormwater retention, water quality and habitat.</p> <p>A General Permit may be applicable for fill in the "C" wetlands. GP Site Restrictions and Design Criteria include: <i>BMPs to prevent Local Flooding and address Stormwater Functions. Requires Construction Timing Window.</i></p>	C
12	36	<p><u>MULDOON PARK: NORTHERN LIGHTS BOULEVARD AND MULDOON ROAD</u> (9.45 acres; Public Ownership) (Scores: Hydrology = 69; Habitat = 53; Species Occurrence = 22; Social Function = 50) Values for water quality, flood and stormwater attenuation.</p> <p>A General Permit may be applicable for fill in the "C" wetlands. GP Site Restrictions and Design Criteria include: <i>25-foot Drainageway Setbacks; BMPs to identify Surface Water Features, prevent Local Flooding, and address Stormwater Functions. Requires Construction Timing Window.</i></p>	C
13	35	<p><u>SOUTHWEST INTERSECTION OF NORTHERN LIGHTS/PATTERSON</u> (7.93 acres; Private Ownership) (Scores: Hydrology = 105; Habitat = 61; Species Occurrence = 18; Social Function = 47)</p> <p>COE Jurisdictional Determination required. Values for stormwater attenuation and water quality. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding and stormwater controls required.</i></p>	C
14	24	<p><u>CHENEY LAKE</u> (1.69 acres; Public Ownership) (Scores: Hydrology = 117; Habitat = 108; Species Occurrence = 97; Social Function = 95). Includes wetlands along eastern shoreline.</p> <p>Values for water quality, habitat and recreation. Provides waterbird nesting and staging habitat as well as active recreation. ADFG stocks the lake with Chinook Salmon and Rainbow Trout (2011 data).</p>	A/Open Water

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
14A	24	<u>COLLEGE GATE SUBDIVISION #4, TRACT D</u> (5.95 acres; Public Ownership) (Scores: Hydrology = 71; Habitat = 41; Species Occurrence = 18; Social Function = 74) <i>Values for flood and stormwater attenuation, water quality.</i> Maintain 100-foot setback from Chester Creek due to its anadromous fish resources. Setback (100 feet) precludes a lower designation; provides buffer to stream. Eastern boundary of mapped wetland requires a COE Jurisdictional Determination.	A
15	35	<u>BAXTER BOG</u> (47.2 acres; Public & Private Ownership) (Scores: Hydrology = 131; Habitat = 122; Species Occurrence = 81; Social Function = 75) <i>Values for flood and stormwater attenuation, water quality and habitat. Prevent dewatering of bog. Critical hydrological connections exist in "B" wetland areas, which shall be identified and then avoided and protected. Any stormwater entering the site requires pre-treatment.</i>	A/B
16	35	<u>NORTH OF REFLECTION LAKE: EAST OF IMAGE DRIVE, BETWEEN KEYANN CIRCLE AND RIDGELAKE CIR.</u> (0.45 acres; Private Ownership) (Scores: Hydrology = 92; Habitat = 75; Species Occurrence = 48; Social Function = 43) <i>Values for stormwater attenuation and water quality in the Chester Creek drainage. Requires COE Jurisdictional Delineation. Eligible for General Permit. GP Site Restrictions and Design Criteria: <i>Construction timing window; wetland delineation; BMPs for local flooding and stormwater controls required.</i> Consult with the Corps of Engineers regarding specific site restrictions and design criteria applicable to this site.</i>	C
46	35	<u>REFLECTION LAKE: Eastlake Subdivision, Tract C-1</u> (7.07 acres; Private Ownership) (Scores: Not Accessed) <i>Fringe wetlands vary in extent along lakeshore and South Fork Chester Creek inlet/outlet. Values for flood and stormwater attenuation, water quality and habitat. COE Jurisdictional Determination and wetland delineation required. Chester Creek setback is 25 feet. Should the provisionally adopted code (May, 2010, Title 21) be effective, a setback of 25 feet from Reflection Lake would apply.</i>	D
17	23	<u>NORTHERN LIGHTS/WESLEYAN & RUSSIAN JACK PARK</u> (45 acres approx.; Public & Private Ownership) ("A" wetland scores: Hydrology = 94; Habitat = 84; Species Occurrence = 85; Social Function = 72. "B" wetland scores: Hydrology = 95; Habitat = 70; Species Occurrence = 53, Social Function = 58) Black spruce forested, southern edge on the north side of Northern Lights Blvd is designated "C" wetlands. Remainder classed as "B" wetlands due to higher habitat, flood control and water quality values. A fork of Chester Creek flows through the northern extent of the wetlands. Portion of the wetland in Russian Jack Park is designated as "A." Wetland has values to Chester Creek for stormwater and flood attenuation, water quality, habitat and open space/aesthetics. <i>Maintain a 100-foot setback from Chester Creek and tributaries to protect anadromous fish resources.</i> "C" wetlands North of Northern Lights Blvd, West of Pine St: Eligible for General Permit . GP Site Restrictions and Design Criteria: <i>Construction timing window; wetland delineation; BMPs for local flooding, dewatering of adjacent wetlands and stormwater controls required. A 15-foot transitional buffer shall be maintained between fill permitted under General Permits and "B" wetland.</i>	A/B/C

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
17A	23	<u>NORTH OF NORTHERN LIGHTS BOULEVARD AND WESLEYAN AT 26th</u> (0.86 acres; Private Ownership) (Scores: Hydrology = 91; Habitat = 55; Species Occurrence = 54; Social Function = 60) COE Jurisdictional Determination required. Former gravel pit. Values for area stormwater retention. Eligible for General Permit . GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding, and stormwater controls required.</i>	C
18	22 and 33	<u>GOOSE LAKE</u> (38 acres; Public Ownership) (Scores: Hydrology = 88; Habitat = 120; Species Occurrence = 122; Social Function = 97) Documented high values for habitat, water quality and recreation. Minor park amenities could be permitted but shall be concentrated at north end of lake only. <i>Maintain 65-foot setback from Goose Lake outlet.</i> COE wetland delineation required.	A
18	22, 23 and 33	<u>SOUTH SIDE OF NORTHERN LIGHTS/BRAGAW, EAST OF GOOSE LAKE</u> (33.24 acres; Public Ownership) (Scores: Hydrology = 76; Habitat = 75; Species Occurrence = 17; Social Function = 74) <i>Maintain all drainageways and flow patterns in wetlands. General Permit applicable.</i> GP Site Restrictions and Design Criteria: <i>Construction timing window; Wetland Delineation; identify surface water features; BMPs for local flooding and stormwater controls required. 65-foot setback required from channel outlet of Goose Lake, 25-foot setback from drainageways. A 15-foot transitional buffer shall be maintained between fill authorized under the GPs and adjacent "B" wetlands; and a 25-foot buffer from "C" authorized fills and adjacent "A" wetlands to the west. No development shall be authorized by the GPs east of the trail where the interface between areas designated B and C is closest to the trail. No fill shall be allowed to be placed under the GPs from April through June within 200-feet of the A-designated wetlands and within 50 feet of B-designated wetlands due to concern for nesting.</i>	C
18A	33	<u>MOSQUITO LAKE</u> (14.34 acres; Public Ownership) (Scores: Hydrology = 85; Habitat = 88; Species Occurrence = 67; Social Function = 76) <i>The lake itself and the "A" wetlands shall be preserved to the maximum extent possible. A 65-foot waterbody setback shall be maintained as a minimum around Mosquito Lake.</i> Forested wetland lobes are classed as "C" wetlands: General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; required BMPs for local flooding, prevent the dewatering of adjacent wetlands, stormwater controls and visual screening requirements. A 25-foot transitional buffer shall be maintained between fill authorized under these GPs and adjacent "A" wetlands.</i>	A/C
18B	22, 23, 33 and 34	<u>NORTH SIDE PROVIDENCE, ALONG BRAGAW RIGHT-OF-WAY (MOSQUITO LAKE DRAINAGE BASIN)</u> (36.18 acres; Public Ownership) (Scores: Hydrology = 58; Habitat = 73; Species Occurrence = 12; Social Function = 64) Includes upper Mosquito Lake drainage. Area important hydrologically for Mosquito Lake. Site filters runoff from easterly sections to Mosquito Lake complex. Fringes could be developed but key drainageways shall be avoided. <i>Fill in "B" wetlands requires a 25-foot buffer from adjacent "A" wetlands; 25-foot setback for drainageways.</i> Although identified and justified as developable in Goose Lake Plan; <i>this site provides waterbird habitat in flooded westerly areas, which shall be maintained to the maximum extent possible.</i>	B

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
18C	33	<u>CHESTER CREEK CORRIDOR: NORTHERN LIGHTS TO BRAGAW RD</u> (28.67 acres; Public & Private Ownership) (Scores: Hydrology = 95; Habitat = 86; Species Occurrence = 79; Social Function = 82) Direct connection to Chester Creek: provides high value functions for flood and stormwater attenuation, water quality and wildlife habitat. <i>Any proposed development and minor recreation amenities should be located outside the wetland corridor. 100-foot setback from Chester Creek required to maintain anadromous fish resources.</i>	A
18D	33	<u>WEST OF UAA DRIVE, SOUTH OF MALLARD ST., EAST OF CHESTER</u> (1.63 acres; Public Ownership) (Scores: Hydrology = 76; Habitat = 50; Species Occurrence = 48; Social Function = 41) General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required.</i> <i>A 25-foot transitional buffer shall be maintained between fill authorized under the GPs and adjacent "A" wetlands to the west.</i>	C
18E	33	<u>SOUTH OF CHESTER CREEK CORRIDOR NW OF EAST 40TH AVENUE AND DALE ST.</u> (1.13 acres; Public Ownership) (Scores: Hydrology = 95; Habitat = 79; Species Occurrence = 48; Social Function = 41) <i>Minimum 25-foot buffer shall be required from greenbelt "A" wetlands. Maintain drainageway connectivity to the Chester Creek corridor.</i> Values for flood and stormwater attenuation, water quality and recreation.	B
19	22	<u>NORTHWEST CORNER OF NORTHERN LIGHTS/BRAGAW, EAST OF NICHOLS ST.</u> (5.92 acres; Public Ownership) (Scores: Hydrology = 87; Habitat = 49; Species Occurrence = 24; Social Function = 67) Values for stormwater attenuation and water quality. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding and stormwater controls required. A 100-foot setback shall be maintained adjacent to Chester Creek due to its anadromous fish resources. A COE Jurisdictional Determination is required. Note: Lot 3, Block 1; Tract 3A; and Lot 1, Block 2 Community Park Subdivision (NW of Northern Lights Blvd and Bragaw) is no longer considered jurisdictional per Corps determination.</i>	C
20	22	<u>CHESTER CREEK PARK: NORTH OF NORTHERN LIGHTS BOULEVARD</u> (73.67 acres; Public Ownership) (Scores: Hydrology = 134; Habitat = 97; Species Occurrence = 61; Social Function = 80) Includes the middle and south branches of Chester Creek. Functions for water quality, flood and stormwater attenuation, open space and habitat. <i>"B" wetland development should be limited to northern and eastern portions of site. Drainage connections to the creek shall be maintained via avoidance or fill setbacks. Drainage channel crossing Northern Lights and extending across the southern portion of the eastern wetland, east of Goose Lake Drive shall be retained with a minimum 65-foot setback. The site's highest values are within the wet meadows associated with the south branch of Chester Creek. Both stream branches shall be maintained with a 100-foot setback to protect anadromous fish resources.</i>	A/B
21	21	<u>CHESTER CREEK PARK/GREENBELT: LAKE OTIS TO SEWARD HWY</u> (84.57 acres; Public Ownership) (Scores: Hydrology = 142; Habitat = 120; Species Occurrence = 106; Social Function = 89). Values for flood and stormwater attenuation, water quality and hydrologic recharge of Chester Creek. Filters runoff from Merrill Field area. Minor Park development may occur on outer wetland fringes. <i>Run-off from the snow dump site east of Sitka Street shall be treated before entering creek/wetlands.</i> There is enhancement and/or restoration potential for the North Fork of Chester Creek, which is currently in a roadside ditch along 15 th St. (Includes formerly designated "B," unit #21A).	A

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
21B	21	<u>SOUTHWEST CORNER OF DEBARR & LAKE OTIS</u> (1.94 acres; Private Ownership) (Scores: Not Assessed) Contains the North Fork of Chester Creek. Eligible for General Permit . GP Site Restrictions and Design Criteria: <i>Construction timing window; wetland delineation required; identify surface water features; BMPs for local flooding and stormwater controls required. Maintain a 100-foot setback from North Fork, Chester Creek to protect anadromous fish resources.</i>	C
22	20	<u>CHESTER CREEK GREENBELT: SEWARD HWY TO ARCTIC BLVD, 17TH TO 20TH</u> (8.07 acres; Public & Private Ownership) (Scores: Hydrology = 70; Habitat = 50; Species Occurrence = 18; Social Function = 48) (South side "A" area = Not Assessed) <i>Preserve the "A" wetlands along the stream corridor to the maximum extent possible. Maintain a 25-foot transitional buffer on outside margin of greenbelt. Stormwater drainage should be treated prior to discharge into the greenbelt. Maintain a 100-foot setback from Chester Creek due to its anadromous fish resources. COE Jurisdictional Determination required. "C" wetlands eligible for General Permit. GP Site Restrictions and Design Criteria: Construction timing window; wetland delineation; BMPs for local flooding, and stormwater controls required.</i>	A/C
23	19	<u>WESTCHESTER LAGOON</u> (13.04 acres; Public Ownership) (Scores: Hydrology = 118; Habitat = 112; Species Occurrence = 147; Social Function = 103) Includes western Chester Creek greenbelt from Spenard Rd to Arctic Blvd. Documented high habitat, flood attenuation, recreation and water quality values. <i>Minor recreation amenities shall be permitted only if no other practicable alternatives exist on-site. Preserved wetlands in NW area of lagoon per COE permit #Fish Creek 6.</i>	A
24	18, 29, 30, 41, 42	<u>FISH CREEK CORRIDOR</u> (13.89 acres—Public and Private Ownership) (Scores: Hydrology = 89; Habitat = 79; Species Occurrence = 61; Social Function = 48). Sites are located from Spenard Rd north to the railroad stream crossing, just north of Northern Lights Blvd. Previous fill permit areas with protected setbacks shall be treated as "A" wetlands. Tract A-1 Turnagain Heights Subdivision is preserved by Conservation Easement. <i>Road crossings, trails and channel improvements should be permitted if no upland alternatives are available. Values for Fish Creek flood control, stormwater attenuation and water quality.</i> Previously unmapped wetlands, now designated as "C," located within Woodland Park: 34 th to 36 th and McRae (0.4 acres; public ownership)(Scores: Hydrology = 74, Habitat = 60, Species Occurrence = 29, Social Function = 74); are eligible for the General Permit . Noted as site #U-3. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding, dewatering of adjacent wetlands and stormwater controls required. Visual screening required.</i>	A/C
24	18	<u>FISH CREEK ESTUARY</u> (16.72 acres)(public ownership) (Scores: Hydrology = 118; Habitat = 108; Species Occurrence = 84; Social Function = 87). Includes section of stream from ARR crossing to mouth, south of the Coastal Trail; including some intertidal areas. This site is preserved under a Conservation Easement by the Great Land Trust. Values for stormwater and flood attenuation, water quality, fish and bird habitat, open space/aesthetics.	A
24A	41	<u>NORTHWOOD PARK</u> (8.6 acres; Public Ownership) (Scores: Hydrology = 113; Habitat = 111; Species Occurrence = 97; Social Function = 86). Includes Fish Creek corridor, east of park to Minnesota Drive. "A" wetlands within park lands; significant water quality, recharge and flood attenuation values. <i>All park developments shall be consistent with adopted park master plan.</i>	A

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
25	29	<p>MILKY WAY/BROADMOOR ESTATES COMPLEX (18.39 acres Private Ownership) (Scores: Hydrology = 96; Habitat = 57, Species Occurrence = 47; Social Function = 51);</p> <p>"C" wetlands: General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Wetland Delineation; identify surface water features; BMPs for local flooding, dewatering of adjacent wetlands and stormwater controls required.</i></p> <p>32nd and Wisconsin St: Wet meadow at 32nd and McKenzie ROW requires REV 2 mitigation.</p> <p>NE 42nd and Constellation Drive "B"; contains higher value habitat and wet meadows.</p> <p>41st and Aero Dr ROW: <i>Any development in "C" wetlands must maintain cross-drainage to "A" and "B" wetlands.</i></p> <p>Southern end of site could be enhanced for habitat.</p> <p>North of 40th, West of Andree Street: "C"; COE Jurisdictional Determination required.</p>	B/C
26A	17	<p><u>SOUTH SIDE NORTHERN LIGHTS: POSTMARK DRIVE TO EARTHQUAKE PARK</u> (0.57 acres; Public Ownership) (Scores: Hydrology = 57; Habitat = 80; Species Occurrence = 18; Social Function = 39)</p> <p><i>Maintain 65-foot setback from drainageway at the north end along Northern Lights Blvd; serves as outflow from main bog. COE Jurisdictional Determination required. Values for stormwater attenuation, water quality and habitat.</i></p> <p>Eligible for General Permit. GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding, dewatering of adjacent wetlands and stormwater controls required.</i></p>	C

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
26A and 26B	16, 17, 27 and 28	<p>TURNAGAIN BOG PROPER (286 acres; Public Ownership) (Scores: Hydrology = 149; Habitat = 190; Species Occurrence = 113; Social Function = 65)</p> <p>Fill permit applications should be consistent with the land use designations and the alternatives analysis contained in the Anchorage International Airport (AIA) Master Plan and the West Anchorage District Plan (2011). Priority should be given to airport location dependent enterprises. Development planning and permitting should fully consider other Municipal planning documents such as trails, roads, and drainage plans for the airport area.</p> <p>Fill permit actions shall be consistent with the land use designations and the alternatives analysis contained in the Anchorage International Airport (ANC) Master Plan. The <i>West Anchorage District Plan</i> and the directive in A.O. 2000-151 (S-2) that any future development of the natural portions designated as "lands not permitted" shall occur only after a master plan for that area is prepared jointly by ANC and the MOA and approved by the Anchorage Assembly after a public hearing. Link to A.O. 2000-151 (S-2): http://www.muni.org/Departments/Assembly/legislation/2000%20Ordinances/AO2000-151_(S-2).pdf. Priority shall be given to airport location-dependent enterprises. Development planning and permitting shall fully consider other Municipal planning documents such as trails, roads, and drainage plans for the airport area. Cumulative impacts shall be considered for future fill actions, as the bog has lost approximately 200 acres since 1996.</p> <p>"C" sites: General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Wetland Delineation; identify surface water features; BMPs for local flooding, dewatering of adjacent wetlands and stormwater controls required. Maintain a minimum 65-foot setback from all waterbodies. Maintain a minimum 25-foot buffer from fill authorized by the GP and "A" wetlands, 15 feet from "B" wetlands.</i></p> <p>"A" and "B" sites: <i>Projects that address airport safety issues and neighborhood-airport conflicts (e.g., noise impacts, clear-zone requirements), including minor road, trail, utility lines, should be permitted. The main Turnagain Bog core contains patterned ground wetlands and should be maintained and buffered to the maximum extent possible permitted with uses per the AIA Master Plan. Functions for groundwater recharge, water quality, stormwater attenuation and habitat values.</i></p> <p>"P" site NW of Postmark Drive and Northern Lights Blvd requires a COE Jurisdictional Determination and wetland delineation.</p>	A/B/C/ P
26C	17	<p>EARTHQUAKE PARK (81.88 acres; Public Ownership—"A" Wetlands; Private Ownership—"C" Wetlands) (Scores: Hydrology = 106; Habitat = 105; Species Occurrence = 64; Social Function = 69)</p> <p><i>Jones Creek corridor (surface flows) east of the main 26C site should be treated as an "A" wetland; requires COE wetland delineation. Minor recreation amenities and trails could be placed in "A" wetlands, but shall be at least 50 feet away from waterbodies. Platted wetlands at east end are classed as "C."</i> Park lands contain a wetlands mosaic and mixed habitats which are the higher values of this site. Conveys storm drain system from Northern Lights Boulevard. "C" wetlands are eligible for General Permit. GP Site Restrictions and Design Criteria: <i>Construction timing window; wetland delineation and identification of surface water features required; BMPs for local flooding and stormwater controls required.</i></p>	A/C

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
26C	16	<u>ALONG THE COASTAL TRAIL, NORTHEAST OF POSTMARK DRIVE/NORTHERN LIGHTS INTERSECTION</u> (1.77 acres; Public Ownership) (Scores: Hydrology = 47; Habitat = 41; Species Occurrence = 15; Social Function = 64) Values for stormwater attenuation, water quality. Any development projects shall maintain drainage through site. Eligible for General Permit . GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding, and stormwater controls required. COE Jurisdictional Determination required.</i>	C
26D	27	<u>POSTMARK DRIVE WEST</u> (51 acres; Public Ownership) (Scores: Hydrology = 128; Habitat = 87; Species Occurrence = 67; Social Function = 73) Significant site due to both migratory and nesting bird habitat, stormwater treatment and attenuation values. <i>Cumulative impacts shall be considered for future fill actions, as the bog has lost approximately 27 acres (1/3 of its size) since 1996. The wetland provides high value functions for groundwater recharge, water quality, stormwater attenuation, aesthetic and noise buffer, and habitat values. Proximity to runways requires off-site mitigation. All fill and excavation work in this wetland shall be conducted and scheduled in a manner to minimize disturbance to migratory birds to the maximum extent.</i>	A
26E	40, 41	<u>LAKE SPENARD</u> (Approximately 1.41 acres; Public Ownership) (Scores: <i>Hydrology = 67, Habitat = 52, Species Occurrence = 21, Social Function = 61</i>) <i>Wetlands fringe shall be maintained with setbacks from the lake; recommended 25-foot minimum. Provides important filtering function for the lake's water quality control. Includes "D" undesignated wetlands SW of Lake Hood, at Enstrom Street and Aircraft Drive, north of Postmark Drive.</i> Values for stormwater attenuation, water quality and habitat.	A/D Open Water
27	26	<u>ALONG BLUFF/COASTAL TRAIL, SOUTH OF POINT WORONZOF</u> (5.48 acres; Public Ownership) (Scores: Hydrology = 71; Habitat = 60; Species Occurrence = 23; Social Function = 33) Two primary drainageways shall be maintained with minimum 25-foot setbacks. COE Jurisdictional Determination required. General Permit applicable . GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required.</i>	C
28	50	<u>LITTLE CAMPBELL LAKE</u> (4.8 acres; Public Ownership) (Scores: Hydrology = 83; Habitat = 95; Species Occurrence = 89; Social Function = 74) Wetlands values for habitat and open space. <i>Park amenity development shall occur outside wetlands to the maximum extent.</i> Note: Site is owned by Airport however, land is used as park with Airport permits.	A
29	52	<u>SOUTH AIRPARK POND</u> (aka Sullivan Pond)(0.75 acres approx.; Public Ownership) (Scores: Not Assessed) <i>Lake and fringe wetlands shall be preserved to the maximum extent possible.</i> Site provides waterbird habitat and water quality functions.	A

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
29A	52	<u>NORTHWEST AIR GUARD/RASPBERRY ROAD</u> (0.32 acres; Public Ownership) (Scores: Hydrology = 52; Habitat = 47; Species Occurrence = 18; Social Function = 18) COE Jurisdictional Determination required. Conveys seasonal flooding which drains east and across Air Guard Road to DeLong Lake drainage. <i>Drainage functions to lake shall be maintained.</i> Eligible for General Permit . GP Site Restrictions and Design Criteria: <i>Construction timing window; wetland delineation; BMPs for local flooding, dewatering of adjacent wetlands and stormwater controls required.</i> Consult with the Corps of Engineers regarding specific site restrictions and design criteria applicable to this site.	C
30	40, 41 and 52	<u>DELONG LAKE/MEADOW LAKES</u> (40.51 acres; Public & Private Ownership) (Scores: Hydrology = 119; Habitat = 122; Species Occurrence = 133; Social Function = 73) This lake system has important waterbird and fish habitat as recognized by the Alaska Department of Fish and Game (ADFG). The lake is stocked with Chinook Salmon, Rainbow Trout by ADFG. Airport expansions shall remain buffered from Meadow Lake and adjacent wetlands. <i>The drainageway in the easterly 35-foot of Lot 1 Block 2, Alderwood Subdivision shall remain undisturbed. Homeowner recreational amenities in "A" areas shall be limited to pile-supported structures.</i> Most of the south side wetlands are common areas or park reserve tracts. Wetlands are preserved by various mechanisms at the eastern and western ends of DeLong Lake: Tract A, A3, 35A, 35B, lots 1, 12 and 13a; reference plats #2001-142, 85-66 and 85-322, and COE permit #4-2000-0014. A COE Jurisdictional Determination required. "C" wetlands are eligible for a General Permit . GP Site Restrictions and Design Criteria: <i>Construction timing window; wetland delineation; BMPs for local flooding, dewatering of adjacent wetlands and stormwater controls required.</i> Consult with the Corps of Engineers regarding specific site restrictions and design criteria applicable to this site.	A/C
31	41	<u>BENTZEN LAKE</u> (4.36 acres; Public Ownership) (Scores: Hydrology = 91; Habitat = 91; Species Occurrence = 73; Social Function = 64) Wetlands within park land are preserved . Values for habitat, flood and stormwater attenuation. <i>Should the provisionally adopted code (May, 2010, Title 21) be effective, a setback of 25 feet from the Lake would apply.</i>	A
31A	41 and 42	<u>NORTHWEST OF MINNESOTA/INTERNATIONAL: NORTHWOOD/VAN BUREN</u> (3 sites) (6.35 acres; Public and Private Ownership) (Scores: Hydrology = 69; Habitat = 43; Species Occurrence = 22; Social Function = 48) Functions for stormwater attenuation and water quality. SW International Airport Rd/Northwood: COE Jurisdictional Determination required. NE International Airport Rd/Northwood (Tract 5b): Northern half has a higher potential for enhancement. NW Minnesota/International Airport Road off-ramp: COE Jurisdictional Determination required. Could be further enhanced for stormwater treatment. This site is eligible for a General Permit . GP Site Restrictions and Design Criteria: <i>Construction timing window; wetland delineation; BMPs for local flooding, dewatering of adjacent wetlands and stormwater controls required.</i> Consult with the Corps of Engineers regarding specific site restrictions and design criteria applicable to this site.	C

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
32	42	<u>DELANEY LAKE</u> (3.2 acres; Public Ownership) (Scores: Hydrology = 116; Habitat = 89; Species Occurrence = 46; Social Function = 47) Moderate migratory bird habitat/some nesting. Within the Fish Creek watershed. Provides flood and stormwater attenuation and water quality control for Fish Creek. A strip of wetlands north of the railroad is preserved by permit #POA-2007-1711 and therefore, classed as "A."	A/B
33	42	<u>SOUTHEAST INTERSECTION OF MINNESOTA/INTERNATIONAL</u> (3.52 acres; Public Ownership) (Scores: Hydrology = 114; Habitat = 81; Species Occurrence = 24; Social Function = 48) Provides moderate open water habitat; actual nesting use limited. Site could be used for storm drainage retention/treatment. <i>Sufficient area shall be retained at west edge for storm drain storage and filtration.</i>	B
34 and 34B	41, 42, and 53	<u>CONNORS-STRAWBERRY BOG</u> (302.52 acres; Public & Private Ownership) (Scores: Assessed in two parts: Hydrology = 114, 98; Habitat = 138, 131; Species Occurrence = 98, 113; Social Function = 80, 49) Significant waterbird migratory and nesting habitat complex. <i>Future trails in wetlands shall be built on piles to the maximum extent. Municipally-leased airport lands in the northwest corner of the bog shall be managed to retain wetland functions and other values covered in lease terms restrictions. Municipal lands within Connors-Strawberry bog shall be managed for open space, wildlife habitat, and wetlands functions. Minor road improvements could be constructed to minimize encroachment. Measures shall be taken to maintain natural drainage patterns and enhance or restore disturbed areas. Road upgrades should be designed to discharge treated road drainage into public lands in Connors Lake recharge areas. Portions of parcels #012-053-01 and 012-051-75 within the Connors Lake recharge zone have significant habitat functions which should be preserved; including Strawberry Lake and a 100 foot buffer around the Lake.</i> High waterbird use and aquifer recharge values. Majority of Connors Bog lies within the Fish Creek watershed, whereas Strawberry Bog is within the Campbell Creek watershed.	A/Open Water
34A	54	<u>EAST OF INTERSTATE CIRCLE</u> (1.32 acres; Private Ownership) (Scores: Hydrology = 48; Habitat = 35; Species Occurrence = 24; Social Function = 33) NE of Interstate Circle and Ressel Ave. COE Jurisdictional Determination and wetland delineation is required. Values for stormwater detention and treatment. Eligible for General Permit . GP Site Restrictions and Design Criteria: <i>Construction timing window; wetland delineation; BMPs for local flooding, dewatering of adjacent wetlands and stormwater controls required.</i> Consult with the Corps of Engineers regarding specific site restrictions and design criteria applicable to this site.	C
34A	42 and 54	<u>BLUEBERRY LAKE: 56th to Raspberry Rd, Minnesota to Interstate Circle</u> (Blueberry Lake: approx. 4.84 acres; Private Ownership; Scores: Hydrology = 99; Habitat = 98; Species Occurrence = 41; Social Function = 32). (Areas North and South of Lake: 10.3 acres; Public and Private Ownership; Scores: Hydrology = 83; Habitat = 53; Species Occurrence = 17; Social Function = 53) Values for stormwater attenuation, habitat and water quality. "A" wetlands include <i>Blueberry Lake proper with adjacent 100-foot buffer, preserved</i> by Conservation Easement; and the westernmost edge of Tract 4, International East Subdivision (preserved by permit POA-2003-56). "B": Tract SW of Electron Drive and West Dowling ROW. Tract A-1, south of Blueberry Lake. "C" wetlands are <u>not</u> GP eligible. <i>A 15-foot buffer shall be required from fill authorized within "C" and "B" wetlands. A 25-foot buffer is required between fill authorized in "C" wetlands and "A" wetlands.</i>	A/B/C

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
34C	54	<u>SOUTHEAST INTERSECTION OF MINNESOTA/RASPBERRY</u> (13.4 acres; Public Ownership) (Scores: Hydrology = 79; Habitat = 47; Species Occurrence = 18; Social Function = 63) Site has potential for habitat enhancement/flood storage/and as a mitigation site. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding and stormwater controls required.</i> Any development should address potential drainage impacts to adjacent homes.	C
34D	53	<u>IRIS SUBDIVISION (Raspberry Road/Connors Bog)</u> (3.98 acres; Private Ownership) (Scores: Assessed with Site #34 Connors/Strawberry Bog) Values for stormwater filtering/attenuation, and habitat. Majority of site should be retained as buffer to main Connors Bog. <i>Any proposed fill should be limited to the roadside and westerly portions of Tract A or to drier portions of the site. If permitted: runoff shall be treated before entering bog, landscape screening shall be required between development and bog; any development shall include habitat enhancement in bog.</i> Portions may be suitable for a trade to preserve wetlands on site.	A
34E	53	<u>SE RASPBERRY AT TIMOTHY</u> (2 sites) (3.29 acres; Public Ownership) (Scores: Hydrology = 83; Habitat = 59; Species Occurrence = 57; Social Function = 59) Values for stormwater attenuation, water quality. COE Jurisdictional Determination required. Site has potential to leverage as a land trade to acquire higher value wetlands for preservation. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding and stormwater controls required. Under the GP, development within the wet meadow, in the eastern 125 feet of wetlands, requires REV 2 mitigation.</i>	C
34F	66 and 67	<u>SOUTH OF STRAWBERRY LAKE TO STRAWBERRY ROAD</u> (18.32 acres; Private Ownership) (Scores: Hydrology = 106; Habitat = 95; Species Occurrence = 50; Social Function = 49) "B" wetlands: includes an additional 200 feet south of the "A" wetland surrounding Strawberry Lake and west along the Section line. <i>A hydrologic analysis of "B" wetlands would indicate the importance of the 200-foot setback to the hydrology/habitat of Strawberry Lake and important areas to be avoided to the west.</i> "C" wetlands: remainder of bog southward from "B" to just south of Strawberry Road (3 additional sites at 80 th /Terrabonne Dr). General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding, adjacent wetland dewatering and stormwater controls required. A 15-foot transitional buffer shall be maintained between fill authorized within "C" wetlands and adjacent "B" wetlands. Include measures to rehydrate bog to the north if practicable. Tract L, SW 80th and Strawberry Road, requires REV 2 mitigation.</i>	B/C
34G	53	<u>CONNORS BOG/64TH to 66th AVENUE</u> (9.73 acres; Private Ownership) (Scores: Hydrology = 88; Habitat = 75; Species Occurrence = 55; Social Function = 47) Tract A and adjacent parcels. Values for habitat and stormwater attenuation. Northerly and eastern portions are of higher value, similar to flooded areas in main Connors Bog. <i>A visual buffer shall be established at the edge of any future fill and remaining unfilled sections to north and east. Provided there would be no impacts to private property, on-site treated storm water may be directed into the Connors Bog wetlands.</i>	B

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
35	53	RASPBERRY TO STRAWBERRY/NORTHWOOD TO JEWEL LAKE (3 sites) (11.5 acres; Private Ownership) (Scores: Hydrology = 87; Habitat = 62; Species Occurrence = 41; Social Function = 35) "B" wetlands designated in Gladys Wood Park. <i>Contains a pond and wetland fringe habitat which shall be retained via a 65-foot setback.</i> "C" wetlands located immediately east of Gladys Wood Elementary. COE Jurisdictional Determination required. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding and stormwater controls required.</i>	B/C
35A	53	<u>73RD AND JEWEL LAKE</u> (1.03 acres; Private Ownership) (Scores: Hydrology = 87; Habitat = 72; Species Occurrence = 53; Social Function = 40) COE Jurisdictional Determination required for both sites. "B" wetland: <i>Setbacks from pond required (25 feet) under previously issued Individual Permit: Jewel Lake 1. Provides run-off and water quality control for Sand Lake. Pond habitat, water quality and drainage values shall be maintained via avoidance.</i> "D" wetland: pond should be retained to maximum extent possible. Potential for stormwater enhancement.	B/D
36	66	HATHOR SUBDIVISION (5.76 acres; Public & Private Ownership) (Scores: Hydrology = 103; Habitat = 104; Species Occurrence = 29; Social Function = 42) "A" wetlands (Hathor Park): North and west of Kronos Drive, ponds shall be retained due to habitat, water quality, flood control and recreation values. "C" wetland (Eleusis Drive): Requires COE Jurisdictional Determination. May be eligible for a General Permit . GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required.</i>	A/C
36A	66	<u>NW of BLACKBERRY AND WEST DIMOND BLVD</u> (1.29 acres; Private Ownership) (Scores: Hydrology = 55; Habitat = 75; Species Occurrence = 18; Social Function = 39) Provides flood and stormwater attenuation, and water quality functions. Tributary to Campbell Lake. May provide connection between Sand Lake wetlands and Campbell Lake. COE Jurisdictional Determination and wetland delineation required. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required.</i> <i>The drainageway shall be maintained: no fill shall be allowed within 65-feet of the main channel in order to protect the area's flood storage and water quality functions.</i>	C
36B	66	<u>BIRCH LAKE</u> (3.55 acres; Public & Private Ownership) (Scores: Hydrology = 80; Habitat = 93; Species Occurrence = 56; Social Function = 74) High values for stormwater attenuation and habitat. <i>Minor recreation amenities may be considered but shall be built on piles or at the fringes only. Avoid development in springs/seeps on western edge of wetlands, adjacent to Dewberry Rd.</i> COE Jurisdictional Determination required.	A

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
37	52, 65	<u>SAND LAKE FRINGE WETLANDS</u> (2.95 acres Public and Private Ownership) (Scores: Hydrology = 138; Habitat = 170; Species Occurrence = 143, Social Function = 89) (Assessment included lake acreage) Includes fringe wetlands on Sand Lake, park land at east end of lake, and pond and drainage area SW of West 72nd Ave and Setter Drive. <i>Lakeside wetlands shall be avoided via setbacks of 25 feet. Pond and drainageway below West 72nd Avenue should be preserved for stormwater attenuation, water quality and habitat values.</i>	A
37A	65	<u>SAND, SUNDI, JEWEL LAKES</u> (67.18 acres; Public & Private Ownership) (Scores: Hydrology = 86; Habitat = 92; Species Occurrence = 110; Social Function = 45) "A" wetlands designation for those lakeside wetlands around Sand, Sundi, the unnamed lake immediately east of Sundi Lake, and the wetland complex that connects these waterbodies including Jewel Lake. Fringe wetlands exist around Jewel Lake and are possible on all undeveloped portions of each lake; COE Jurisdictional Determination and wetland delineation is required. ADFG stocks Jewel Lake with Chinook Salmon and Rainbow Trout; Sand Lake contains Arctic Char, Grayling and Rainbow Trout. Preserved wetlands: Tract A, Mike Beirne Subdivision; Tracts A-1,2 Machenfeld Subdivision, Tract B-1A, Machenfeld Acres Subdivision. Reference plat 93-118. These wetlands are vital to water quality, water level maintenance and flood storage, as well as the habitat and open space functions of the lakes and canals. Field records and surveys show very high habitat and hydrological values. <i>Analysis of potential fill impacts on habitat and hydrology functions shall be required of applicant's proposing development. Fill projects shall not threaten viability of the lakes and adjacent preserved habitat.</i>	A
37B	65	<u>SOUTH SIDE SAND LAKE: NORTH OF CHARLOTTE CIRCLE, VICTORIA SUBDIVISION</u> (0.12 acres; Private Ownership) (Scores: Hydrology = 48; Habitat = 52; Species Occurrence = 11; Social Function = 48) A 25-foot transitional buffer shall be maintained from adjacent "A" wetlands. <i>Any development authorized must take measures to address potential dewatering of adjacent preserved "A" wetlands; i.e., use an impervious barrier at the margins of fill to preclude groundwater outmigration. Treated local storm water could be directed into wetlands provided it would not affect private property.</i>	B
37C	65	<u>ST. BENEDICT'S</u> (2.59 acres; Private Ownership) (Scores: Hydrology = 75; Habitat = 59; Species Occurrence = 68; Social Function = 44) Westernmost 150 feet includes key habitat and hydrology areas, with connection to adjacent preserved "A" wetland. Pondered in spring; nesting use, significant species present. <i>A 200-foot transitional buffer shall be maintained from the "A" wetlands to protect habitat values of the "A" wetlands and the west end of this site. Any authorized development shall be visually screened from the setback along the "A" wetlands, and take measures to address potential dewatering of adjacent preserved "A" wetlands; i.e., use an impervious barrier at the margins of fill to preclude groundwater outmigration. Treated local storm water could be directed into wetlands provided it would not affect private property.</i>	B

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
37E	52	<u>WEST 72ND AVENUE</u> (1.74 acres; Public Ownership) (Four sites) (Scores: Hydrology = 49; Habitat = 40; Species Occurrence = 18; Social Function = 47) Northern and eastern sites are natural depressional wetlands. Additional small wetland pools and depressions are scattered in this parcel: requires COE Jurisdictional Determination. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required.</i> <i>NE 72nd and Bailey Street: pond requires 65-foot setback.</i>	C
38	43, 44, 55, 66, 67, 68, 75	<u>CAMPBELL CREEK GREENBELT</u> (162.94 acres = Greenbelt areas; Public Ownership) (Scores: Hydrology = 140; Habitat = 112; Species Occurrence = 102; Social Function = 54) Municipal Greenbelt from Lake Otis Parkway west to stream's entry at Campbell Lake. Important for fish habitat, flood and stormwater attenuation, water quality and recreation. <i>Development of public park amenities should be placed as far from creek as possible and shall avoid wetlands to the maximum extent.</i>	A
38	74	<u>CAMPBELL CREEK ESTUARY</u> (8 acres; Private Ownership) (Scores: Not Assessed) Parcel #01124159 preserved by Conservation Easement under Great Land Trust. Values for flood attenuation, water quality, fish and bird habitat and open space/aesthetics. Acreage is largely tidal influenced wetlands.	A
38	68	<u>TAKU LAKE</u> (1.07 acres; Public Ownership) (Scores: Not Assessed) Development of Park amenities could occur but, must maintain drainageway at south end of lake. <i>Minimum setbacks of 65-feet shall be required from lake shore.</i> Provides flood and stormwater attenuation and habitat values. ADFG stocks the lake with Chinook Salmon and Rainbow Trout.	A
38A	44	<u>INTERNATIONAL: CAMPBELL CREEK, EAST AND WEST OF HIGHWAY</u> (3.6 acres; Private Ownership) (Scores assessed in two parts: Hydrology = 86, 63; Habitat = 50, 34; Species Occurrence = 18, 18; Social Function = 45, 46) Values for flood and stormwater attenuation, habitat and recreation. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding and stormwater controls required.</i> <i>East of Seward Hwy/North of Alpenhorn to "A" wetlands boundary: 25-foot buffer from "A" wetlands required.</i> <i>West of Seward Hwy/North of Juneau St: 100-foot setback from Campbell Creek. 25-foot buffer from "A" wetlands.</i>	C
38B	55	<u>WEST of OLD SEWARD HIGHWAY, 64TH AVE TO Sylvan Dr.</u> (2.67 acres; Private Ownership) (Scores: Hydrology = 80; Habitat = 63; Species Occurrence = 26; Social Function = 35) SE 64 th /Hampsted St. Ponds formerly designated "C"; now preserved by COE permit #4-940144/plat #94-113. Ponds have water quality, stormwater attenuation and wildlife habitat values. Potential for habitat enhancement. <i>Eastern one-third of site and ponds shall be retained and enhanced with 65-foot setbacks.</i> Cluster development could occur on western and southern fringes with buffering from ponds.	A

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
38B	55	<p><u>WEST of TAKU ELEMENTARY</u> Campbell Green, Tract 31 (NW 72nd/Michelin St): (1.8 acres; Private Ownership) (Scores: Hydrology = 81; Habitat = 66; Species Occurrence = 24; Social Function = 59) Values for flood and stormwater attenuation, habitat and recreation.</p> <p>"A" wetlands: <i>A 25-foot buffer shall be maintained from "A" wetland/greenbelt and is preserved (permit # Campbell Creek 00-B.</i></p> <p>General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding and stormwater controls required.</i></p>	A/C
38C	55	<p><u>ALONG C STREET: DOWLING TO 76TH AVENUE</u> (14.06 acres; Public & Private Ownership) (Scores: Hydrology = 85; Habitat = 88; Species Occurrence = 28; Social Function = 49)</p> <p>"A" wetlands include C Street ROW, east side from Raspberry south to 72nd and the pond at NE 72nd and Hart, which is permit preserved (#POA-2007-1078-4). Nesting waterbirds present. Area has drainage problems. <i>In Tract 3B, North of 68th, west of Campbell Creek Greenbelt, the seasonal drainage pattern (west to east toward Campbell Creek) shall be maintained by avoiding seasonal surface flow low points. Area has permanent and seasonal ponds.</i></p> <p>"C" wetlands eligible for General Permit includes two sites north of 68th between C St and greenbelt. GP Site Restrictions and Design Criteria: <i>Construction Timing Window; identify Surface Water Features, BMPs to prevent Local Flooding and address Stormwater Functions.</i></p>	A/C
38D	74,75	<p><u>CAMPBELL LAKE</u> (0.75 acres; Public & Private Ownership) (Scores: Hydrology = 98; Habitat = 77; Species Occurrence = 78; Social Function = 41)</p> <p>Includes lakeshore wetlands. High values for waterbirds and fish habitat, stormwater and flood attenuation, and water quality. <i>Preserve remaining fringe wetlands to the maximum extent possible.</i> Bio-engineered shoreline protection methods preferred. COE Jurisdictional Determination and delineation required.</p>	A
39	43 and 55	<p><u>TINA LAKE</u> (5.31 acres; Public & Private Ownership) (Scores: Hydrology = 135; Habitat = 93; Species Occurrence = 73; Social Function = 36)</p> <p>Values for stormwater retention/filtering and habitat; significant species use. Remaining wetlands have direct connection to lake's hydrology values. <i>Minor fill could occur on outer fringes of wetland. Construction shall not occur during waterfowl breeding season (April-July). Fill edges shall include visual landscaped buffer.</i> Wetlands require delineation for updated mapping. Long-term preservation goals should include acquisition.</p>	A

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
40, 40A	43	<p>BUSINESS PARK (Public Ownership—"A" wetland site; & Private Ownership) West Side of Business Park Boulevard. (8.46 acres) (Scores: Hydrology = 112; Habitat = 67; Species Occurrence = 94; Social Function = 65) Wetlands are Preserved by Conservation Easement; Business Park Wetlands Coalition. Values for hydrology, stormwater and flood attenuation, water quality, habitat for nesting birds. Enhancement/mitigation potential. Adjacent snow dump creates potential water quality issues. East Side of Business Park Boulevard (approximately 1.45 acres) (Scores: Hydrology = 94; Habitat = 59; Species Occurrence = 71; Social Function = 49) Pond and stormwater filtration wetlands in Lot 2A on west side Business Park Blvd are preserved by permit #POA-2006-1215-4 (plat# 2008-113). Values for hydrology, stormwater and flood attenuation, water quality habitat for nesting birds. <i>Maintain existing wetland values to the maximum extent possible.</i></p>	A
40B	43	<p>C STREET to CORDOVA, 46th to 51st St. (13.18 acres; Private Ownership) (Scores: Hydrology = 86; Habitat = 50; Species Occurrence = 18; Social Function = 40) COE Jurisdictional Determination and wetland delineation required. Pond located in 46th ROW could be used for stormwater treatment. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required.</i></p>	C
41	31	<p>A STREET TO C STREET/36TH TO 40TH (1.02 acres; Public Ownership) (Scores: Hydrology = 68; Habitat = 36; Species Occurrence = 18; Social Function = 46) General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding and stormwater controls required. Any development must not adversely affect AWWU well at 40th/Barrow. Development shall direct storm water through appropriate treatment prior to entrance into storm drain as it leads directly into Fish Creek.</i> COE Jurisdictional Determination required.</p>	C
41	31	<p><u>WETLANDS SOUTH OF LOUSSAC LIBRARY</u> (0.39 acres; Public Ownership) (Scores: Hydrology = 79; Habitat = 63; Species Occurrence = 54; Social Function = 60) Values for habitat: moderate waterfowl use/nesting; stormwater and flood attenuation and water quality. Pondered areas artificially created and water levels may be supplemented. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding and stormwater controls required. A 65-foot setback shall apply around the permanent pond. Any development must not adversely affect AWWU well at 40th/Barrow.</i> COE Jurisdictional Determination required.</p>	C
41	31	<p>A STREET TO FAIRBANKS: 40TH TO TUDOR ROAD (7.71 acres; Private Ownership) (Scores: Hydrology = 99; Habitat = 70; Species Occurrence = 60; Social Function = 40) General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required. Development shall direct storm water through appropriate treatment prior to entrance into storm drain as it leads directly into Fish Creek. Could serve as storm drain treatment/collection site.</i> Any development must not adversely affect AWWU well at 40th/Barrow. COE Jurisdictional Determination required. SW 40th and Denali Street site: remaining wetlands are preserved by permit #Fish Creek 04-C.</p>	A/C

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
42	32	<u>NE NEW SEWARD HIGHWAY/TUDOR ROAD</u> (7.51 acres; Private Ownership) (Scores: Hydrology = 105; Habitat = 85; Species Occurrence = 28; Social Function = 54) "A" wetlands: Tract B1A and lots north of Eau Claire and Grape Streets are preserved by Conservation Easement (McDowell Sanctuary). Ponds provide high species use and habitat diversity; values for stormwater attenuation and water quality. "B" wetlands values for stormwater attenuation and water quality. Further enhancement could be performed such as filling the outlet ditch to retain wetland characteristics.	A/B
43	32	<u>LAKE OTIS</u> (8.21 acres; Public & Private Ownership) (Scores: Hydrology = 109; Habitat = 96; Species Occurrence = 96; Social Function = 80) Wetland fringe important for lake water quality, wildlife habitat and open space values. <i>Park improvements shall be developed at wetland fringes and on pilings whenever practicable. Future modifications to the lake water level control structure should be reviewed to preclude any dewatering impacts on wetlands. A minimum 65-foot setback shall be maintained from lake for all new structures.</i> ADFG stocks Jewel Lake with Rainbow Trout.	A
43A	32	<u>SE MACINNES and 36th Street</u> (0.53 acres; ROW, Park) (2011 Scores: Hydrology = 94; Habitat = 51; Species Occurrence = 15; Social Function = 78) Park lands; ponded with robust emergent vegetation. Values for stormwater attenuation, limited for habitat.	B
44	32	<u>LAKE OTIS/TUDOR ROAD, FISH CREEK HEADWATERS</u> (3.44 acres; Private Ownership) (Scores: Hydrology = 93; Habitat = 98; Species Occurrence = 52; Social Function = 78) Only open channel within headwaters area of Fish Creek. Values for habitat, water quality, stormwater and flood attenuation. Majority of northern tract wetland is preserved as designated park; southern tract was retained as on-site mitigation for a previously permitted project. <i>Retain remaining wetlands to the maximum extent; reference COE permit # Fish Creek 6.</i>	A
45	44	<u>WALDRON DRIVE WETLANDS</u> (15.56 acres; Private Ownership) (Scores: Hydrology = 110; Habitat = 85; Species Occurrence = 61; Social Function = 53) Waldron Pond within St Mary's Greatland Subdivision, Tract B is preserved by a Conservation Easement. <i>A minimum 85-foot setback shall be maintained from Fish Creek headwaters.</i> Southern fringe could be developed; maintain wet meadow core. On-site drainage treatment shall be included in any new development. Intention is to preserve the core values: stormwater and flood attenuation, water quality and habitat. ADFG stocks the pond with Rainbow Trout.	B
46	43	<u>WEST OF OLD SEWARD HIGHWAY: EAST 57th TO DOWLING</u> (2.52 acres; Private Ownership) (Scores: Hydrology = 63; Habitat = 34; Species Occurrence = 18; Social Function = 46) General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required.</i> Values for stormwater filtering and attenuation prior to entering Campbell Creek. Previously unmapped wetland at SW 56 th and Denali St. assessed as "C"; not eligible for a General Permit. COE Jurisdictional Determination and wetland delineation required.	C

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
46	44	<u>55TH TO DOWLING: SEWARD HIGHWAY TO LAKE OTIS</u> (11.41 acres; Private Ownership) (Scores: Hydrology = 87; Habitat = 52; Species Occurrence = 42; Social Function = 12) Values for stormwater filtering and attenuation. Site could be used for stormwater treatment; receives runoff from snow dumps. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify local surface water features; BMPs for local flooding and stormwater controls required.</i> COE Jurisdictional Determination required.	C
46	44	<u>NORTHWEST INTERSECTION OF DOWLING/SEWARD HIGHWAY</u> (9.74 acres; Private Ownership) (Scores: Hydrology = 106; Habitat = 50; Species Occurrence = 18; Social Function = 39) Values for stormwater filtering and attenuation. Site could be used for stormwater treatment/habitat enhancement. COE Jurisdictional Determination required. Remaining wetlands on parcel #00928401 are permit preserved #POA-2005-510-4 and designated "A." Remaining "C" wetlands may be eligible for a General Permit. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify local surface water features; BMPs for local flooding and stormwater controls required.</i>	A/C
47	45	<u>TUDOR DOG TRACK (TOZIER TRACK)</u> (1.72 acres; Public Ownership) (Scores: Not Assessed) General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding and stormwater controls required. A 25-foot transitional buffer shall be maintained between any fill permitted under the GPs and adjacent "A" wetlands.</i> Previously unmapped wetlands located at SW Tudor and Elmore Roads (0.66 acres, Public Ownership)(Scores: Hydrology = 77, Habitat = 68, Species Occurrence = 8, Social Function = 26); now designated as "C" are General Permit applicable. Under GP noted as site #U-6. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding, dewatering of adjacent wetlands and stormwater controls required.</i>	C
47	45	<u>EAST SIDE OF LAKE OTIS AT 52ND AVENUE AND EAST OF LAUREN CREEK SUBDIVISION</u> (9.10 acres; Private Ownership) (Scores assessed in two parts: Hydrology = 80, 47; Habitat = 64, 30; Species Occurrence = 18, 18; Social Function = 53, 54) "A" wetlands: Northern strip of wetlands along Sunchase Condos and eastern wetlands strip at Lauren Creek Condos are preserved ; not GP eligible; reference plat #2003-41. "C" wetlands: NE 52 nd /Lake Otis: General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding and stormwater controls required.</i> <i>Fill within Tract C1C wetlands requires 25-foot buffer from adjacent "A" wetlands.</i> Northern section currently drains south to north at Folker Street right-of-way.	A/C

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
48	45, 46, 47, 48, 57, 59, 60	<p><u>CAMPBELL TRACT: NORTH and SOUTH FORKS CAMPBELL CREEK</u> (1084 acres; Public Ownership) (Scores: Hydrology = 126; Habitat = 156; Species Occurrence = 137; Social Function = 52) <u>SOUTH OF TUDOR/MULDOON CURVE</u> (390.06 acres; Public Ownership) (Scores: Hydrology = 113; Habitat = 99; Species Occurrence = 24; Social Function = 59)</p> <p>Roughly east of Lake Otis to west of Stuckagain Heights Subdivision. North and east of Section 3. Wetlands in watershed have high values for stormwater and flood attenuation, water quality, habitat, open space and recreation values; directly linked to Campbell Creek hydrologic regime. <i>Basher Lake wetlands shall be preserved because of high hydrology and habitat values; hydrologically connected to the north via seasonal channel and groundwater (Hogan and Tande). Minor Park development allowed if consistent with Bicentennial Park Master Plan. Any activity shall avoid/minimize disturbance to surface water connections to Campbell Creek, Basher Lake and its tributaries. Trails in wetlands shall be set back at least 100 feet from Campbell Creek/tributaries except where crossing is necessary. Utilities and roads shall be placed in the least sensitive wildlife habitat areas. Impervious dikes or equivalent measures shall be used to avoid draining wetlands.</i></p> <p>Preserved wetlands: Wetlands lobe located south of Tudor Rd at Reflection Drive contains a branch of Chester Creek; preserved by a conservation easement. Wetland parcels to the NE and SW of Dowling and Elmore Roads are preserved by conservation easement (parcels # 00816103 and 01493101).</p>	A
48 (includes former #48A)	71, 72, 73	<p><u>NORTH OF SERVICE HIGH SCHOOL: SW BLM TRACT, EAST OF ELMORE ROAD TO HILLSIDE PARK</u> (280 acres; Public Ownership; BLM Tract) (Scores: Hydrology = 117; Habitat = 150; Species Occurrence = 48; Social Function = 69) (4 acres; Public Ownership; 2 sites in Hillside Park) (Scores: Hydrology = 78; Habitat = 65; Species Occurrence = 28; Social Function = 56) (80 acres; Public Ownership; NW of Service HS) (Scores: Hydrology = 84; Habitat = 124; Species Occurrence = 29; Social Function = 59)</p> <p>Includes North Fork Little Campbell Creek and its tributaries. Values for water quality, storage, recharge and habitat. Sahalee Subdivision, Lots 40-42 preserved eastern 50 feet (permit #Campbell Creek 99-B). <i>Wetlands within Far North Bicentennial Park shall be preserved with minor park/recreational improvements allowed, but limited to non-fill activities if practicable. Waterways leading into the "A" wetlands shall be maintained. Maintain a 100-foot setback from anadromous fish bearing waterbodies; allow cross-drainage between wetlands.</i></p> <p>"B" site NE of Service H.S. requires COE Jurisdictional Determination.</p>	A/B
48B	48	<p><u>SOUTHEAST MULDOON AND TUDOR AT KLUTINA DRIVE</u> (2.71 acres; Public Ownership) (Scores: Hydrology = 61; Habitat = 47; Species Occurrence = 18; Social Function = 44)</p> <p>Values for stormwater and flood attenuation. <i>Maintain drainageway to north, into Chester Creek. General Permit applicable. GP Site Restrictions and Design Criteria: Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required.</i></p>	C

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
49 East	46, 47	<p><u>DR. MARTIN LUTHER KING DRIVE: TUDOR CENTER DRIVE TO BONIFACE DR.</u> (26.5 acres; Public Ownership) (Scores: Hydrology = 66; Habitat = 57; Species Occurrence = 24; Social Function = 42) Values for stormwater and flood attenuation, habitat and open space/aesthetics. May serve to filter run-off before entering Campbell Creek; <i>local drainage pathways shall be maintained.</i> Reference Tudor Road PLI Plan for recommended land use.</p> <p>"A" wetlands preserved; designated as Conservation Easement parcels along Dr. Martin Luther King Jr. Drive. Reference COE permits POA-2004-281-4, POA-2006-263; parcels #00722102, 0810110, 00811107.</p> <p>Small "C" wetland south of ADOT/PF building requires COE Jurisdictional Determination. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding and stormwater controls required.</i></p>	A/B/C
49 West	46	<p><u>DR. MARTIN LUTHER KING DRIVE: ELMORE RD TO TUDOR CENTER DRIVE</u> (44.3 acres; Public Ownership) (Scores: Hydrology = 90; Habitat = 70; Species Occurrence = 24; Social Function = 56) Much of these wetlands designated as good/excellent suitability zones in Tudor Road PLI Plan. <i>All sites maintain a 100-foot setback from the north bank of Campbell Creek.</i></p> <p>"A" wetlands preserved; designated for Conservation Easement parcel #00812107, along Dr. Martin Luther King Jr. Drive. Reference COE permits Campbell Creek 75 and Furrow Creek 2.</p> <p>"C" wetland General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding and stormwater controls required. 15-foot setback from "B" wetland required.</i></p>	A/B/C
49A	36	<p><u>TUDOR/MULDOON CURVE</u> (2.58 acres; Public & Private Ownership) (Scores: Hydrology = 100; Habitat = 94; Species Occurrence = 49; Social Function = 38) Values for stormwater attenuation, water quality and open space/aesthetics. Importance for local roadway drainage/water quality. Scenic Park View Subdivision remaining wetlands are preserved by permit #POA-1997-824.</p>	A
50	17a, 61	<p><u>STUCKAGAIN CREEK; HEADWATERS POND</u> (6.64 acres; Private Ownership) (Scores: Hydrology = 73; Habitat = 77; Species Occurrence = 22; Social Function = 21) Pond constitutes stream headwaters. Pond area subdivided into open space tract. <i>A minimum 85-foot setback shall be maintained from pond and stream (where wetlands adjacent.).</i> Values for stormwater and flood attenuation, water quality and wildlife habitat. Pond is preserved by plat #2010-39 and COE permit #Bog Lake 2.</p>	A/B
50	17a, 61	<p><u>STUCKAGAIN: SOUTH OF MIDDEN WAY</u> (0.13 acres; Private Ownership) (Scores: Hydrology = 64; Habitat = 45; Species Occurrence = 18; Social Function = 29) Unique local site. <i>Lot development shall be consistent with large-lot zoning to preclude extensive fill coverage. Local drainage patterns shall be maintained around the sinkhole.</i> COE Jurisdictional Determination required. "C" wetlands are General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding and stormwater controls required.</i></p> <p>"D," previously unmapped wetlands located at east end of Tulugak Circle.</p>	C/D

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
50	16a	<u>CAMPBELL CANYON / NEAR POINT</u> (15.28 acres; Private Ownership)(Scores: Hydrology =89; Habitat =95 ; Species Occurrence =21; Social Function =45) Preserved under The Conservation Fund; intention to add to Chugach State Park inventory. Headwater streams and springs on slope discharge wetlands. Values for flood attenuation, water quality and habitat. <i>Protect streams with an 85-foot setback; drainageways minimum 25-foot setback.</i>	A
51	57 and 70	<u>LITTLE CAMPBELL CREEK: 66TH AVENUE TO 84TH/LAKE OTIS TO ELMORE RD</u> (30.35 acres; Private Ownership) (Scores: Hydrology = 127; Habitat = 107; Species Occurrence = 69; Social Function = 50) Includes wetlands containing Little Campbell Creek. Values for stormwater and flood attenuation, water quality, habitat and open space/aesthetics. “C” sites are General Permit applicable . GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required.</i> <i>Setback areas shall be treated as “A” wetlands: A 100-foot setback shall be maintained along Little Campbell Creek to maintain its anadromous fish resources and its flood storage/hydrology functions.</i> Preserved parcels mapped as “A” wetlands: Crowberry Tract A; SW 68 th and Lewis St; Pebblebrook, Tract A, A-2; Essex Square Subdivision, Tract H; Turinsky Park; Worst Subdivision; Lots 1 and 2, Wimbledon Park; Tract A, SE Lake Otis/72 nd ; reference plat 2003-40 and COE/MOA permit Little Campbell Creek 00-B.	A/C
51A	70	<u>CANDYWINE CIRCLE</u> (2.82 acres; Private Ownership) (Scores: Hydrology = 102; Habitat = 88; Species Occurrence = 49; Social Function = 40) Includes North Branch, South Fork of Little Campbell Creek. Important for flood storage, water quality maintenance; possible fish use. <i>Entire floodplain area shall be included in setback; additional setbacks/requirements to be determined in permit process, with minimum of 100 feet of setback required. Setback area shall be treated as “A” wetlands. Additional wetland delineation required.</i> “B” wetlands are outside of the stream setback.	A/B
52	57 and 70	<u>66TH AVENUE TO 84TH/LAKE OTIS TO ELMORE RD</u> (14.94 acres; Private Ownership) (Scores: Hydrology = 118; Habitat = 63; Species Occurrence = 44; Social Function = 40) <i>Wetlands require a 100-foot setback along all forks of Little Campbell Creek due to anadromous fish resources; shall be treated as “A.”</i> Values for flood and stormwater attenuation, water quality, habitat. “C” wetlands are General Permit applicable . GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required.</i>	A/C
53	57	<u>TIFFANY TERRACE TO BABY BEAR DRIVE/64TH TO 68TH</u> (2.77 acres; Private Ownership) (Scores: Hydrology = 87; Habitat = 80; Species Occurrence = 48; Social Function = 43) Pebblebrook Subdivision: “A” designation applies to remaining wetland which is preserved by permit/plat #87-70 and #95-2. <i>A 100-foot setback shall be maintained along channels of Little Campbell Creek to protect anadromous fish resources.</i> Values for flood and stormwater attenuation, water quality and habitat.	A

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
54	56 and 57	<u>SOUTH OF DOWLING AT LAUREL ST</u> (2.44 acres; Private Ownership) (Scores: Hydrology = 66; Habitat = 58; Species Occurrence = 18; Social Function = 49) "A" wetlands: remaining wetlands in Tracts A1 and A2 Spruce Meadows Subdivision are preserved by permit #Campbell Creek 80 (#1998-0917), and plats #99-123, 2001-13, COE Jurisdictional Determination required. Potential for stormwater treatment. General Permit applicable . GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding and stormwater controls required.</i>	A/C
55, 56 and 57	56	<u>DOWLING RD TO LORE RD/SEWARD HWY TO LAKE OTIS</u> (24.36 acres; Private Ownership) (Scores: Hydrology = 117; Habitat = 86; Species Occurrence = 24; Social Function = 54) COE Jurisdictional Determination required. Potential for stormwater treatment. "A" wetlands: located within 100-foot setback of Little Campbell Creek. NE 64 th and Ashwood (south of Polaris School) wetland is preserved by General Permit #Little Campbell Creek 98-T. "B" wetlands: sites adjacent to Little Campbell Creek at O'Brien Street, Galatea Estates Subdivision and 64 th & Burlwood St. Values for water quality, flood and stormwater attenuation; <i>development could occur on outer fringes. Maintain direct hydrologic connection to stream. A 100-foot setback shall be maintained along channels of Little Campbell Creek in order to maintain anadromous fish resources as well as water quality and flood storage functions.</i> "C" sites are eligible for a General Permit . GP Site Restrictions and Design Criteria: <i>Construction timing window; Wetland Delineation; identify surface water features; BMPs to address local flooding and stormwater controls required. 100-foot setback from Little Campbell Creek and inactive channels.</i> Previously unmapped wetlands at SE 69th and Rosewood St. (3.38 acres; private ownership)(Scores: Hydrology = 96, Habitat = 52, Species Occurrence = 34, Social Function = 47) now designated as "C" are eligible for a General Permit . Noted as site #U-7. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs to address local flooding and stormwater controls required. 100-foot setback from Little Campbell Creek and inactive channels.</i>	A/B/C
58	69	<u>LORE ROAD TO 82ND AVENUE: SEWARD HIGHWAY TO LAKE OTIS</u> (2.06 acres; Private Ownership) (Scores: Hydrology = 76; Habitat = 65; Species Occurrence = 37; Social Function = 21) <i>Maintain all drainage corridors to Little Campbell Creek. Pond at NE 79th and Petersburg requires a 65-foot setback. Values for stormwater and flood attenuation, water quality, limited habitat.</i> "C" wetlands at SW Lore Rd/Hartzell (except ponded areas): General Permit applicable . GP Site Restrictions and Design Criteria include: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required.</i>	B/C
58A	69	<u>HARTZELL/DIMOND INTERSECTION</u> (0.68 acres; Private Ownership) (Scores: Hydrology = 97; Habitat = 80; Species Occurrence = 38; Social Function = 36) Direct connection to south fork of Little Campbell Creek. Flow from springs/pond within floodplain. Flood storage/recharge functions; values for fish rearing habitat. <i>Integrity of springs/tributary shall be retained with minimum 100-foot setback to protect anadromous fish.</i>	A

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
58B	69	<p><u>SOUTHEAST INTERSECTION: DIMOND/SEWARD HIGHWAY</u> (5.76 acres; Private Ownership) (Scores: Hydrology = 70; Habitat = 56; Species Occurrence = 28; Social Function = 44)</p> <p>"A" Wetlands located within the cloverleaf (western one-third) is preserved by permit: Little Campbell Creek 00-C; site could be used for stormwater detention/treatment as it connects via pipe directly to Little Campbell Creek</p> <p>"C" wetlands: the remaining 2/3 of wetland within highway interchange. A 65-foot setback from the northern outlet flow path shall be maintained along the site's northwest corner. Important for flood control and water quality.</p> <p>General Permit applicable. GP Site Restrictions and Design Criteria include: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required.</i></p> <p>"D" wetlands Parcel 32A, NE Brayton at Lake Otis are previously unmapped wetlands east of the northbound highway off-ramp. COE Jurisdictional Determination and further wetland delineation may be required.</p>	A/C/D
58C	69	<p><u>LITTLE CAMPBELL CREEK FLOODPLAIN: EAST OF OLD SEWARD HIGHWAY</u> (0.48 acres approx.; Private Ownership) (Scores: Not Assessed)</p> <p>Vans Subdivision, Lot 9b, Block 2 is preserved by COE permit #POA-1982-0930. Site includes an old channel, associated portion of floodplain and several remnant pools of Little Campbell Creek. <i>Minimum 100-foot setback (in wetlands) from the stream.</i> Values for stormwater and flood attenuation, water quality and habitat.</p>	A
59	68	<p><u>KING STREET: SOUTH OF DIMOND</u> (20.58 acres; Private Ownership) (Scores: Hydrology = 88; Habitat = 75; Species Occurrence = 30; Social Function = 32)</p> <p>Serves as local industrial area drainage; likely feeds into Campbell Creek, conveying industrial run-off; attenuates flows to Campbell Creek. Values for water quality, stormwater and flood attenuation.</p> <p>"C" site eligible for General Permit: East of King St, Dimond to 92nd; GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required.</i></p> <p>West of King St: not eligible for GP. Portion of King Addition 2 Subdivision, Lot 20, Block 1 is preserved by permit #POA-2004-674.</p>	A/C
59	77	<p><u>WEST OF OLD SEWARD HIGHWAY, EAST OF RAILROAD, 92nd TO 100th AVENUE</u> (1.06 acres; Private Ownership) (Scores: Hydrology = 81; Habitat = 59; Species Occurrence = 17; Social Function = 27)</p> <p>COE Jurisdictional Determination required. General Permit applicable, GP Site Restrictions and Design Criteria: <i>Construction timing window; Wetland Delineation; BMPs for local flooding and stormwater controls required.</i></p>	C
60	67, 76	<p><u>NW MINNESOTA AT 100th; SW MINNESOTA AT DIMOND</u> (4.36 acres) (Private Ownership) (Scores: Assessed with Site No. 60 North)</p> <p>Values for stormwater attenuation. COE Jurisdictional Determination required.</p> <p>General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding and stormwater controls required.</i></p>	C

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
60	77	<p>OLD SEWARD HIGHWAY TO C STREET, O'MALLEY TO SOUTH OF 104TH AVENUE (6.51 acres; Private Ownership) (Scores: Hydrology = 88; Habitat = 55; Species Occurrence = 42; Social Function = 31) "C" wetlands in Maui Industrial Park Subdivision. Values for stormwater attenuation and water quality. COE Jurisdictional Determination and wetlands delineation required.</p> <p>General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required.</i></p> <p><u>NE 104TH AND C STREET</u> (2.72 acres; Private Ownership) (Scores: Hydrology = 95; Habitat = 78; Species Occurrence = 65; Social Function = 13) South Anchorage Target Store Pond (tract A-11) is preserved by permit # POA-2007-917. Values for filtering, water supply into Klatt Bog system. Moderate bird use concentrated around ponds.</p>	A/C
60 North	76 and 77	<p><u>EAST OF MINNESOTA DRIVE TO C ST /NORTH OF WEST 100TH AVE TO 92nd</u> (150 acres; Public & Private Ownership) (Scores: Hydrology = 131; Habitat = 101; Species Occurrence = 46; Social Function = 39) Values for stormwater and flood attenuation, water quality, size of contiguous habitat: moderate to high migratory habitat; and rare patterned ground wetlands. The site has enhancement possibilities, i.e., daylight the piped stream which is a tributary to Campbell Creek/Lake. <i>Hydrology, habitat, and drainage pattern information shall be required in the permit and platting process. Must retain patterned ground wetlands and integrity of the larger bog to the maximum extent.</i> Area has been problematic because lots exist as a paper plat only with no subdivision improvements. Laurel Acres Subdivision, Tract F is preserved as open space, plat #71-44.</p>	B
60 South	76 and 77	<p><u>EAST OF MINNESOTA DRIVE TO C ST/NORTH OF O'MALLEY TO 100th</u> (149 acres; Public & Private Ownership) (Scores: Hydrology = 106; Habitat = 98; Species Occurrence = 68; Social Function = 47) Values for stormwater attenuation and water quality; habitat values relative to large size and for open space/aesthetics. Area treats snowmelt and run-off from industrial areas. Development of parcel may consider directing surface water runoff to Klatt Bog drainage ditch to support other efforts to restore Klatt Bog South hydrology. Higher value areas occur along the northern one-third and southwest boundaries of the parcel generally coinciding with areas of ponding. <i>Higher value areas should be retained. Emphasis during the development process should be toward on-site mitigation efforts.</i></p>	B
60A	76	<p><u>PATRICIA SUBDIVISION</u> (51 acres; Private Ownership) (Scores: Hydrology = 96; Habitat = 107; Species Occurrence = 79; Social Function = 47) COE Jurisdictional Determination required. Values for stormwater attenuation, and habitat due to larger size. Remaining patterned ground constitutes locally important habitat. <i>Methods shall be utilized to maintain habitat and hydrology connections and to limit the dewatering of core areas.</i> Area has been problematic because lots exist as a paper plat only with no subdivision improvements.</p>	B

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
60C	78	<u>NW O'MALLEY AND SEWARD HIGHWAY (SNOW DUMP AREA)</u> (0.74 acres approx.; Public Ownership) (Scores: Not Assessed) General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Wetland Delineation; identify surface water features; BMPs for local flooding and stormwater controls required. Compensatory mitigation shall be based on field determination of REV (Relative Ecological Value).</i> Site was partially created from snow dump and trail and road fills. Moderate habitat and run-off storage. <i>Ponds shall be avoided to the maximum extent possible to retain values for stormwater attenuation and water quality.</i>	C
61	74	<u>RESOLUTION POINT SUBDIVISION</u> (9.2 acres; Private Ownership) (Scores: Hydrology = 74; Habitat = 41; Species Occurrence = 26; Social Function = 35) COE Jurisdictional Determination required. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding required. Maintain 25-foot setback from drainageways.</i> Values for stormwater attenuation and water quality; acts as a buffer to coastal wildlife habitat.	C
62	75 and 83	<u>BAYSHORE LAKE AND CREEK</u> (11.41 acres; Public & Private Ownership) (Scores: Hydrology = 91; Habitat = 96; Species Occurrence = 85; Social Function = 75) Discovery Heights Tract D-1 containing the lake and stream: Documented high habitat, recreation and water quality values. Wetlands along Bayshore Creek are "A" designated and convey subsurface water from Klatt Bog to Bayshore Lake; westerly section is important to the Bayshore Lake floodplain. <i>A 25-foot setback from the top of the bluff along Bayshore Creek shall be maintained.</i> The tract is preserved by permit: Klatt Bog 2.	A
63	75 and 83	<u>BAYSHORE, DISCOVERY HEIGHTS, SOUTHPORT</u> (34.36 acres; Private Ownership) (Scores: Hydrology = 83, Habitat = 87; Species Occurrence = 61; Social Function = 59) Discovery Heights Tracts A-2, D-2A, D-2B, G-2A, G-2B and 3 are preserved by plat #2000-71. C-designated black spruce forested wetlands, located south of Tract G-2B is General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding required. A 25-foot transitional buffer shall be maintained between fill authorized under the GPs and "A" wetlands.</i>	A/C
63	75, 76, 83 and 84	<u>MAIN KLATT BOG CORE: EAST OF DISCOVERY PARK TO C STREET, SOUTH OF O'MALLEY</u> (293.66 acres; Public & Private Ownership) (Scores: Hydrology = 86; Habitat = 123; Species Occurrence = 88; Social Function = 53) a) <u>"A" wetlands:</u> Majority of wetlands preserved by Conservation Easement, plat or permit; Including: Southport Tract E-1B; Concord Hills Tract E-1 and G; Simpson Tracts Tr B; Bonnie Cusack Estates, Tract A and Lot 23A; Klatt Bog Municipal Land, Tract A; and Tower Subdivision Tract A. Reference COE permit #Klatt Bog 2. Main Klatt Bog has high values for stormwater/flood attenuation, water quality, habitat and open space/aesthetics. Wetlands should be maintained to preserve these values. Potential for enhancement in portions of "A" wetlands. b) <u>"C" wetlands:</u> Three sites south of Klatt Road (see Map 84) are General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Wetland Delineation; BMPs for local flooding and stormwater controls required.</i>	A/C
64	91 and 92	<u>JOHN'S PARK NORTH/BOTANICAL GARDEN SUBDIVISION</u> (22.54 acres; Public & Private Ownership) (Scores: Hydrology = 84; Habitat = 77; Species Occurrence = 39; Social Function = 42) Maintain 65-foot setback from lower Furrow Creek. Values for flood and stormwater attenuation.	B

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
64	84 and 85	<u>SOUTH OF KLATT ROAD: WEST OF HILLTOP STREET TO TIMBERLANE DRIVE</u> (6.32 acres; Public & Private Ownership) (Scores: Hydrology = 91; Habitat = 41; Species Occurrence = 18; Social Function = 75) Timberlane Park, Tract A; site could be used for stormwater treatment. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required. Maintain 25-foot drainageway setback at west end of wetlands.</i>	C
64	92	<u>SOUTHEAST INTERSECTION OF JOHNS ROAD AND HUFFMAN ROAD</u> (2.64 acres; Private Ownership) (Scores: Hydrology = 66; Habitat = 35; Species Occurrence = 18; Social Function = 59) Values for stormwater attenuation. COE Jurisdictional Determination required. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding and stormwater controls required.</i>	C
64A	85, 92	<u>SW HUFFMAN AND OLD SEWARD HWY</u> (0.8 acres; Public Ownership) (Scores: Not Assessed) Within Furrow Creek floodplain. Values for flood and stormwater attenuation, water quality. <i>Intent is to preserve Furrow Creek corridor as much as possible.</i>	A
65	92	<u>JOHN'S PARK/FURROW CREEK CORRIDOR</u> (7.6 acres; Public Ownership) (Scores: Not Assessed) Values for stormwater and flood attenuation, water quality, and open space/aesthetics. Minor park or trail amenities could be developed following COE permit process. <i>Preserve stream's floodplain to maximum extent. Intent is to preserve the Furrow Creek corridor to the maximum extent possible.</i>	A
66	86	<u>MOOSE MEADOWS</u> (Huffman/Seward Highway) (46.31 acres; Public & Private Ownership) (Scores: Hydrology = 112; Habitat = 110; Species Occurrence = 65; Social Function = 57) Portions of bog preserved by Great Land Trust Conservation Easement: from 112 th ROW to Klatt Rd ROW extended. Also preserved : Tanglewood Lakes, northern ponds in Tract B; reference COE permit #4-940784. Values for stormwater, flood attenuation, water quality and habitat. Higher habitat values concentrated in central section of scrub-shrub meadow in "A" wetlands and northern "B." <i>Maintain hydrology, i.e., water levels; wetland serves as a headwater of the north fork of Furrow Creek.</i> Potential for enhancement by reconnecting Furrow Creek in central portions of wetland meadow. "B" wetlands, Tract A pond, retain to maximum extent possible. Potential for stormwater treatment.	A/B
67	78	<u>INDEPENDENCE PARK: VANGUARD DRIVE AND SENTRY DRIVE</u> (0.62 acres; Private Ownership) (Scores: Hydrology = 73; Habitat = 58; Species Occurrence = 36; Social Function = 55) COE Jurisdictional Determination required. Vanguard Drive attenuates flows to former Furrow Creek tributary, now flows into Campbell Lake. Drainage functions shall be retained. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding and stormwater controls required.</i>	C
67	78	<u>NORTH OF O'MALLEY, EAST AND WEST OF INDEPENDENCE DRIVE</u> (7.45 acres; Private Ownership) (Scores: Hydrology = 90; Habitat = 70; Species Occurrence = 50; Social Function = 37) Attenuates flows to former Furrow Creek tributary, now flows into Campbell Lake. Stream headwaters area is addressed under site #67A. "A" wetlands located along stream on east side of Independence Drive. Independence Park, Tract S, remaining wetland is preserved by COE permit #POA-2010-261. "C" wetlands located in Commodore Park, Tract B-2B, and Green #1, Tract B-1 are General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding and stormwater controls required.</i>	A/C

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
67A	78	INDEPENDENCE DRIVE CREEK: LAKE OTIS TO INDEPENDENCE DRIVE (4.48 acres; Private Ownership) (Scores: Hydrology = 68; Habitat = 68; Species Occurrence = 18; Social Function = 42) Attenuates flows to former Furrow Creek tributary, now flows into Campbell Lake; drainage issues in adjacent area due to high groundwater table. Importance for conveyance of original fork of Furrow Creek, flood control and water quality. <i>65-foot minimum setback precludes lower designation. Shall be platted as an undisturbed stream corridor. Since flows are only occasionally confined in a defined channel, the entire site shall be retained to the maximum extent.</i>	A
68	70	84TH TO ABBOTT/SPRUCE STREET RIGHT-OF-WAY (3.08 acres; Private Ownership) (Scores: Merged with Sites #51 and #52) Littlebrook Subdivision stream corridor preserved by plat 2001-141 and 2003-13. <i>A 100-foot setback shall be maintained along the channels of Little Campbell Creek to maintain its anadromous fish resources as well as flood storage and hydrologic functions. Setbacks shall be treated as an "A" wetlands area. A 65-foot setback shall be maintained from the small tributary in the wetland at Lake Otis and Abbott. No change shall be allowed in the bottom or invert elevation of the culvert under Abbott Road in the westerly parcel or other modification of this drainage which would increase drainage flow rate or volume: this is to prevent lowering of the water table in wetland # 69.</i> Enhancement of channels is possible. "C" wetlands are General Permit applicable . GP Site Restrictions and Design Criteria: Construction timing window; BMPs for local flooding and stormwater controls required.	A/C
69	79	RUTH ARCAND PARK, SOUTHEAST OF LAKE OTIS/ABBOTT (161.86 acres; Public Ownership) (Scores: Hydrology = 146; Habitat = 145; Species Occurrence = 54; Social Function = 80) Municipal park lands: manage under adopted park plans. Conveys South Fork of Little Campbell Creek and former fork of Furrow Creek. Limited development of recreation of recreational amenities such as trails could occur in peripheral wetlands, as outlined in the Anchorage Bowl Park, Natural Resource, and Recreation Facility Plan, 2006.	A
70	80	ABBOTT TO 104TH/ELMORE TO BIRCH/ (56 acres; Private Ownership) (Scores: Hydrology = 102; Habitat = 99; Species Occurrence = 65; Social Function = 44) Includes Craig Creek and Little Campbell Creek, from their confluence upstream to Birch Road. "A,""B" wetlands: <u>East of Springhill Drive</u> (Tributary to Craig Creek): Values as stream headwaters; functions for stormwater/flood attenuation, water quality and habitat. <i>Maintain 85-foot setback from Craig Creek.</i> Tract A of Autumn Ridge and Forest Creek Subdivision is preserved by plat #2001-143 and designated "A." Tract A, Williamson Subdivision preserved by plat #2005-83. "A" and "C" wetlands: <u>West of Springhill Drive</u> (main Craig Creek to confluence). <i>A 100-foot setback shall be maintained along Little Campbell Creek to maintain its anadromous fish resources as well as flood storage functions.</i> Little Campbell Creek Greenbelt Park lots are "A" designated and preserved (located just east of Elmore ROW, between 98 th and 102 nd). Outside of park and setback is "C": General Permit applicable . GP Site Restrictions and Design Criteria: <i>Construction timing window; Wetland Delineation; identify surface water features; BMPs for local flooding and stormwater controls required. 25-foot buffer required between any development authorized by GP and "A" wetlands.</i> Minor park amenities could be allowed.	A/B/C

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
70	80	<u>SOUTH FORK, LITTLE CAMPBELL CREEK: PACER ROAD TO BIRCH, O'MALLEY TO 104TH</u> (2.95 acres; Private Ownership) (Scores: Hydrology = 84; Habitat = 68; Species Occurrence = 44; Social Function = 34) Importance for water quality, stormwater and flood attenuation, and habitat. 100-foot minimum setback required to protect anadromous fish resources. <i>Stream corridor has pockets of wetlands which shall remain undisturbed (using the 100-foot setback or avoidance).</i> Utility corridors, driveways and trails should be permitted if no practical alternatives exist. "D" wetlands require COE Jurisdictional Determination and wetland delineation.	A/D
71	81	<u>CRAIG CREEK CT/EAST OF BIRCH RD</u> (9.2 acres; Private Ownership) (Scores: Hydrology = 91; Habitat = 83; Species Occurrence = 50; Social Function = 47) Values for stormwater and flood attenuation, water quality and recharge. Unique local habitat. Development may be possible on outer edges but shall preserve integrity and functions of the site. <i>Retain stream and pond with 85-foot setback.</i>	B
71A	82	<u>EAST OF HILLSIDE DRIVE: NORTH END OF HAMPTON DRIVE AND EAST OF SCHUSS DRIVE</u> (1.63 acres; Private Ownership) (Scores: Not Assessed) Two sites. COE Jurisdictional Determination required. <i>Proposed development activity shall avoid permanent ponds and emergent vegetation low points where seasonal pools develop.</i>	B/Open Water
72	89	<u>LAKE-O-THE-HILLS</u> (2.19 acres; Private Ownership) (Scores: Hydrology = 99; Habitat = 98; Species Occurrence = 44; Social Function = 51) Associated wetlands along the lake fringe. <i>Retain with 65-foot, non-disturbance setback.</i>	A/Open Water

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
72A, 72F	88, 89	<p>LITTLE CAMPBELL CREEK: HILLSIDE DRIVE TO BIRCH ROAD (35.89 acres; Private Ownership) (Scores: Hydrology = 93; Habitat = 87; Species Occurrence = 24; Social Function = 32).</p> <p>FORSYTHE PARK AREA (Public & Private Ownership) (Scores: Hydrology = 94; Habitat = 92; Species Occurrence = 33; Social Function = 37). WEST OF LAKE-O-THE-HILLS (Private Ownership) (Scores: Hydrology = 106; Habitat = 95; Species Occurrence = 28; Social Function = 50)</p> <p>"A" wetlands located within narrow band along Little Campbell Creek. Area has known drainage problems. Values for recharge, stormwater and flood attenuation, and water quality. <i>Maintain a 100-foot setback along Little Campbell Creek to protect anadromous fish resources. An 85-foot setback shall be maintained from springs and seeps. 25-foot setback from drainageways.</i></p> <p>"C" wetlands: General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Wetland Delineation; identify surface water features; BMPs for local flooding and stormwater controls required. 25-foot buffer required between any development authorized by GP and "A" wetlands. Creek corridor is important to large mammal movements especially bear. Linear fill crossing these areas should be minimized or configured to avoid disrupting the migratory movements.</i></p> <p>Previously unmapped wetlands at Moose Road, south side (2.02 acres; private ownership)(Scores: Hydrology = 78, Habitat = 65, Species Occurrence = 24, Social Function = 39), now designated as "C" and are General Permit applicable. Noted as site #U-8. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required.</i></p> <p>"D" wetlands: 4 sites located at MacBoth Drive/Mumby Circle. Requires COE Jurisdictional Determination and wetlands delineation.</p>	A/C/D
72B	90	<p>CRAIG CREEK: TRAILS END TO COBRA AVENUE (6.39 acres; Private Ownership) (Scores: Hydrology = 81; Habitat = 63; Species Occurrence = 14; Social Function = 27)</p> <p>Headwaters for Craig Creek—poorly defined channel. <i>An 85-foot setback shall be maintained from springs and Craig Creek. Creek corridor is important to large mammal movements, especially bears. Linear fill crossing these areas should be minimized or configured to avoid disrupting the migratory movements.</i> "D" wetlands: Additional wetland delineation is required in Boulder Springs Subdivision between Vesikof Place and Boulder Circle.</p> <p>"C" wetlands: General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Wetland Delineation; identify surface water features; BMPs to address dewatering of adjacent wetlands, local flooding and stormwater controls required.</i></p>	C/D
72B	90	<p>SOUTH FORK, LITTLE CAMPBELL CREEK: WOODBOURNE TO HILLSIDE DRIVE (17.44 acres; Private Ownership) (Scores: Hydrology = 85; Habitat = 81; Species Occurrence = 34; Social Function = 25)</p> <p><i>A 100-foot setback shall be maintained along Little Campbell Creek to maintain its anadromous fish resources. Creek corridor is important to large mammal movements, especially bears. Linear fill crossing these areas should be minimized or configured to avoid disrupting the migratory movements.</i> COE Jurisdictional Determination required.</p> <p>General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required.</i></p>	C

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
72C	89	<u>NORTHEAST OF LAKE-O-THE HILLS</u> (Craig Creek) (4.40 acres; Private Ownership) (Scores: Site scored with Site #72F) <i>An 85-foot setback shall be maintained from Craig Creek to maintain flood storage/water quality functions and values. Creek corridor is important to large mammal movements, especially bears. Linear fill crossing these areas should be minimized or configured to avoid disrupting the migratory movements. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required.</i></i>	C
72D	90	<u>SOUTH OF HIDEAWAY LAKE</u> (6.58 acres; Private Ownership) (Scores: Hydrology = 88; Habitat = 98; Species Occurrence = 44; Social Function = 40) Hidden Creek headwaters area flows into Hideaway Lake via springs/channels; ponds have flood storage capacity values. Site serves as a drainage basin and flood storage area. <i>Maintain 85-foot setback from springs and stream. Creek corridor is important to large mammal movements, especially bears. Linear fill crossing these areas should be minimized or configured to avoid disrupting the migratory movements.</i>	B
72E	82 and 90	<u>HIDEAWAY LAKE</u> (0.58 acres; Private Ownership) (Scores: Hydrology = 83; Habitat = 86; Species Occurrence = 43; Social Function = 40) <i>Wetlands adjacent to lake and Hidden Creek shall be preserved to the maximum extent possible. Maintain 85-foot setback from stream, 25-foot setback from lake where wetlands are present.</i>	A/Open Water
73	89 and 96	<u>DOWNEY FINCH TO DEARMOUN ROAD</u> (41.74 acres; Private Ownership) (Scores: Hydrology = 98; Habitat = 111; Species Occurrence = 18; Social Function = 47) "A" wetlands located NE of Birch Rd and Trappers Trail. Includes tributary to Little Campbell Creek. <i>An 85-foot minimum setback shall be maintained around the pond.</i> "B" wetlands: Larger sedge/scrub-shrub, dwarf spruce wetlands contains headwaters of Little Campbell Creek tributary. Values for stormwater and flood attenuation, water quality and habitat. Development possible on southern fringes. <i>Maintain 25-foot drainageway setbacks.</i> "C" wetlands located south of Downey Finch, north of Huffman right-of-way; 2 small sites. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required.</i> "D" undesignated (5 sites) located at SW Crestview Drive/Kalgin Drive; SW Floral Lane and Mountain Place; between Alpine Drive and Mountain Place; and on Beverly Drive. COE Jurisdictional Determination required. 25-foot drainageway setbacks required.	A/B/C/D

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
74	87	<p><u>FURROW CREEK: WAGNER TO ELMORE, CLEO ROW</u> (9.42 acres; Private Ownership) (Scores: Hydrology = 70; Habitat = 68; Species Occurrence = 18; Social Function = 42) <i>Upper Furrow Creek corridor within the 85-foot setback should be maintained as an "A" wetland with the stream retained in its natural channel. Drainageways require a 25-foot setback.</i> Outside setback, "C" wetlands are General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Wetland delineation required; identify surface water features; BMPs for local flooding and stormwater controls required.</i></p> <p>"D" wetlands: Additional unmapped wetlands within the floodplain. Requires COE Jurisdictional Determination and wetlands delineation; and MOA-WMS stream survey.</p>	C/D
75	87	<p><u>NE LAKE OTIS and HUFFMAN RD: NORTH OF HUFFMAN, WEST OF GANDER</u> (6.95 acres; Private Ownership) (Scores: Hydrology = 73; Habitat = 62; Species Occurrence = 18; Social Function = 43) "A" wetlands now includes preserved wetlands on Furrow Creek, just west of Gander; reference COE permit #Furrow Creek 04-A. <i>Maintain 65-foot setback from Furrow Creek, 25-foot setback from drainageways.</i> Values for stormwater/flood attenuation, water quality, habitat. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Wetland delineation required; identify surface water features; BMPs for local flooding and stormwater controls required.</i></p>	A/C
75	86	<p><u>NORTH SIDE OF HUFFMAN ROAD: NW of SILVER SPRUCE CIRCLE</u> (1.42 acres; Private Ownership) (Scores: Hydrology = 82; Habitat = 80; Species Occurrence = 28; Social Function = 38) Maintain a 65-foot setback from Furrow Creek and springs. Remaining wetlands in Tract A, Furrow Creek North Subdivision preserved by plat #2005-197. Stream setback precludes development in remaining wetlands.</p>	A
76	93	<p><u>FURROW CREEK AND HUFFMAN HILLS NORTH SUBDIVISIONS</u> (6 acres; Private Ownership) (Scores: Hydrology = 110; Habitat = 86; Species Occurrence = 64; Social Function = 43) Site contains main fork and north fork of Furrow Creek; high values for stormwater and flood attenuation, and water quality. Remaining wetland tracts preserved by plat #96-3 as open space. May be considered for stream restoration and enhancement potential.</p>	A
77	94	<p><u>SOUTHEAST MERGANSER TO LAKE OTIS</u> (1.73 acres; Private Ownership) (Scores: Hydrology = 58; Habitat = 39; Species Occurrence = 18; Social Function = 41) Values for stormwater attenuation. COE Jurisdictional Determination required. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; BMPs for local flooding and stormwater controls required.</i></p>	C
78	100	<p><u>ELMORE CREEK, WEST OF ELMORE ROAD</u> (1.22 acres; Private Ownership) (Scores: Hydrology = 93; Habitat = 65; Species Occurrence = 48; Social Function = 28) "A" wetlands within Elmore Creek floodplain. Values for stormwater and flood attenuation, water quality and habitat. <i>Maintain 65-foot setback from Elmore Creek. Creek corridor is important to large mammal movements, especially bears. Linear fill crossing these areas should be minimized or configured to avoid disrupting wildlife movements.</i> "C" wetlands: Northern spur without creek. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Wetland Delineation; identify surface water features; BMPs for local flooding and stormwater controls required.</i></p>	A/C

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
78	101	<u>EAST OF ELMORE STREET: NORTH AND SOUTH OF MANYTELL AVENUE</u> (Timberlux Subdivision) (9.51 acres; Private Ownership) (Scores: Hydrology = 107; Habitat = 106; Species Occurrence = 48; Social Function = 35) Elmore Creek flows through site providing open water habitat, stormwater and flood attenuation, and water quality values. <i>Ponds/open water wetlands should be treated as "A" valued wetlands; maintain a 65-foot setback. Creek corridor is important to large mammal movements, especially bears. Linear fill crossing these areas should be minimized or configured to avoid disrupting the migratory movements.</i> "C" wetland at SE Elmore and Manytell: General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required. Maintain drainageways and hydrologic connectivity to Elmore Creek. 25-foot setback from drainageways required.</i>	B/C
79	101	<u>SE PARK HILLS AND EVERGREEN STREET</u> (5.01 acres; Private Ownership) (Scores: Hydrology = 62; Habitat = 43; Species Occurrence = 18; Social Function = 39) COE wetland delineation required. Provides local area stormwater and flood attenuation, and serves as headwaters of tributary to Elmore Creek. <i>Maintain 85-foot setback from stream; 25-foot setback from drainageways.</i>	B
79A	101	<u>EAST OF BUFFALO STREET, 142nd AVENUE TO RIVERTON</u> (2.11 acres; Private Ownership) (Scores: Hydrology = 57; Habitat = 34; Species Occurrence = 18; Social Function = 29) Values for stormwater and flood attenuation. <i>Maintain drainageway through site with 25-foot setback.</i> General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required.</i>	C
80	102	<u>NORTH OF RABBIT CREEK ROAD/ANDOVER</u> (8.07 acres; Private Ownership) (Scores: Hydrology = 87; Habitat = 79; Species Occurrence = 18; Social Function = 40) Headwaters for Elmore Creek; moderate habitat diversity, flood control, water quality values. This area is used by moose as a calving area and is also a high use corridor for large animal movements (for current information, verify with ADFG). "A" wetlands include Tract A-1, Eaglebrook Subdivision preserved by Conservation Easement. Remaining wetlands are "C": General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required. The lots, as platted, could avoid fill in wetlands by placing structures next to road. 25-foot buffer required between any development authorized by the GP and "A" wetlands. An 85-foot setback shall be maintained along the creek channel and ponds. Fill shall not be placed in the pond and drainageway outlet located at the northwest corner of the wetland in the unsubdivided area north of Fernwood Avenue ROW extended.</i>	A/C

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
80	102	EAST OF PICKETT STREET: 140 th to 144 th AVENUE (8.31 acres; Private Ownership) (Scores: Hydrology = 66; Habitat = 79; Species Occurrence = 18; Social Function = 35) “A” wetland designation conforms to preserved areas: platted open space reserve and drainage easements in Equestrian Heights Subdivision (Tract B) plat #87-14. Kijik Subdivision: <i>Pond and adjacent wetlands should be retained as open space; constitutes headwaters of Elmore Creek. Maintain 25-foot setbacks from drainageways.</i> “D” wetlands at NW Rabbit Creek Road and 140th St. contains tributary to Rabbit Creek. Maintain an 85-foot setback from stream. Site could be used for stormwater treatment.	A/ D
81	102 and 103	<u>SECTION 36</u> (128.89 acres; Public Ownership) (Scores: Hydrology = 134; Habitat = 132; Species Occurrence = 31; Social Function = 62) Wetland located between two branches of Little Rabbit Creek analyzed separately: (5.07 acres; Public Ownership) (Scores: Hydrology = 79; Habitat = 67; Species Occurrence = 48; Social Function = 52) <i>Development shall be concentrated at upland edges wherever practicable and per Section 36 Land Use Plan, Anchorage Bowl Park, Natural Resource and Recreation Facility Plan, and the Section 36 Park Master Plan. Wetlands in Tracts 1 and 5 of Section 36 are to be preserved by Conservation Easement. Values for flood attenuation, water quality, open space/aesthetics and habitat. Wetlands constitute the headwaters of tributaries to Little Rabbit Creek. Creek corridor is important to large mammal movements especially bear. Linear fill crossing these areas should be minimized or configured to avoid disrupting the migratory movements. Maintain an 85-foot setback from Little Rabbit Creek.</i> “P” wetland requires COE Jurisdictional Determination and wetland delineation; 85-foot setback required from headwater stream.	A/ P
82	102	<u>BEAR VALLEY SCHOOL—NORTH</u> (28.06 acres; Public Ownership) (Scores: Hydrology = 80; Habitat = 89; Species Occurrence = 18; Social Function = 55) North of 149 th Avenue ROW to be classed as “B” wetland to protect higher value pond habitat and flows to the northwest. Values for stormwater and flood attenuation, water quality, open space/aesthetics and habitat. “C” wetland south of 149 th Avenue ROW: A General Permit may be applicable for fill in the “C” wetlands. GP Site Restrictions and Design Criteria include: <i>25-foot setbacks from drainageways; Construction Timing Window, Wetland Delineation, Identify Surface Water Features; BMPs to prevent Local Flooding, Dewatering of Adjacent Wetlands, Stormwater Functions; and Visual Screening required (i.e., a visual buffer of trees or a fence shall be placed at the edge of the fill authorized under the GPs to reduce the impacts to wildlife use in adjacent wetlands).</i> Mapped stream channel, tributary to Rabbit Creek, located on west side of Clarks Road. <i>Maintain a 25-foot buffer between fill authorized under the GP and “A” wetlands; a 15-foot buffer from “B” wetlands.</i>	B/C

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
83	108	<p>BEAR VALLEY: EAST OF LITTLE RABBIT CREEK (T.11N, R3W, Sec 1) (61.13 acres; Private Ownership) (Scores: Hydrology = 109; Habitat = 105; Species Occurrence = 28; Social Function = 50) Values for stormwater and flood attenuation, water quality, open space/aesthetics and habitat.</p> <p>"D" wetlands: Creek corridor is important to large mammal movements, especially bears. Linear fill crossing these areas should be minimized or configured to avoid disrupting the migratory movements. Requires ADFG verification of anadromous fish resources; if anadromous fish present in Little Rabbit Creek or tributaries, a 100-foot setback is required. Otherwise, maintain an 85-foot setback along all streams; 25-foot setback on drainageways. COE Jurisdictional Determination required.</p> <p>"C" wetlands: General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Wetland Delineation; identify surface water features; BMPs for local flooding, dewatering of adjacent wetlands and stormwater controls required. The "C" wetlands in lower Bear Valley may require further field delineation and mapping adjustments but should only be pursued with permission of the landowners.</i></p>	C/D
84	108	<p>BEAR VALLEY: WEST OF LITTLE RABBIT CREEK (T.11N, R3W, Sec 1) (5.29 acres; Private Ownership) (Scores: Hydrology = 96; Habitat = 77; Species Occurrence = 28; Social Function = 50) Values for stormwater and flood attenuation, water quality, open space/aesthetics and habitat.</p> <p><i>Creek corridor is important to large mammal movements, especially bears. Linear fill crossing these areas should be minimized or configured to avoid disrupting the migratory movements. Requires ADFG verification of anadromous fish resources; if anadromous fish present in Little Rabbit Creek or tributaries, a 100-foot setback is required. Otherwise, maintain an 85-foot setback along all streams; a 25-foot setback on drainageways. COE Jurisdictional Determination required.</i></p> <p>General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Wetland Delineation; identify surface water features; BMPs for local flooding, dewatering of adjacent wetlands and stormwater controls required.</i></p> <p>Previously unmapped wetlands located SW Byron/Carl St., SW Diane/Marino Dr., SE Diane/Carl St. (4.06 acres; Private Ownership) (Scores: Hydrology = 83; Habitat = 54; Species Occurrence = 38; Social Function = 32) Values for flood attenuation, water quality, habitat, and open space/aesthetics. General Permit applicable. Noted as site #U-10. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding, dewatering of adjacent wetlands and stormwater controls required.</i></p>	C

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
84	102, 103, 107, 108	<p>VIEWS OF PROMINENCE, SE BURLWOOD AND HORACE (aka SHANGRI-LA) SUBDIVISIONS (56.24 acres; Private Ownership) (Scores: Hydrology = 80; Habitat = 112; Species Occurrence = 54; Social Function = 40). Includes SW CARL St. AT ALTA RD.</p> <p>"A" Wetlands: Preserved parcel, Tract B in Shangrila Estates North; preserved by restrictive covenant.</p> <p>"B" Wetlands: <i>Maintain 85-foot setback from stream channels and waterbodies to retain water quality, flood control and habitat values of pond and streams. Contains headwaters of Little Rabbit Creek tributaries. Creek corridor is important to large mammal movements, especially bears. Linear fill crossing these areas should be minimized or configured to avoid disrupting the migratory movements.</i> Enhancement potential for smaller tributary streams.</p> <p><u>VIEWS OF PROMINENCE & S.E. SHANGRILA EAST SUBDIVISION (2.23 acres):</u> Previously unmapped wetlands, now designated as "C": (Scores: Hydrology = 83; Habitat = 54; Species Occurrence = 38; Social Function = 32). Values for flood attenuation, water quality, habitat, and open space/aesthetics. General Permit applicable. Noted as site #U-10b. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding, dewatering of adjacent wetlands and stormwater controls required.</i></p>	A/B/C
84A	29a, 112	<p>KINGS WAY ROW, SOUTH OF PAINE RD: SOUTH BEAR VALLEY (104.25 acres; private ownership) (Scores: Hydrology = 96; Habitat = 105; Species Occurrence = 31; Social Function = 41). Includes "D" undesignated wetlands in upper Little Rabbit Creek valley, Brower's Homestead area. Values for flood attenuation, water quality, habitat, and open space/aesthetics. COE Jurisdictional Determination and wetlands delineation required.</p> <p>Previously undesignated wetlands, now designated as "C" are General Permit applicable. Noted as site #U-10a (4.25 acres). GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding, dewatering of adjacent wetlands and stormwater controls required. R-10 zoning requires a 100-foot setback from Little Rabbit Creek.</i></p>	C/D
85	102	<p>NE GOLDENVIEW DR AT 156TH STREET (5.12 acres; private ownership) (Scores: Hydrology = 99; Habitat = 79; Species Occurrence = 48; Social Function = 44). Values for flood and stormwater attenuation, water quality. "D" (undesignated) wetland is not eligible for the General Permit. COE Jurisdictional Determination and wetland delineation required. <i>Streams on site require a 65-foot setback; drainageways minimum 25-foot setback.</i></p> <p>The eastern previously unmapped wetland, now designated as "C" is eligible for a General Permit. Noted as site #U-11. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding, dewatering of adjacent wetlands and stormwater controls required. Requires an 85-foot setback from Little Rabbit Creek tributary.</i></p>	C/D
85	106	<p>164TH TO STONERIDGE, VIRGO TO GOLDENVIEW (13.82 acres; Private Ownership) (Scores: Hydrology = 113; Habitat = 86; Species Occurrence = 70; Social Function = 45)</p> <p><i>Maintain a 65-foot setback from Little Survival Creek to maintain values for stormwater and flood attenuation, water quality and habitat. 25-foot setback from drainageways required.</i> COE Jurisdictional Determination and wetland delineation required. Large-lot zoning allows for adequate setbacks and creation of flood control areas. MOA Watershed Management has investigated local hydrology; consult the <i>Little Rabbit/Little Survival Creek Pilot Watershed Drainage Plan.</i></p>	B

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
85	106	RICKY ROAD TO 164TH AVENUE—WEST OF GOLDENVIEW DRIVE (23.93 acres; Private Ownership) (Scores: Hydrology = 114; Habitat = 95; Species Occurrence = 30; Social Function = 46) “A” wetlands on Goldenview Middle School property and Goldenview Park Subdivision, open space tracts are preserved by permit #4-940950 and plat #97-55. <i>Stream setbacks are 65 feet.</i> “B” wetland contains springs and streams, conveying stormwater from east and south. Values for stormwater and flood attenuation, water quality, open space/aesthetics and habitat. “C” wetland: SE 162 nd and St James. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required. Drainageways require 25-foot setback.</i>	A/B/C
85A	106	SW BELARDE AND FEDOSIA AVENUE (4.23 acres; Private Ownership) (Scores: Hydrology = 77; Habitat = 48; Species Occurrence = 18; Social Function = 33) COE Jurisdictional Determination and Wetlands Delineation required. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding and stormwater controls required. 65-foot setbacks required from ephemeral pond at south end and tributary to Little Survival Creek; 25-foot setbacks from drainageways.</i>	C
86	110	LEGACY POINTE SUBDIVISION (18.05 acres; Private Ownership)(Scores: Hydrology = 94; Habitat = 100; Species Occurrence = 38; Social Function = 38) Values for flood and stormwater attenuation, water quality, habitat and open space/aesthetics. “D” undesignated wetlands include headwater streams contiguous with a slope discharge zone. Requires an 85-foot setback for headwater streams; 25-foot setback for drainageways. A COE Jurisdictional Determination is required. Previously unmapped wetlands, now designated as “C” are General Permit applicable. Noted as site #U-12. GP Site Restrictions and Design Criteria: <i>Construction timing window; identify surface water features; BMPs for local flooding, dewatering of adjacent wetlands and stormwater controls required.</i> “P” wetlands require COE Jurisdictional Determination and wetland delineation.	C/D/ P
86	32a	UPPER POTTER VALLEY (217.74 acres; Private Ownership)(Scores: Hydrology = 106; Habitat = 106; Species Occurrence = 22; Social Function = 38) Values for stormwater and flood attenuation, water quality, habitat and open space/aesthetics. Wetlands include headwater streams which require further mapping and categorization. COE Jurisdictional Determination and wetland delineation required. Headwater streams require 85-foot setbacks, drainageways minimum 25-foot setbacks. Intention is to retain higher value ponded wetlands, wet meadows, and streams to the maximum extent possible. Unclassified wetlands require COE Jurisdictional Determination and wetland delineation; and MOA-WMS stream survey.	D/P

Site #	Map # (in the Anchorage Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies:	Designation or Classification
86	105, 106 and 110	POTTER MARSH (485.7 acres; Public & Private Ownership) (Scores: Not Assessed) These critical habitat wetlands shall be preserved under the refuge management jurisdiction of the Alaska Department of Fish and Game. <i>Any use proposals shall be consistent with refuge goals and policies.</i> Values for stormwater and flood attenuation, water quality, open space/aesthetics, recreation and habitat. Portions of these wetlands are within the state right-of-way for Seward Highway. <i>Any proposed highway expansion fill should be minimized to the maximum extent practicable. Streams are anadromous; setback is 100 feet. Values are high for habitat and water quality; site shall be preserved in its entirety.</i> "D" wetlands/pond located east of Old Seward Hwy (1.17 acres). Pond should be retained to the maximum extent possible.	A/D
86A	31a, 110	POTTER CREEK MOUTH (3.6 acres approx.; Public Ownership) (Scores: Not Assessed) Area includes partly intertidal wetlands at mouth of Potter Creek, east of the Seward Highway, but included here because it is primarily freshwater influenced. Contains confluence of Potter Creek and a tributary. <i>Streams are anadromous; setback is 100 feet. Values are high for habitat and water quality; site shall be preserved in its entirety.</i>	A
87	N/A	FIRE ISLAND (approx. 132 acres freshwater wetlands; Private and Public Ownership) (Scores: Not Assessed) Intertidal wetlands surround the island; contains lakes, ponds and freshwater emergent wetlands. Eagle nests, nesting Trumpeter Swans and shorebird use documented. Primarily habitat values. Big Lake, Little Lake, Hidden Lake and Crystal Lake, as well as their wetland fringes should be retained to the maximum extent possible. COE Jurisdictional Determination and wetlands delineation required.	D

Table 4.2

EAGLE RIVER-EKLUTNA

WETLAND DESIGNATIONS, ENFORCEABLE AND ADMINISTRATIVE POLICIES
AND MANAGEMENT STRATEGIES

Note: The Corps of Engineers issued five separate General Permits (GPs) to the Municipality that covers development projects in “C” wetlands in Anchorage. The Corps revisits these GPs every five years. The recent Anchorage GPs were issued in April 2010. Under current GP procedures, the Municipality determines whether a proposed fill project in “C” wetlands is consistent with the GP terms and conditions. These Anchorage GPs have historically been linked and applied to only “C” wetlands as designated in the AWMP. The GPs do not apply to “A” or “B” wetlands and some “C” sites are excluded. *Attachment A—Table 1* of the Anchorage GPs identifies which “C” wetland parcels are eligible for and which are excluded from the GPs. *Attachment B—Table 3* of the GPs assigns site specific restrictions and design criteria to each eligible “C” wetland. The AWMP **Table 4.2** management strategies highlight which “C” wetlands are eligible for the GPs and reference applicable site-specific restrictions and design criteria assigned to each site in the GPs. Refer to the current GPs for details and explanations of these requirements. Link: <http://www.muni.org/departments/ocpd/planning/physical/envplanning/Pages/default.aspx>. During the issuance of the current General Permits, the Corps included several previously unmapped wetlands as eligible for the GP. These are referenced as “U” wetlands in the General Permit documents. This AWMP revision includes these “U” sites and designates them as “C.”

~~Other previously unmapped sites not eligible for the General Permit are classified as “D” or “P” in the Management Strategies. “D” sites have been determined to be wetlands yet, have not been designated as “A,” “B,” or “C” using the Anchorage Wetlands Assessment Methodology (MOA, 1991). The “P” sites are “potential wetlands” based largely on hydric soils information and aerial photography interpretation. They have yet to be delineated as wetlands by field investigations. These “D” (undesigned) and “P” (potential) wetlands require a Corps of Engineers Jurisdictional Determination and wetland delineation to gain information on whether the wetland falls under the Corps’ jurisdiction and the location of the wetland boundaries. This is noted within the management strategy it applies. All acreages listed are approximate.~~

~~*(New sites now classified as “D” or “P” and former “U” sites now designated “C” are listed in blue.)~~

Site #, listed in column 1 of the table, references individual wetland sites or collective groups of wetlands that are in the same geographic area and perform similar functions. These wetland sites or groups were generally assessed together and share the same or similar management strategies.

Map # in the table references map pages from the Eagle River Wetlands Atlas, 2008. The Atlas can be found on the MOA Watershed Management Services Library website under ‘maps’ at: <http://wms.geonorth.com/library/LibraryMaps/WetlandsAtlas08.aspx>. The atlas may also be viewed at the Planning public counter, Municipal Planning and Development Center, 4700 Elmore Road, Anchorage, Alaska.

Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, Ownership, and “Scores,” which refer to the Anchorage Wetlands Assessment Methodology scores. (Reference Chapter 2, II. Resource Inventory, A. Background, for AWAM scoring information.) **AWAM assessment scores are listed from the previous Wetlands Plan of 1996. The scores for former “U”, undesigned sites now classified as “C”, were generated most recently.**

Site #	Map # (in the Eagle River Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, ownership, "Scores" refer to the Anchorage Wetlands Assessment Methodology (reference Chapter 2, II. Resource Inventory, A. Background, for scoring information)	New Designation or Classification
100	3	<u>EKLUTNA FLATS NORTH</u> (79.41 acres; Public & Private Ownership) (Scores: Not Assessed) Presumed high habitat values given bird use; extent of fish use unknown. <i>Any proposed highway or railroad expansion shall avoid waterways and waterbodies to the maximum extent possible. A COE Jurisdictional Determination, wetlands and waterway delineation required.</i>	A
101	2, 3, 4, 5, 6	<u>EKLUTNA FLATS: EAST SIDE OF GLENN HWY</u> (153.87 acres; Public & Private Ownership) (Scores: Hydrology = 104; Habitat = 143; Species Occurrence = 60; Social Function = 26) High habitat values with potential for enhancement <i>by enlarging ponds</i> . Hydrology connections, cross-drainage and ponds shall be preserved to the maximum extent. <i>A COE Jurisdictional Determination, wetlands and waterway delineation required.</i>	A
102	12a, 13, 13a, 14, 15, 22a, 25a, 26a	<u>EKLUTNA RIVER, THUNDERBIRD CREEK CORRIDOR: UPSTREAM TO CHUGACH STATE PARK BOUNDARY</u> (345.25 acres; Public & Private Ownership) (Scores: Hydrology = 72; Habitat = 88; Species Occurrence = 43; Social Function = 25) Hydric soil areas are mapped as "P" (potential wetlands) throughout each valley. Values for flood attenuation, habitat and open space/aesthetics. COE Jurisdictional Determination and wetland delineation required. Verify with ADFG Habitat regarding extent of anadromous fish use. Stream and river setbacks are 100-foot where anadromous, 65-foot for non-anadromous streams, and 25-foot for drainageways. Habitat values and enhancement potential for lower Eklutna River. "C" site on map #13, east of the Eklutna River, Thunderbird Creek confluence, is eligible for the General Permit . GP Site Restrictions and Design Criteria: <i>Construction timing window; Wetland Delineation; Identify surface water features; BMPs for local flooding and stormwater controls required.</i>	C/P
102A	23a, 24a	<u>BARBARA LAKE: MID- EKLUTNA VALLEY</u> (605.93 acres; Private Ownership) (Scores: Not Assessed) "A" wetlands: Map #23a: previously unmapped wetland in NW corner of cleared field (Knox, Tract B3A) is preserved by permit action (Eklutna River 2). Hydric soils mapped as "P" (potential wetlands) throughout these valleys. COE Jurisdictional Determination and wetland delineation required. For "B" and "P" wetlands: <i>Identified headwater springs and streams require 85-foot setbacks. Maintain core wet meadows and waterways to the maximum extent practicable.</i>	A/B/P
102B	11	<u>EKLUTNA RIVER MOUTH</u> (Private Ownership) (Scores: Not Assessed) Gravel Ponds south of Eklutna River mouth are partially intertidal. Further investigation is required to determine extent of freshwater influence. <i>COE Jurisdictional Determination and wetlands delineation required to properly map any freshwater wetlands and ponds. Habitat enhancement potential. Eklutna River requires 100-foot setback to protect anadromous fish.</i> Functions for flood attenuation, and habitat values.	Open Water
102C	23a, 33a, 34a, 35a, 41a, 42a	<u>UPPER EKLUTNA VALLEY NORTH</u> (202 acres; Public, Private Ownership) (Scores: Hydrology = 93; Habitat = 84; Species Occurrence = 35; Social Function = 15) Private in-holdings outside of Chugach State Park; (Pioneer Estates, Chugach Acres Subdivision). Wetlands contain a significant plant species: <i>Pinguicula vulgaris</i> ; considered rare for the Municipality. Protect wet meadows, streams and drainageways with minimum 65-foot setback. <i>Requires COE Jurisdictional Determination, wetland and waterways delineation.</i> Values for flood attenuation, water quality and habitat.	B

Site #	Map # (in the Eagle River Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, ownership, "Scores" refer to the Anchorage Wetlands Assessment Methodology (reference Chapter 2, II. Resource Inventory, A. Background, for scoring information)	New Designation or Classification
102D	24a, 25a, 32a, 33a, 34a, 40a, 41a, 42a, 43a	UPPER EKLUTNA VALLEY SOUTH (1218.2 acres; Public Ownership)(Scores: Hydrology = 106; Habitat = 136; Species Occurrence = 43; Social Function = 64) Hydric soils previously mapped as "P" potential wetlands along south side of Eklutna River from the lake, westward to Map #25a. Lies within Chugach State Park. <i>Requires COE Jurisdictional Determination and wetlands/stream delineations.</i>	B
103	12	THUNDERBIRD HEIGHTS SUBDIVISION (9.59 acres; Private Ownership) (Scores: Hydrology = 81; Habitat = 74; Species Occurrence = 15; Social Function = 21) <i>COE Jurisdictional Determination and wetland delineation required. Maintain a 65-foot setback along the unnamed stream in southern site, which shall be treated as "A" wetlands.</i> Remaining "C" wetlands: General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required. Requires 25-foot setback from drainageways.</i>	C
103A	12	THUNDERBIRD HEIGHTS (0.34 acre; Private Ownership) (Scores: Hydrology = 79; Habitat = 64; Species Occurrence = 23; Social Function = 21) <i>COE Jurisdictional Determination and wetland delineation required. Pond on the Old Glenn Highway functions for stormwater and flood attenuation, and water quality. Inflow to pond, if identified as a stream, shall be maintained with 65-foot setback; 25-foot setback if a drainageway.</i>	B
104	12, 16, 17	THUNDERBIRD FALLS SUBDIVISION (Lower valley: 21.37 acres, Upper Thunderbird Creek valley: 133.52 acres; Private and Public Ownership) (Scores: Hydrology = 75; Habitat = 53; Species Occurrence = 23; Social Function = 28). Glenn Hwy to Paradis Lane, North of Edmonds Lake: (8.5 acres; Public & Private Ownership) (Scores: Hydrology = 86; Habitat = 82; Species Occurrence = 30; Social Function = 26). Values for flood attenuation and water quality. Habitat values not fully known. "P" (potential wetlands) requires COE Jurisdictional Determination and wetland delineation. Includes 133.52 acres in upper Thunderbird Creek valley. "C" wetlands are General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required. Maintain a 25-foot transitional buffer between GP permitted development and "A" wetlands. Maintain a 65-foot setback from unnamed stream.</i>	C/P
104A	11, 17	SE SECTION 26 North of Edmonds Lake, East of Glenn Hwy: (21.46 acres; Private Ownership) (Scores: Hydrology = 76; Habitat = 50; Species Occurrence = 17; Social Function = 22). Includes "P" (potential wetlands) wetlands along unnamed stream originating in Thunderbird Falls Subdivision (unit 104). COE Jurisdictional Determination, wetland delineation and verification of waterways by MOA-WMS required. Unnamed stream requires a 65-foot setback. Values for stormwater attenuation and water quality.	B/P

Site #	Map # (in the Eagle River Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, ownership, "Scores" refer to the Anchorage Wetlands Assessment Methodology (reference Chapter 2, II. Resource Inventory, A. Background, for scoring information)	New Designation or Classification
105	10, 11, 17	<u>WEST OF GLENN HIGHWAY - NORTH OF EDMONDS CREEK</u> (47.24 acres; Private Ownership) (Scores: Hydrology = 96; Habitat = 96; Species Occurrence = 56; Social Function = 50) <i>COE Jurisdictional Determination and wetland delineation required. Contains unnamed stream and lower section of Edmonds Creek; maintain a 65-foot setback from unnamed stream (see unit # 108 regarding Edmonds Creek). Verify with ADFG-Habitat for presence of anadromous fish; if present, 100-foot setback from streams is warranted. 25-foot setback required from drainageways and ephemeral channels.</i>	B
106	17, 18	<u>MIRROR CREEK</u> (37.46 acres; Private Ownership) (Scores: Hydrology = 70; Habitat = 76; Species Occurrence = 48; Social Function = 35) <i>Verify with ADFG-Habitat for presence of anadromous fish; 100-foot setback is warranted if present; if not, a 65-foot setback required. Proposed stream crossings shall require bridges or arched culverts to protect habitat. Values for flood attenuation, water quality and habitat.</i> "P" (potential wetlands) requires COE Jurisdictional Determination and wetland delineation.	B/ P
106	18, 19	<u>NORTH OF RANKIN ROAD, SOUTH OF MIRROR CREEK</u> (42.73 acres; Private Ownership) (Scores: Hydrology = 80; Habitat = 53; Species Occurrence = 21; Social Function = 28). <i>COE Jurisdictional Determination required. General Permit applicable. GP Site Restrictions and Design Criteria: Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required.</i> "P" additional wetlands extend north from previously mapped unit; contains tributary to Edmonds Creek requiring an 85 foot setback.	C/ P
107	17, 18	<u>WEST OF GLENN HIGHWAY - SOUTH OF EDMONDS LAKE</u> (11.69 acres; Private Ownership) (Scores: Hydrology = 59; Habitat = 41; Species Occurrence = 23; Social Function = 47) <i>Unmapped channels are located within the vicinity of Mirror Lake Middle School trails. Requires COE Jurisdictional Determination, wetland delineation and verification of waterways by MOA-WMS. Maintain a 65-foot setback for streams, 25-foot setbacks for drainageways. Values for stormwater and flood attenuation, water quality.</i> <i>"C" wetlands: General Permit applicable. GP Site Restrictions and Design Criteria: Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required.</i>	B/C
108	17	<u>EDMONDS CREEK</u> (11.12 acres; Public & Private Ownership) (Scores: Hydrology = 86; Habitat = 88; Species Occurrence = 48; Social Function = 57) <i>Unique stream feature and hyporheic zone, the interface between the stream channel and surrounding groundwater area, should be protected to the maximum extent possible. Require minimum buffer zone extending 100 feet out from edge of wetlands and 300 feet from stream outward to protect the hyporheic zone. Values for flood attenuation, water quality and habitat.</i>	A
108A	16	<u>EAST OF EDMONDS LAKE</u> (4.3 acres; Private Ownership) (Scores: Hydrology = 87; Habitat = 73; Species Occurrence = 29; Social Function = 49) <i>"A" wetlands include pond to east of Edmonds Lake connected via culvert/waterway; fringe wetlands present on pond and Edmonds lakeshore. Preserve pond and fringe wetlands to the maximum extent practicable. Values for stormwater and flood attenuation, water quality, and habitat. ADFG stocks the lake with Rainbow Trout. "D" wetlands NE of Edmonds Lake.</i>	Open Water/ A/ D

Site #	Map # (in the Eagle River Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, ownership, "Scores" refer to the Anchorage Wetlands Assessment Methodology (reference Chapter 2, II. Resource Inventory, A. Background, for scoring information)	New Designation or Classification
109	17, 26	MIRROR LAKE AND FRINGE WETLANDS (Public & Private Ownership) (Scores: Hydrology = 116; Habitat = 150; Species Occurrence = 123; Social Function = 82). Fringe wetlands on Mirror Lake shoreline and open water assessed together. <i>COE Jurisdictional Delineation required. Fringe wetlands shall be preserved to the maximum extent possible. Water dependent uses could be constructed with minimal impacts, i.e., docks on pilings.</i> ADFG stocks the lake with Chinook Salmon and Rainbow Trout.	Open Water
109	25, 26	MIRROR LAKE, SOUTH (51.43 acres; Private Ownership) (Scores: Hydrology = 113; Habitat = 101; Species Occurrence = 18; Social Function = 34) General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Wetland Delineation; Identify surface water features; BMPs for local flooding and stormwater controls required. Waterways require mapping by MOA-WMS. Maintain a minimum 65-foot setback along the waterway (between lots 22 and 23) and pond south of Mirror Lake Drive. 25-foot setback required from drainageways. Maintain a 65-foot setback from Mirror Lake. Lakefront structures on piles may be permitted under the GPs in the 65-foot setback.</i>	C
109A	26	SOUTHEAST OF BEAR MOUNTAIN VIEW CIRCLE AND LAKESHORE DRIVE (2.57 acres; Private Ownership) (Scores: Hydrology = 86; Habitat = 67; Species Occurrence = 18; Social Function = 34) Values for stormwater attenuation, habitat and open space/aesthetics. Locally significant plants require further investigation. Wet meadow should be retained to the maximum extent possible. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features and prevention of dewatering adjacent wetlands; BMPs for local flooding and stormwater controls required; compensatory mitigation shall be based on field determination of Relative Ecological Value (REV). A 65-foot setback shall be maintained around the seasonal pond. Requires a 25-foot setback from drainageways.</i>	C
110	17, 26	MIRROR LAKE / EDMONDS LAKE PARK (35.73 acres; Public Ownership) (Scores: Hydrology = 99; Habitat = 89; Species Occurrence = 91; Social Function = 80) Includes wetland lobes adjacent to and extending from each lake. A master park plan for the area should identify allowed uses, appropriate activities and those wetland areas to be protected for water quality maintenance to the maximum extent possible. Any major park amenity development shall avoid waterways and ponded areas with minimum 65-foot setbacks.	A
111	26, 27	MEADOW LAKE (8.32 acres; Private Ownership) (Scores: Hydrology = 113; Habitat = 103; Species Occurrence = 44; Social Function = 62) <i>Lake and associated wetland is designated as "A"; intent is to preserve the lake and wetlands to the maximum extent practicable. Minor lake access structures could be allowed on pilings.</i> Values for stormwater attenuation, water quality, habitat and open space/aesthetics. <i>Requires COE Jurisdictional Determination.</i>	A

Site #	Map # (in the Eagle River Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, ownership, "Scores" refer to the Anchorage Wetlands Assessment Methodology (reference Chapter 2, II. Resource Inventory, A. Background, for scoring information)	New Designation or Classification
112	27	<u>PETERS GATE SUBDIVISION: THREE SITES</u> (34.38 acres; Private Ownership) (Scores: Hydrology = 93; Habitat = 93; Species Occurrence = 18; Social Function = 36) <i>Tributary to Peters Creek requires an 85-foot setback, to be treated as "A" wetlands. Maintain drainageways with minimum 25-foot setback. Intent is to maintain wet meadows, drainageways and streams to the maximum extent practicable.</i> Values for stormwater and flood attenuation, water quality, and open space/aesthetics. "C" wetland remaining outside setbacks is General Permit applicable . GP Site Restrictions and Design Criteria: <i>Construction timing window; Wetland Delineation; Identify surface water features; BMPs for local flooding and stormwater controls required.</i> "P" (potential wetlands) site extends east from existing "C" mapped wetlands. COE Jurisdictional Determination and wetlands delineation is required. MOA WMS stream survey required.	C P
113	25	<u>MIRROR DRIVE</u> (5.37 acres; Private Ownership) (Scores: Hydrology = 78; Habitat = 47; Species Occurrence = 27; Social Function = 39) <i>COE Jurisdictional Determination required. Use of cluster development could be incorporated in plats to avoid seasonal pond and to identify and avoid drainages.</i> Values for stormwater and flood attenuation, water quality, and open space/aesthetics. General Permit applicable . GP Site Restrictions and Design Criteria: <i>Construction timing window; Wetland Delineation; Identify surface water features; BMPs for local flooding and stormwater controls required; south of Mirror Drive: compensatory mitigation shall be based on field determination of Relative Ecological Value (REV)</i>	C
114	24, 25	<u>THE TABLELANDS/GLENN VIEW ESTATES</u> (10.36 acres; Private Ownership) (Scores: Hydrology = 61; Habitat = 35; Species Occurrence = 18; Social Function = 20) Values for stormwater attenuation, water quality and open space/aesthetics. <i>COE Jurisdictional Determination required.</i> "A" wetlands within wooded ravines are preserved as open space by permit #: Peters Creek 03-A. Remaining "C" wetlands are General Permit applicable . GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required.</i>	A/C
114	18 and 25	<u>NORTHEAST OF WHISPERING BIRCH DRIVE, WEST OF WATER LINE</u> (11.66 acres; Private Ownership) (Scores: Hydrology = 66; Habitat = 67; Species Occurrence = 22; Social Function = 20) Topographic low point conveys stormdrain and flood flows through area = open space. <i>Drainageways through the site shall be maintained; minimum 25-foot setback.</i> Values for stormwater and flood attenuation, water quality. 3 "C" sites, General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required.</i>	A/C
115	24, 28, 29, 53a, 54a, 74a, 75a, 76a	<u>PETERS CREEK AND LITTLE PETERS CREEK</u> (98.47 acres approx.; Public & Private Ownership) (Scores: Not Assessed) Includes riparian wetlands along creek. <i>COE Jurisdictional Determination required for wetland site NE of Knik Vista and Glacier Vista roads (map 24).</i> and "P" (potential wetlands, map 54a). Intent is to preserve riparian wetlands to the maximum extent possible.	A P

Site #	Map # (in the Eagle River Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, ownership, "Scores" refer to the Anchorage Wetlands Assessment Methodology (reference Chapter 2, II. Resource Inventory, A. Background, for scoring information)	New Designation or Classification
116	32, 33, 34, 35	<u>BEACH LAKE COMPLEX</u> (318.27 acres approx.; Public & Private Ownership) (Scores: Not Assessed) <i>Municipal parkland shall be preserved to the maximum extent possible. Minor park and trail amenities and road access could be allowed if avoiding wet meadows, waterbodies and waterways. COE Jurisdictional Determination and wetland delineation required for "P" (potential wetlands) areas. MOA-WMS stream survey needed.</i> Reference <i>Beach Lake Regional Park Master Plan</i> , April, 2010, regarding land use recommendations.	A/B/ P
117	30, 35 36	<u>MINK CREEK</u> : Glenn Hwy (84.5 acres; Public & Private Ownership) (Scores: Hydrology = 118; Habitat = 93; Species Occurrence = 36; Social Function = 42) South Birchwood (84.76 acres; Private Ownership) (Scores: Hydrology = 110; Habitat = 151; Species Occurrence = 54; Social Function = 40) Values for stormwater and flood attenuation, water quality and wildlife habitat. "A" wetland designation for stream corridor; <i>maintain 100-foot setback to protect anadromous fish.</i> "B" wetland designation for wetlands outside of main stream corridor. Retain ponded areas and drainage corridors; outer edges of wetlands could be potentially developed. <i>A 25-foot buffer shall be maintained from development within the "B" wetlands and the "A" wetlands.</i> "C" wetland designation for forested wetlands north of Mink Lake. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; wetland delineation; Identify surface water features; address dewatering of adjacent wetlands; BMPs for local flooding and stormwater controls required. Maintain 200-foot setback from Mink Lake; 25-foot buffer from fill authorized by GP and "A" wetlands.</i>	A/B/C
117A	35	<u>SOUTH BIRCHWOOD AT RICHNER</u> (3.31 acres; Private Ownership) (Scores: Hydrology = 74; Habitat = 48; Species Occurrence = 18; Social Function = 36) Values for stormwater and flood attenuation, water quality. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; wetland delineation; Identify surface water features; BMPs for local flooding and stormwater controls required.</i>	C
118	39	<u>OLD GLENN HIGHWAY: NORTH OF MINK CREEK</u> (11.67 acres; Private Ownership) (Scores: Hydrology = 66; Habitat = 45; Species Occurrence = 18; Social Function = 30) COE Jurisdictional Determination required. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; prevent dewatering of adjacent wetlands; BMPs for local flooding and stormwater controls required. Maintain 100-foot setback from Mink Creek to protect anadromous fish.</i>	C
119	37, 38, 39	<u>OLD GLENN HIGHWAY: SE CANYON RD</u> (25.54 acres; Public & Private Ownership) (Scores: Hydrology = 89; Habitat = 89; Species Occurrence = 24; Social Function = 51) "A" wetlands includes lake within canyon and headwaters of Mink Creek. <i>Maintain 85-foot setback from Mink Creek.</i> "C" wetland: located north of "A" wetlands, south of former gravel pit; Amonson to Skyview Rd. <i>COE Jurisdictional Determination required.</i> General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required.</i>	A/C/Open Water

Site #	Map # (in the Eagle River Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, ownership, "Scores" refer to the Anchorage Wetlands Assessment Methodology (reference Chapter 2, II. Resource Inventory, A. Background, for scoring information)	New Designation or Classification
120	35, 36, 37, 39, 40	MINK AND PARKS CREEKS – OLD GLENN TO GLENN HIGHWAY (73.60 acres; Private Ownership) (Scores: Hydrology = 95; Habitat = 89; Species Occurrence = 18; Social Function = 34) <i>Setbacks of 65 feet required from streams unless ADFG-Habitat information indicated anadromous fish use, then 100-foot setback is warranted. Riparian wetlands are classified "A" and shall remain undisturbed to the maximum extent possible, to protect flood attenuation, water quality and fish habitat functions.</i> "C" wetlands: General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; wetland delineation; BMPs for local flooding and stormwater controls required. Maintain 100-foot setback from streams, 25-foot buffer from "A" wetlands.</i> "D" (potential) wetlands located near SW Glenn Hwy and North Birchwood Loop Road. Requires COE Jurisdictional Determination and wetland delineation.	A/C D
121	40	PARKS CREEK: WEST OF GLENN HWY TO ALASKA RAILROAD; NORTH OF BEACH LAKE ROAD (includes site to the north of Chugiak High School) (52.57 acres; Public & Private Ownership) (Scores: Hydrology = 104; Habitat = 123; Species Occurrence = 42; Social Function = 50) "A" wetlands south of K and R Rd. Values for stormwater and flood attenuation, water quality and habitat. <i>Maintain 100-foot setback from stream to protect anadromous fish resources.</i> "C" wetlands constitute remainder of unit. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required. Maintain a 100-foot setback along Parks Creek. A 65-foot setback shall be maintained along the tributary of Parks Creek in the southern lobe of the beaver pond site. 25-foot setback from drainageways. 25-foot buffer required from any development authorized under the GP and "A" wetlands.</i> COE Jurisdictional Determination and wetland delineation required for "D" sites. ADFG determination for extent of anadromous fish habitat required.	A/C D
121	40, 41	BEACH LAKE PARK: SOUTH BIRCHWOOD TO RAILROAD, SOUTH OF BEACH LAKE ROAD (assessed with previous site #121) (45.26 acres; Public Ownership) "D" wetlands: COE Jurisdictional Determination, wetland and waterbody delineation required. Unmapped drainageways with connectivity to Fire Creek, maintain 25-foot setback. Values for stormwater and flood attenuation, water quality, habitat, open space/aesthetics and recreation. Reference <i>Beach Lake Regional Park Master Plan</i> , April, 2010, regarding land use recommendations. "C" wetlands: General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; prevent dewatering of adjacent wetlands; BMPs for local flooding and stormwater controls required. Maintain 100-foot setback from Parks Creek to protect anadromous fish, 65-foot from other channels, 25-foot from drainageways.</i>	C D

Site #	Map # (in the Eagle River Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, ownership, "Scores" refer to the Anchorage Wetlands Assessment Methodology (reference Chapter 2, II. Resource Inventory, A. Background, for scoring information)	New Designation or Classification
122	34, 35, 40, 41, 45, 46	<u>LOWER FIRE CREEK / FIRE CREEK COMPLEX DOWNSTREAM OF RAILROAD</u> (496 acres approx.; Public and Private Ownership) (Partial Area Assessment Scores: Hydrology = 107; Habitat = 109; Species Occurrence = 78; Social Function = 41) Private and public land including portions of Beach Lake Park. Values for stormwater and flood attenuation, water quality, habitat, open space/aesthetics and recreation. Private lands at creek mouth controlled by the 1979 Agreement of Compromise and Settlement between the Municipality and Eklutna, Inc. <i>Under this agreement, the 100-year floodplain is to be preserved except for trails. Permitted development outside the floodplain requires a 25-foot buffer from "A" wetlands. Maintain a 100-foot setback from Fire Creek to protect anadromous fish resources.</i> Reference <i>Beach Lake Regional Park Master Plan</i> , April, 2010 regarding land use recommendations.	A/B
123	34, 41	<u>PSALM LAKE COMPLEX</u> (4.94 acres; Public Ownership) (Scores: Not Assessed) Includes the lacustrine wetland fringe of Psalm Lake. <i>Site shall be preserved to the maximum extent practicable.</i> Values for habitat, open space/aesthetics and recreation.	A
124	33, 41, 42, 43 44, 45, 51, 77a, 78a, 87a	<u>MILITARY LANDS</u> (271.5 acres; Public Ownership) (Scores: Not Assessed) Shall be preserved and managed via EO #11990 for military lands.	A
125	46	<u>NORTH AND SOUTH OF PIONEER DRIVE: TWO SITES</u> (3.2 acres; Private Ownership) (Scores: Hydrology = 61; Habitat = 36; Species Occurrence = 18; Social Function = 48) <i>COE Jurisdictional Determination required. General Permit applicable.</i> GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required. Maintain a 25-foot setback from drainageways.</i>	C
125	46	<u>NW TERRACE LANE AT JAMES WAY</u> (42 acres; Private Ownership) (Scores: Hydrology = 88; Habitat = 69; Species Occurrence = 18; Social Function = 41) <i>A 100-foot setback shall be maintained around the ephemeral pond at the northern end of the site; protect drainageways into and out of the wetlands with a 25-foot setback.</i> Values for stormwater attenuation, water quality, habitat and open space/ aesthetics. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required.</i>	C
125	46	<u>ALMDALE: 2 SITES</u> (1.68 acres; Private Ownership) (not assessed) Ephemeral drainageway exits from larger wetland through these sites, which was not mapped on the 2008 Wetlands Atlas. Maintain a minimum 25-foot setback. Values for stormwater and flood attenuation, water quality. Requires COE Jurisdictional Determination.	D

Site #	Map # (in the Eagle River Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, ownership, "Scores" refer to the Anchorage Wetlands Assessment Methodology (reference Chapter 2, II. Resource Inventory, A. Background, for scoring information)	New Designation or Classification
126	40, 47	<u>NORTHEAST INTERSECTION OF SOUTH BIRCHWOOD/GLENN HIGHWAY</u> (19.10 acres; Public & Private Ownership) (Scores: Hydrology = 96; Habitat = 79; Species Occurrence = 32; Social Function = 39) "B" and "D" wetlands: COE Jurisdictional Determination and wetland delineation required. MOA-WMS survey for waterbodies needed. Identified stream channels require a 65-foot setback; drainageways a 25-foot setback. Values for stormwater attenuation and water quality. "C" wetlands designation for isolated southern site. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required.</i>	B/C D
127	47	<u>DRAINAGE INTO LOWER FIRE LAKE</u> (3.57 acres; Private Ownership) (Scores: Hydrology = 93; Habitat = 88; Species Occurrence = 24; Social Function = 61) Includes pond NE of James and Lakeridge Drive, designated as "Open Water." <i>Requires COE Jurisdictional Determination and wetland delineation. Maintain connectivity to Lower Fire Lake with minimum 25-foot setback from drainageways.</i> Values for stormwater attenuation, water quality and open space/aesthetics.	A/Open Water
127	47	<u>DARBY ROAD</u> (17.48 acres; Private Ownership) (Scores: Hydrology = 76; Habitat = 64; Species Occurrence = 18; Social Function = 59) <i>COE wetland delineation required to define boundaries. Contains stream headwaters; maintain with minimum 85-foot setback. Intent is to preserve these headwater wetlands to the maximum extent practicable.</i> "C" wetlands are General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required.</i> "D" wetlands at NW Monastery Drive and Old Glenn Hwy. Requires COE Jurisdictional Determination and wetland delineation.	C D
128	46, 49	<u>LOWER FIRE LAKE</u> (including Fire Creek) (63.65 acres; Public & Private Ownership) (Scores: Hydrology = 130; Habitat = 145; Species Occurrence = 117; Social Function = 64) High value habitat, stormwater and flood attenuation, water quality and recreation values. Where <i>The wetlands fringe is varies on the lake edge, so setbacks shall be a minimum of 65 feet, extending from OHW inland to the extent of the wetlands or to 65 feet, whichever comes first. Fill into the lake and stream should be avoided. Intent is to preserve the remaining lacustrine wetlands to the maximum extent possible while allowing minor amenities such as docks on pilings. Define the wetlands location relative to the lake's OHW as vairab</i>	A
129	47, 48, 49	<u>UPPER FIRE LAKE/CREEK</u> (1.91 acres approx.; Public & Private Ownership) (Scores: Hydrology = 112; Habitat = 84; Species Occurrence = 29; Social Function = 37) Includes lake fringe and stream's riparian wetland corridor. Important for fish habitat, water quality, flood and stormwater attenuation within the watershed. Lower Fire Lakes dam acts as a fish passage barrier. <i>Should this situation change and anadromous fish are allowed upstream, a 100-foot setback would be warranted from Fire Creek, otherwise 65 feet should be used.</i> The culvert under the Old Glenn Hwy allows fish passage between Upper and Lower Fire Lake. "D" wetlands located on Lot 95, north of the lake. Honkins Subdivision, tracts 1 and 2 contain a tributary to Fire Creek and riparian wetlands; a minimum 25-foot setback is required.	A D

Site #	Map # (in the Eagle River Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, ownership, "Scores" refer to the Anchorage Wetlands Assessment Methodology (reference Chapter 2, II. Resource Inventory, A. Background, for scoring information)	New Designation or Classification
130	45, 49, 50	<u>MIDDLE FIRE CREEK (AND CAROL CREEK CONFLUENCE)</u> (Glenn Highway to Alaska Railroad) (130 acres approx.; Private Ownership) (Scores: Hydrology = 87; Habitat = 112; Species Occurrence = 90; Social Function = 40) Values for stormwater and flood attenuation, water quality, fish habitat, open space/aesthetics and recreation. "A" wetlands to include major portions of the 100-year floodplain; <i>maintain via a 100-foot setback on each side of creek. Map #49, wetland includes Carol Creek which requires a 100-foot setback to protect anadromous fish. Beaver ponds shall be preserved to maximum extent practicable.</i> "B" wetlands within the area where Site #136 connects to Fire Creek corridor (Map 50); <i>retain the hydrologic connectivity between these wetland complexes.</i> Remaining outer edge of wetlands are designated "C." General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; wetland delineation; Identify surface water features; prevent dewatering of adjacent wetlands; BMPs for local flooding and stormwater controls required. A setback of at least 100 feet shall be maintained along the creek to protect anadromous fish resources. A 25-foot transitional buffer shall be maintained between fill authorized under the GPs and "A" wetlands: a 15-foot transitional buffer shall be maintained between fill authorized under the GPs and "B" wetlands.</i>	A/B/C
131	44, 45, 50 and 51	<u>CLUNIE LAKE COMPLEX</u> (231.94 acres; Public and Private Ownership) (Scores: Hydrology = 127; Habitat = 177; Species Occurrence = 127; Social Function = 48) Values for stormwater and flood attenuation, water quality, fish habitat, open space/aesthetics and recreation. <i>Military lands shall be preserved and managed via EO #11990. Setbacks of 100 feet from waterbodies and waterways should be maintained. Any development activity should avoid filling wet meadows and drainageways.</i> ADFG stocks the lake with Chinook Salmon, Arctic Char, Lake and Rainbow Trout (2011 data).	A
132 and 133	50, 51	<u>WEST FIRE CREEK COMPLEX</u> (58.62 acres approx.; Public & Private Ownership) (Scores: Not Assessed) <i>Retain hydrologic connectivity between this wetland and unit #130.</i> Values for stormwater and flood attenuation, water quality, fish habitat, open space/aesthetics and recreation. "C" includes wetlands on outer edge of Fire Creek complex. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; wetland delineation; Identify surface water features; BMPs for local flooding and stormwater controls required. Maintain a 15-foot buffer between developments authorized under the GP and adjacent "B" wetlands. Hydrological connections in wetlands with streams and drainages shall be delineated and retained.</i> "D" sites require COE Jurisdictional Determination, wetlands and stream delineation.	C/D
134	49	<u>FIRE CREEK: EAST OF GLENN HIGHWAY</u> (8.41 acres; Private Ownership) (Scores: Hydrology = 85; Habitat = 90; Species Occurrence = 48; Social Function = 47) Values for stormwater and flood attenuation, water quality, and habitat. <i>A 75-foot stream setback from Fire Creek is preserved by permit #POA-2001-1031 and 2001-771.</i> The wetlands within Lot 1 immediately downstream of Lower Fire Lake Dam are preserved by CE (HLB) as mitigation for permit #POA-2004-559-D. Remaining "A" wetlands: <i>Maintain a 100-foot setback along Fire Creek due to its anadromous fish resources.</i> Remaining wetlands are within designated non-development tracts.	A

Site #	Map # (in the Eagle River Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, ownership, "Scores" refer to the Anchorage Wetlands Assessment Methodology (reference Chapter 2, II. Resource Inventory, A. Background, for scoring information)	New Designation or Classification
135	48, 49, 54	<u>UPPER CAROL CREEK</u> (24.78 acres approx.; Public Ownership) (Scores: Hydrology = 97; Habitat = 90; Species Occurrence = 33; Social Function = 68) Includes "D" site on tributary channel, north of North Juanita Loop Rd. Values for stormwater and flood attenuation, water quality, and habitat. <i>Contains main channel and numerous feeder springs and tributaries which shall be avoided using 65-foot setbacks, when wetlands are adjacent to stream channel. COE Jurisdictional Determination and wetland delineation required.</i>	B/D
135	49, 54	<u>LOWER CAROL CREEK</u> (2.71 acres; Private Ownership) (Scores: Hydrology = 102; Habitat = 82; Species Occurrence = 48; Social Function = 51) West of Old Glenn Hwy. Values for stormwater and flood attenuation, water quality and habitat. <i>Maintain 100-foot setback from stream to protect anadromous fish.</i>	A
136	50, 53	<u>SOUTHEAST END OF POWDER RESERVE COMPLEX</u> (123.5 acres approx.; Public & Private Ownership) (Scores: Not Assessed) Includes main corridor of wetlands between Eagle River Loop Creek (aka Clunie Creek) and Fire Creek. "P" (potential wetlands) requires COE Jurisdictional Determination and wetland delineation. Further investigation of the wetland's surface and sub surface hydrologic connection to Eagle River Loop Creek is warranted. Values for stormwater and flood attenuation, water quality, open space/aesthetics and habitat. General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required. Maintain 65-foot setback from Eagle River Loop Creek (aka Clunie Creek); avoid filling wet meadows, patterned ground wetlands, ponds and drainageways.</i>	B/C/P
137	53, 54	<u>SCHROEDER SUBDIVISION PONDS</u> (4.04 acres; Private Ownership) (Scores: Hydrology = 72; Habitat = 57; Species Occurrence = 18; Social Function = 52) COE Jurisdictional Determination required. "B" wetlands designation for pond and fringe wetlands on north side of Schroeder Road. <i>Pond shall be preserved to the maximum extent possible.</i> Both sites have values for stormwater attenuation and habitat. "C" wetlands are General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required.</i>	B/C
138	54	<u>EAGLE RIVER LOOP CREEK: BROADWATER, LUGENE AND SPRINGBROOK</u> (2.1 acres; Private Ownership) (Scores: Hydrology = 58; Habitat = 36; Species Occurrence = 18; Social Function = 33) Includes upper Eagle River Loop Creek headwaters and pond at Broadwater Drive (mapped as wetlands). Wetlands and ponds adjacent to stream north of Eagle River Loop Road, southeast of Springbrook Drive. Floodplain values for stormwater and flood attenuation, water quality, open space/aesthetics and habitat. <i>Maintain a 65-foot setback from stream.</i> General Permit applicable. GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required.</i>	C/Open Water
139	52, 53, 58	<u>MILITARY LANDS</u> (47.58 acres; Public Ownership) (Scores: Not Assessed) <i>Shall be preserved and managed via EO #11990.</i>	A

Site #	Map # (in the Eagle River Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, ownership, "Scores" refer to the Anchorage Wetlands Assessment Methodology (reference Chapter 2, II. Resource Inventory, A. Background, for scoring information)	New Designation or Classification
140	58	<u>NORTH SIDE OF EAGLE RIVER, WEST OF POPPY LANE</u> (3.38 acres; Public/Private Ownership) (Scores: Not Assessed) <i>Military lands shall be preserved and managed via EO #11990. Most of wetland unit is a private parcel on north side of river, west of Lots 41 & 51. Includes a drainageway/tributary. Requires COE Jurisdictional Determination and wetland delineation. MOA-WMS stream survey needed.</i>	A
141	58, 61, 62	<u>MOUTH OF MEADOW CREEK</u> (1.93 acres; Public & Private Ownership) (Scores: Hydrology = 94; Habitat = 77; Species Occurrence = 48; Social Function = 61) Provides for fish habitat. <i>Wetlands shall be maintained in an undisturbed state.</i> "P" sites located south of Aloden Lane. Requires COE Jurisdictional Determination and wetlands delineation. Springs and headwater streams present; maintain 85-foot setback.	A/P
141A	55, 89a, 90a, 92a, 93a, 94a, 95a	<u>UPPER MEADOW CREEK</u> (123.39 acres; Public and Private Ownership) (Scores: Not Assessed) Requires COE Jurisdictional Determination and wetland delineation for "P" (potential wetlands). Accumulated values as a riparian corridor for flood attenuation and water quality; and as a wildlife corridor, importance for habitat. Maintain a minimum 85 foot setback from Meadow Creek unless ADFG data concludes anadromous fish presence, then a 100 foot setback is appropriate. Intent is to preserve the stream corridor to the maximum extent possible.	P
142	58 and 61	<u>MILITARY LAND</u> (21.3 acres; Public Ownership) (Scores: Not Assessed) <i>Shall be preserved and managed via EO #11990.</i>	A
143	62, 63, 64, 65, 68, 69, 70, 71, 72, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 133a, 137a, 138a, 139a, 157a	<u>EAGLE RIVER GREENBELT</u> (3286 acres; Public Ownership) (Scores: Not fully assessed) The "A" wetlands are generally within the floodplain and shall be avoided to the maximum extent possible; <i>Eagle River setbacks are 100 feet. Includes Chugach State Park greenbelt. Entire wetland complex shall be preserved to the maximum extent. Minor trail and park amenities and access roads allowed if no other practicable location possible. Size of wetland complex supports very high values for habitat, flood attenuation, open space/aesthetics and recreation. Maintain 100-foot setbacks from Eagle River and anadromous tributaries to protect anadromous fish resources and large animal movement corridors. Maintain 65-foot setbacks from tributary streams; 25-foot setbacks from drainageways. COE Jurisdictional Determination and wetland delineation required primarily for "P" (potential wetlands) sites.</i>	A/P
143A	65, 69, 70, 77	<u>SOUTH SIDE EAGLE RIVER VALLEY, OUTSIDE THE EAGLE RIVER GREENBELT</u> (114.6 acres approx.; Public & Private Ownership) (Scores: Not Assessed) Wetlands are transitional between the river floodplain and the old river terrace; designated as "B." COE Jurisdictional Determination and wetland delineation required for "P" (potential wetlands) sites. Drainageways, channels, and ponds shall be identified and preserved via setbacks: 25 foot for drainageways and ponds, 100 foot for river and anadromous streams.	B/P

Site #	Map # (in the Eagle River Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, ownership, "Scores" refer to the Anchorage Wetlands Assessment Methodology (reference Chapter 2, II. Resource Inventory, A. Background, for scoring information)	New Designation or Classification
144, 144A	62, 63, 72, 73, 74	SOUTH SIDE OF EAGLE RIVER (54.15 acres = Public and Private Ownership) (Scores: Assessed in 2010: Hydrology = 108; Habitat = 114; Species Occurrence = 51; Social Function = 35) "A" wetlands: unit #144A is within the State Park Greenbelt. Values for stormwater attenuation, water quality, habitat, open space/aesthetics, and recreation. "B" wetlands: parallels Eagle River Loop Road, west of the North Eagle River bridge (outside the greenbelt). <i>Maintain drainageway connectivity to Eagle River with a minimum 25-foot setback; 65-foot setback warranted if determined to be a stream. Development may be possible on the outer fringe of wetlands, provided wet meadows and drainageways are protected.</i> "C" wetlands southeast of Eagle River Loop Road and bridge: General Permit applicable . GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required.</i> "D" wetlands adjacent to State Park river access road, SE of bridge at Eagle River Loop Road. Requires COE Jurisdictional Determination and wetlands delineation.	A/B/C/ D
145	72	HILAND ROAD/BERNARD/EAST STONEHILL (19.07 acres; Private Ownership) (Scores: Hydrology = 90; Habitat = 92; Species Occurrence = 18; Social Function = 43) "B" and "D" wetlands: <i>Cluster development should be used to preserve streams and surface drainage corridors. Values for stormwater and flood attenuation, water quality, and habitat.</i> "C" wetlands are General Permit applicable . GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required. COE Jurisdictional Determination and wetlands delineation required. 65-foot setbacks required from streams, 25-foot setbacks from drainageways.</i>	B/C/ D
146	63	PARKVIEW TERRACE SOUTH/EAGLE CROSSING WEST (17.26 acres approx.; Private Ownership) (Scores: Hydrology = 83; Habitat = 56; Species Occurrence = 18; Social Function = 42) Higher value sedge ponds, unnamed stream and drainageways. Highly urbanized area emphasizes values for stormwater attenuation, water quality, open space/aesthetics, recreation and habitat. <i>COE wetland delineation and WMS stream survey required. Maintain 100-foot setback from Eagle River, 65-foot setback from unnamed stream and 25-foot setback from drainageways.</i> "A" wetlands: Eagle Crossing Subdivision, Tracts C-7 and C-9 are preserved by Plat #97-88. Block 9, Lots 22-28 require a wetlands vegetative buffer per Plat #97-88.	A/B
147 (shown as #143 on wetlands atlas)	63, 64	RAVENWOOD SCHOOL (stream headwaters to the east and west of the school) (21.38 acres; Private Ownership) (Scores: Hydrology = 105; Habitat = 84; Species Occurrence = 48; Social Function = 45) Two mapped streams: at Eagle River Lane and Ptarmigan Subdivision to Driftwood Bay Road. Highly urbanized area emphasizes values for stormwater attenuation, water quality, open space/aesthetics, recreation and habitat. "P" (potential wetlands) requires COE Jurisdictional Determination and wetland delineation. <i>Remaining wetlands should be preserved to the maximum extent possible. Maintain an 85-foot setback from streams and a 25-foot setback from drainageways.</i>	A/ P

Site #	Map # (in the Eagle River Wetlands Atlas, 2008)	Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, ownership, "Scores" refer to the Anchorage Wetlands Assessment Methodology (reference Chapter 2, II. Resource Inventory, A. Background, for scoring information)	New Designation or Classification
147A	64	EAGLE CROSSING SUBDIVISION (44.62 acres; Private Ownership) (2010 Assessment Scores: Hydrology = 97; Habitat = 96; Species Occurrence = 16; Social Function = 53) Values for stormwater and flood attenuation, water quality, open space/aesthetics, and habitat. Requires COE Jurisdictional Determination and wetlands delineation to determine accurate boundaries. Any streams delineated require an 85-foot setback; 25-foot setback from drainageways.	D
148	71	<u>SOUTH SIDE OF EAGLE RIVER/HILAND ROAD</u> (66.8 acres; Private Ownership) (Scores: Hydrology = 73; Habitat = 78; Species Occurrence = 48; Social Function = 34) Includes wetlands located within and outside the greenbelt north of River Park Drive. <i>Large animal movement corridors and hydrologic connections to the greenbelt and Eagle River shall be preserved and buffered. Requires COE Jurisdictional Determination and wetland delineation. MOA-WMS stream surveys needed. If streams are delineated, 65-foot setbacks required; 25-foot setback from drainageways.</i>	B
148A	116A, 120A, 144A	SOUTH FORK EAGLE RIVER VALLEY: WEST RIVER DRIVE (141.62 acres; Public and Private Ownership) (Scores: Hydrology = 143; Habitat = 142; Species Occurrence = 21; Social Function = 30) Requires COE Jurisdictional Determination and wetland delineation. Slope discharge with numerous springs and waterways. Stream setbacks are 85 foot, drainageways are 25 foot. Avoid activity within waterways, pools and wet meadows.	P
149	64, 65, 66, 67, 68, 69, 70	<u>NORTH SIDE EAGLE RIVER VALLEY, SOUTH OF EAGLE RIVER ROAD</u> (432 acres; Private Ownership) (Scores: Hydrology = 131; Habitat = 114; Species Occurrence = 80; Social Function = 35) "A" wetlands (Map #69) includes Harmany Ranch Wetlands Mitigation Bank (a private entity shown as Roberta L Crozier Homestead on parcel maps). Preservation status of land requires appropriate buffer of minimum 100 feet to 300 feet, where appropriate, to protect integrity of the preserved wetland functions. Site to be managed and preserved in agreement with COE. "B" wetlands provide direct hydrological connection to Eagle River. <i>Stream channels, ponds and surface flows shall be maintained with setbacks as open space; e.g., PC or cluster development techniques. Identification of permanent channels and general hydrology required. COE Jurisdictional Determination and wetland delineation required. Road crossings shall be minimized and non-dewatering techniques shall be incorporated into design in the area. Intent of the designation is to maintain significant hydrology values. Avoid streams, wet meadows, and connections to Eagle River. Verify with ADFG for location of anadromous streams. Setbacks from Eagle River and other identified anadromous fish streams are 100 feet, other streams entering Eagle River are 65 feet; and drainageways are at 25 feet.</i>	A/B

Table 4.3

TURNAGAIN ARM

WETLAND DESIGNATIONS, ENFORCEABLE AND ADMINISTRATIVE POLICIES AND MANAGEMENT STRATEGIES

Note:

General Permits: The Corps of Engineers issued five separate General Permits (GPs) to the Municipality that covers development projects in “C” wetlands in Anchorage. The GPs are reviewed and renewed every five years. The most recent Anchorage GPs were issued in April, 2010. Under current GP procedures, the Municipality determines whether a proposed fill project in “C” wetlands is consistent with the GP terms and conditions. The Anchorage GPs are applied to only “C” wetlands as designated in the AWMP. The GPs do not apply to “A” or “B” wetlands and some “C” sites are excluded. *Attachment A-Table 1* of the Anchorage GPs identifies which “C” wetland parcels are eligible for and which are excluded from the GPs. *Attachment B-Table 3* of the GPs assigns site specific restrictions and design criteria to each eligible “C” wetland. The AWMP **Table 4.1** management strategies notes which “C” wetlands are eligible for the GPs and references applicable site-specific restrictions and design criteria assigned to each site in the GPs. Refer to the current GPs for details and explanations of these requirements. Link: <http://www.muni.org/departments/ocpd/planning/physical/envplanning/Pages/default.aspx>. During the issuance of the current General Permits, the Corps included several previously unmapped wetlands as eligible for the GP. These are referenced as “U” wetlands in the General Permit documents. This AWMP revision includes these “U” sites and designates them as “C.” ~~(New sites now classified as “D” or “P” and former “U” sites now designated “C” are listed in blue.)~~

Site #, listed in column 1 of the table, references individual wetland sites or collective groups of wetlands that are in the same geographic area and perform similar functions. These wetland sites or groups were generally assessed together and share the same or similar management strategies.

Map # in the table references map pages from 1990-era mylar based map sets housed at the Municipality of Anchorage Community Development Department, Long-Range Planning Section. Mylar maps of Turnagain Arm cannot be reproduced for viewing online; the paper copies may be viewed at the Planning public counter, Municipal Planning and Development Center, 4700 Elmore Road, Anchorage, Alaska. The map numbers also serve as placeholders until the Municipality can develop a Turnagain Arm area wetlands atlas. For Turnagain Arm area wetlands mapping, view online maps available at http://munimaps.muni.org/mox52/advanced.cfm?&action=mox52_if_frameset or download wetland data at: <http://www.muni.org/Departments/it/GIS2/Pages/MOAGISData.aspx> or contact the Long-Range Planning Section at 343-7921.

Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, Ownership, and “Scores,” which refer to the Anchorage Wetlands Assessment Methodology scores (reference Chapter 2, II. Resource Inventory, A. Background, for AWAM scoring information). **AWAM assessment scores are listed from the previous Wetlands Plan of 1996. The scores for former “U”, undesignated sites now classified as “C”, were generated most recently.**

Designation or Classification: Reference Ch.4, II. Definitions, A. Background on page 25 of the plan for definitions of *designations* and *classifications*. ~~Other previously unmapped sites not eligible for the General Permit are classified as “D” or “P.” “D” sites have been determined to be wetlands, yet have not been designated as “A,” “B,” or “C” using the Anchorage Wetlands Assessment Methodology (MOA, 1991). The “P” sites are “potential wetlands” based largely on hydric soils information and aerial photography interpretation. They have yet to be delineated as wetlands by field investigations. These “D” (undesignated) and “P” (potential) wetlands require a Corps of Engineers Jurisdictional Determination and wetland delineation to gain information on whether the wetland falls under the Corps’ jurisdiction and the location of the wetland boundaries. This is noted within the management strategy it applies.~~

Site #	Map #	Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, ownership, "Scores" refer to the Anchorage Wetlands Assessment Methodology (reference Chapter 2, II. Resource Inventory, A. Background, for scoring information)	New Designation or Classification
160	4	INDIAN VALLEY (7.51 acres; Private Ownership) (Scores: Hydrology = 65; Habitat = 76; Species Occurrence = 19; Social Function = 35) Values for flood and stormwater attenuation, water quality, habitat and open space/aesthetics. <i>"A" wetlands are preserved by permit in Chugach Park View Subdivision. Streams, drainageways and springs shall be maintained for water quality, flood control via 65-foot setback. COE Jurisdictional Determination and additional wetlands delineation required.</i>	A
161	5	SOUTH INDIAN (15.87 acres; Private Ownership) (2011Scores: Hydrology = 100; Habitat = 99; Species Occurrence = 21; Social Function = 63) Values for flood attenuation, habitat and open space/aesthetics. <i>Streams to be maintained with 65-foot setbacks. Any potential development should avoid the wet meadows; center of wetland is a potential enhancement area. COE Jurisdictional Determination and additional wetlands delineation required.</i>	B
170	6	BIRD CREEK REGIONAL PARK (26.99 acres; Public Ownership)(Scores: Hydrology = 85; Habitat = 95; Species Occurrence = 96; Social Function = 57) Values for flood attenuation, habitat and open space/aesthetics. <i>"A" wetlands adjacent to Bird Creek have significant hydrology and fisheries values which should be preserved. COE Jurisdictional Determination and delineation required. Maintain 65-foot setback from streams and tributaries unless ADFG determines waterways have anadromous fish habitat, then 100-foot setback is applicable.</i> "C" wetlands within the Bird Creek Regional Park may be eligible for the General Permit . GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required.</i>	A/C
171	7, 8	BIRD CREEK VALLEY (11.9 acres; Public & Private Ownership) (2011Scores: Hydrology = 80; Habitat = 80; Species Occurrence = 21; Social Function = 55). Values for habitat, water quality, open space/aesthetics. <i>Small sites with stream connections; maintain function as stream headwaters. Streams and waterways shall be identified and avoided via 65-foot setbacks. Wetland located at Alaska Railroad milepost 85.6 has been documented by ADFG as anadromous and tidally influenced; maintain 100-foot setbacks from any waterways. The larger parcels adjacent to the highway are designated "B."</i> "C" wetlands are eligible for the General Permit . GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required.</i> "D" wetlands require COE Jurisdictional Determination and wetlands Delineation.	B/C/ D
172	10	SOUTH OF BIRD—ROADSIDE AVALANCHE PONDS (23.07 acres; Public Ownership) (2011Scores: Hydrology = 90; Habitat = 121; Species Occurrence = 58; Social Function = 53) Anadromous fish use in ponds; possible fish-rearing habitat. Values for flood and stormwater attenuation, habitat, and open space/aesthetics. <i>Cross-drainage within flow paths shall be maintained.</i>	A

Site #	Map #	Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, ownership, "Scores" refer to the Anchorage Wetlands Assessment Methodology (reference Chapter 2, II. Resource Inventory, A. Background, for scoring information)	New Designation or Classification
173	10, 11	SOUTH OF BIRD—AT SEWARD HWY (4.13 acres; Public Ownership) (2011 Scores: Hydrology = 92; Habitat = 87; Species Occurrence = 16; Social Function = 61) Values for flood and stormwater attenuation, habitat and open space/aesthetics. <i>Drainageways require a 25-foot setback.</i> "C" wetlands along the highway, from the community of Bird to Bird Point: eligible for the General Permit. GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required. Visual Screening provisions required.</i>	C
174	11, 12	BIRD POINT (9.1 acres; Public Ownership) (2011 Scores: Hydrology = 80; Habitat = 100; Species Occurrence = 58; Social Function = 59) High bird use, water quality, and flood attenuation values. Unique site; one of few open freshwater sites between Anchorage and Girdwood. <i>Minor transportation/utility-related fills could occur but shall avoid open water, wet meadows and drainages. Maintain 100-foot setback from ponds and waterways to maximum extent possible.</i>	A
180	39, 40, 41, 42	PORTAGE VALLEY (4.40 acres "C," 961 acres "D," and 1307 acres "P"; Private and ARR Ownership) (Scores: Hydrology = 58; Habitat = 65; Species Occurrence = 61; Social Function = 27) Values for flood attenuation, habitat, and open space/aesthetics. Extensive wetlands potential in the area based on aerial photo interpretation and hydric soils information. Further investigation is required before the area can be fully mapped, which is the intention of the Turnagain Arm Plan. Consult with ADFG to determine fish presence in non-specified water bodies. Anadromous fish use has been documented by the ADFG at Seward Highway mileposts 75.8, 77, 78, 79 and 80.5; maintain 100-foot setback from anadromous fish streams. "P" wetlands: COE Jurisdictional Determination and wetlands delineation required as wetlands mapping based largely on aerial photo and topographic information. A 25-foot transitional buffer shall be maintained between authorized fill and adjacent intertidal wetlands. All stormwater must be treated on-site before being released to adjacent wetlands. Stream and drainageway setbacks: where anadromous fish are present, 100-foot setback applicable; 85-foot setback for headwater streams, 65-foot setback for other streams located within wetlands; 25-foot setback for drainageways. "D" wetlands: partially intertidal at the mouths of Portage Creek, Twentymile and Placer Rivers. 100-foot setback from streams/rivers required for anadromous fish. Fill should be minimized to the maximum extent possible due to tidal flooding. "C" wetland, SE Seward Hwy at Portage Glacier Road is General Permit eligible: GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required. Visual Screening provisions required. Maintain a 100-foot setback from Portage Creek and other anadromous fish bearing streams.</i>	C/D/P

Site #	Map #	Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, ownership, "Scores" refer to the Anchorage Wetlands Assessment Methodology (reference Chapter 2, II. Resource Inventory, A. Background, for scoring information)	New Designation or Classification
199	29, 30, 34	GIRDWOOD TO PORTAGE PONDS (104.15 acres; Public Ownership) (Not assessed) Ponds, streams and wetlands along inland side of Seward Highway between Virgin Creek and Twentymile River may be tidally influenced. Anadromous fish use has been documented by ADFG at Seward Hwy mileposts 82, 83.4, 84, 85.3, 86.2, 87 and 88. Maintain existing flow paths and accommodate fish passage to the maximum extent possible. Limit development within ponds and streams to that which is necessary to maintain transportation related infrastructure.	D
201	23, 24, 25	GIRDWOOD: TIDEWATER SLOUGH (89.78 acres; Public Ownership) (Scores: Hydrology = 97; Habitat = 106; Species Occurrence = 85; Social Function = 50). Southwestern corner of Girdwood Valley; NW of Toadstool Drive and Seward Highway Portion south of railroad is within intertidal wetlands. North of railroad, wetland provides high fish/wildlife habitat; could be used as a habitat enhancement site. <i>Limited trails, utility development may be possible but shall be limited to existing easements or at fringes. 100-foot setback required to protect anadromous fish resources.</i> "D" wetlands require COE Jurisdictional Determination and wetland delineation.	A/ D
202	25	NORTHEAST SEWARD HIGHWAY AND ALYESKA HWY (24.88 acres; Public Ownership) (Scores: Hydrology = 94; Habitat = 108; Species Occurrence = 42; Social Function = 57). North of Seward Highway to railroad; between Toadstool Drive and Alyeska Highway. Site has tidal influence at highest tides otherwise mostly freshwater; habitat, water quality and open space values. Habitat enhancement possible by developing interconnected ponds. Drainageway in northwest corner shall be delineated and retained; requires a minimum 25-foot setback. "C" wetlands in Northeast section (approximately 3-5 acres) is a transitional wetland; eligible for General Permit . GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required. A 25-foot transitional buffer shall be maintained between "A" wetlands and any fill authorized under the GPs.</i> This site is one of very few potential transportation facility zones within the Girdwood area and the <i>Girdwood Area Plan</i> (1995) further identifies this wetland for Commercial Land Use. <i>Transportation facilities should be located within the NE corner of the "C" wetlands. Encroachment of fill into "A" wetland zone could occur for commercial uses and/or public facilities but drainage and habitat functions shall be avoided and retained or replaced within the same wetland.</i>	A/C
203	25	OLD GIRDWOOD TOWNSITE (1.95 acres; Private Ownership) (Scores: Not Assessed). Values for stormwater and flood attenuation based on position in floodplain. <i>COE Jurisdictional Determination and wetlands delineation required.</i> Wetlands are eligible for the General Permit . GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required.</i>	C

Site #	Map #	Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, ownership, "Scores" refer to the Anchorage Wetlands Assessment Methodology (reference Chapter 2, II. Resource Inventory, A. Background, for scoring information)	New Designation or Classification
204	25	SOUTH OF GOLD AVENUE, WEST OF GLACIER CREEK (2.72 acres; Private Ownership) (Scores: Hydrology = 69; Habitat = 73; Species Occurrence = 28; Social Function = 56). Values for stormwater and flood attenuation, groundwater recharge, habitat and water quality. <i>COE Jurisdictional Determination and delineation required. Tidal influenced channels provide anadromous fish habitat; require setbacks of 100 feet. Potential for drier outer fringes of wetland to be developed. The larger wet, sedge meadow adjacent to the highway shall be preserved to the maximum extent practicable as should wetland and drainage connectivity.</i>	B
205	25, 26, 27	EAST OF GLACIER CREEK: VIRGIN CREEK FLOODPLAIN (220.7 acres; Public Ownership) (Scores: Hydrology = 77; Habitat = 126; Species Occurrence = 82; Social Function = 58). Assessment refers to area between the Alaska Railroad and the Seward Highway. High values for bird and fish habitat; conveys middle and lower Virgin Creek watershed. This side of the valley is the only location for an alternate road and utility access for upper Girdwood Valley which may require placement through wetlands. <i>Fills for railroad/highway improvements and utilities, new or existing, shall avoid wet meadows, channels and floodplain to the maximum extent. COE Jurisdictional Determination and wetlands delineation required.</i>	A
206	25, 26	GLACIER TO VIRGIN CREEK (6.12 acres approx.; Public Ownership) (Scores: Not Assessed). NE of wetland unit #205, within floodplains of Virgin and Glacier Creeks. Due to position within floodplain, <i>site provides flood attenuation and fish habitat values which shall be preserved. COE Jurisdictional Determination and wetlands delineation required.</i>	A
207	25	CALIFORNIA TO GLACIER CREEK: RUANE RD TO RAILROAD (23.15 acres; Public Ownership) (Scores: Not Assessed) 3 sites: "A" wetland is the southernmost, larger wetland within confluence zone of California and Glacier Creeks; importance for floodplain, water quality and fish habitat. Northern two sites are largely developed. <i>COE Jurisdictional Determination and wetland delineation required. Maintain 100-foot setbacks from streams, 25-foot setback from drainageways.</i>	A
208	23, 25	LOWER VALLEY: ALYESKA HIGHWAY (2.6 acres; Private Ownership) (Scores: Hydrology = 73; Habitat = 42; Species Occurrence = 17; Social Function = 43). North side Alyeska Hwy from Jewell Mine Rd to Doran Lane. Values for stormwater attenuation and open space/aesthetics. <i>COE Jurisdictional Determination required. Wetlands are eligible for General Permit. GP Site Restrictions and Design Criteria: Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required.</i>	C
209	22, 23	ALYESKA HIGHWAY TO CALIFORNIA CREEK, aka "SQUIRREL CAGE" (88.71 acres; Public & Private Ownership) (Scores: Hydrology = 110; Habitat = 130; Species Occurrence = 85; Social Function = 56) Located within the floodplain of California Creek; values for flood attenuation and water quality. Provides diverse, high value fish/wildlife habitat functions; breeding area for several significant species. <i>Future development should be concentrated at the fringes where wetland transitions to upland, to the maximum extent. Requires COE Jurisdictional Determination and delineation for waterways. Setbacks from streams are 100 feet to protect anadromous fish.</i>	A

Site #	Map #	Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, ownership, "Scores" refer to the Anchorage Wetlands Assessment Methodology (reference Chapter 2, II. Resource Inventory, A. Background, for scoring information)	New Designation or Classification
210	23	<p><u>NORTHWEST OF ALYESKA HIGHWAY AT JUNIPER DRIVE</u> (1.11 acres; Public Ownership) (Scores: Not Assessed)</p> <p>COE Jurisdictional Determination and wetland delineation required. Site is eligible for the General Permit. GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required. Under the GP, compensatory mitigation shall be based on field determination of Relative Ecological Value (REV).</i></p>	C
211	22	<p><u>SOUTHWEST ALYESKA SUBDIVISION</u> (21.2 acres approx.; Public Ownership) (Scores: Not Assessed). Values for habitat, stormwater and flood attenuation and water quality. <i>Higher value wet meadows and the interface zone between wet meadows and forest edges should be avoided. The Girdwood Area Plan (1995) and the Girdwood Commercial Areas Transportation Master Plan (2001) identified a future right-of-way, which could be located in less valuable wetland fringes, along with minor park and trail amenities. Located in only suitable area for transportation and recreation corridors. Requires COE Jurisdictional Determination and delineation for waterways. Drainageway setbacks are 25 feet.</i></p>	A
212	21, 22	<p><u>ALYESKA SUBDIVISION: WEST OF BARREN AVE</u> (2.13 acres; Public Ownership—"A" wetlands; Private Ownership—"C" wetlands) (Scores: Hydrology = 112; Habitat = 96; Species Occurrence = 60; Social Function = 47). Assessed together with unit #213.</p> <p>Values for watershed recharge, flood attenuation and habitat. "A" wetlands are primarily Municipal lands. The <i>Girdwood Commercial Areas Transportation Master Plan (2001)</i> identifies collector road on western portions of wetland. <i>Any development should avoid floodplains, waterways and wet meadows. Further wetland and waterbody delineation required.</i></p> <p>"C" wetlands: eligible for the General Permit. GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required. A 100-foot setback from Glacier Creek and the tributary (west of Barren Ave.), shall be maintained to protect anadromous fish resources. Cross-drainage shall be maintained. Fill shall be limited to the minimum necessary for utilities, pads for a house and accessory structure, and single-lane access driveway. Fill for a yard is not authorized in this unit under the GP. Maintain a 25-foot transitional buffer between fill authorized under the GP and "A" wetlands. Under the GP, compensatory mitigation within GP eligible sites shall be based on field determination of Relative Ecological Value (REV).</i></p>	A/C

Site #	Map #	Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, ownership, "Scores" refer to the Anchorage Wetlands Assessment Methodology (reference Chapter 2, II. Resource Inventory, A. Background, for scoring information)	New Designation or Classification
213	21,22	<p>ALYESKA SUBDIVISION (38.48 acres; Public Ownership—"A" wetlands; Private Ownership—"C" wetlands) (Scores: Hydrology = 112; Habitat = 96; Species Occurrence = 60; Social Function = 47). Assessed together with unit #212. Values for watershed recharge, flood attenuation and habitat. Site #213 is the largest and one of a few areas of private land suitable for residential expansion in the Girdwood Valley.</p> <p>"A" wetlands: HLB property; retain the wet meadow and stream headwaters area in tract B1, Alpine View Estates, which is not eligible for the General Permit. <i>Tract contains a headwaters stream, which is a Glacier Creek tributary; per ADFG, beaver dams may preclude most anadromous fish use however, Dolly Varden are present and rearing salmon possible.</i></p> <p>The area within Tract B-1 requires a wetland delineation to determine the wetland boundary and a Corps jurisdictional determination. This area of Alyeska Basin was identified in the Girdwood Area Plan as in need of a neighborhood park. Given the relative deficiency of available land for a neighborhood park, Tract B-1 is designated "B" to reflect this public need. Portions of the wetland adjacent to the stream channel and headwater ponds shall be retained, but the wetland fringes and mapped uplands could potentially provide an area for neighborhood park uses. Lots located within Alpine View Estates Phases 1 and 2 were previously permitted by the Corps; these lots remain fully developable under the terms of that permit (POA-2002-1031). Updated mapping of the channel may be required to verify the channel location and subsequent setbacks relative to any proposed development.</p> <p>"C" wetlands are eligible for the General Permit. GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required. Maintain an 85-foot setback from the Glacier Creek tributary, unless survey proves anadromous fish use, then a 100-foot setback is warranted. Maintain a 65-foot setback from other non-anadromous streams and 25-foot setback from drainageways. Maintain a 25-foot transitional buffer between fill authorized under the GP and "A" wetlands. Under the GP, compensatory mitigation shall be based on field determination of Relative Ecological Value (REV).</i></p> <p>"D" wetlands require COE Jurisdictional Determination, wetland delineation and WMS survey for waterways.</p>	A/B/C/D
214	21	<p>CORTINA DRIVE (1.14 acres; Private Ownership) (Scores: Hydrology = 84; Habitat = 61; Species Occurrence = 26; Social Function = 42). Values for stormwater, flood attenuation. <i>COE Jurisdictional Determination and wetland delineation of waterways required.</i></p> <p>Site is eligible for the General Permit. GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required. Maintain 25-foot setback from drainageways.</i></p>	C

Site #	Map #	Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, ownership, "Scores" refer to the Anchorage Wetlands Assessment Methodology (reference Chapter 2, II. Resource Inventory, A. Background, for scoring information)	New Designation or Classification
215 and 216	18,22	NW CROW CREEK ROAD AT ALYESKA HWY (42.86 acres; Public & Private Ownership) (Scores: Hydrology = 98; Habitat = 73; Species Occurrence = 32; Social Function = 59). Provides hydrology values of flood attenuation and recharge to California Creek, water quality and open space/aesthetics functions. <i>These main functions shall be retained by avoiding wet meadows and channels. Requires COE Jurisdictional Determination and delineation of waterways. Maintain a 100-foot setback from California Creek; 85-foot setback from headwater streams, 25-foot setback from drainageways.</i>	B
217	16,17	CROW CREEK ROAD: WEST (5.32 acres; Public Ownership) (Scores: Hydrology = 81; Habitat = 85; Species Occurrence = 61; Social Function = 42). Importance for flood attenuation, groundwater recharge, water quality, habitat and open space/aesthetics. <i>"B" wetlands west of road shall be retained to the maximum extent possible. Maintain 65-foot setback for streams and 25-foot setback for drainageways. Avoid wet meadows and waterways. COE Jurisdictional Determination, wetland delineation and survey for waterways is required.</i>	B
217,217 A	17,18, 19	CROW CREEK ROAD—EAST (23.19 acres; Public Ownership) (Scores: Hydrology = 68; Habitat = 76; Species Occurrence = 50; Social Function = 44). Includes previously unmapped sites (D) within proposed Holton Hills Subdivision east of Crow Creek Road. COE Jurisdictional Determination and delineation including waterways required. Tiny Creek requires minimum 65-foot setback unless anadromous fish use evident, then 100-foot setback is appropriate. <i>"A" wetlands east of road shall be maintained to the maximum extent possible.</i> Lies within floodplain and retention area.	A/D
218	19	MOOSE MEADOWS (183.16 acres; Public Ownership) (Scores: Hydrology = 111; Habitat = 105; Species Occurrence = 67; Social Function = 64) Unique habitat type within Municipality: patterned ground fen with stream channels. Provides recharge and flood control for several tributaries of Glacier and Alyeska Creek. Edge between forest and wet meadows are of hydrologic importance. <i>Maintain hydrologic interface and core wetland sedge meadows.</i> Overall values for flood attenuation and groundwater recharge, water quality, habitat and open space/aesthetics. Winter recreation level of use is high; non-motorized sports appropriate. <i>COE Jurisdictional Determination, wetland delineation and survey for waterways required.</i> Site along Aspen Mountain Road designated "C"; site is eligible for the General Permit . GP Site Restrictions and Design Criteria: <i>Construction timing window; Identify surface water features; BMPs for local flooding and stormwater controls required. Provides buffer to Alyeska Creek which shall be maintained with an 85-foot setback. Under the GP, compensatory mitigation shall be based on field determination of Relative Ecological Value (REV).</i> "D" and "P" sites located east of and upslope of Arlberg Road. Require COE Jurisdictional Determination and wetlands delineation required. Larger site adjacent to Chair 7, Alyeska Resort, is headwaters to a stream; maintain an 85-foot setback.	A/C/D/P

Site #	Map #	Management Strategies, Enforceable and Administrative Policies: Includes for each wetland a Site Description, Acreage of wetland unit, ownership, "Scores" refer to the Anchorage Wetlands Assessment Methodology (reference Chapter 2, II. Resource Inventory, A. Background, for scoring information)	New Designation or Classification
219	13,14, 15,16	<p><u>UPPER GLACIER CREEK AND WINNER CREEK VALLEYS</u> (47.98 acres approx.; Public Ownership) (Scores: Not Assessed).</p> <p><i>Requires COE Jurisdictional Determination and delineation of wetlands and waterways.</i> Includes wetlands in Glacier valley floodplain and on plateau in the Winner Creek Valley. Contains numerous ponds and tributaries. Important for flood control in lower valley and for fish and wildlife habitat. <i>Development should avoid wet meadows and channels to maximum extent. An 85-foot setback shall be maintained from streams, 25-foot setback from drainageways, and waterbodies. Upper Winner Creek Valley sites are mostly riparian and in the floodplain and shall be preserved to the maximum extent.</i></p>	B

This page intentionally left blank.

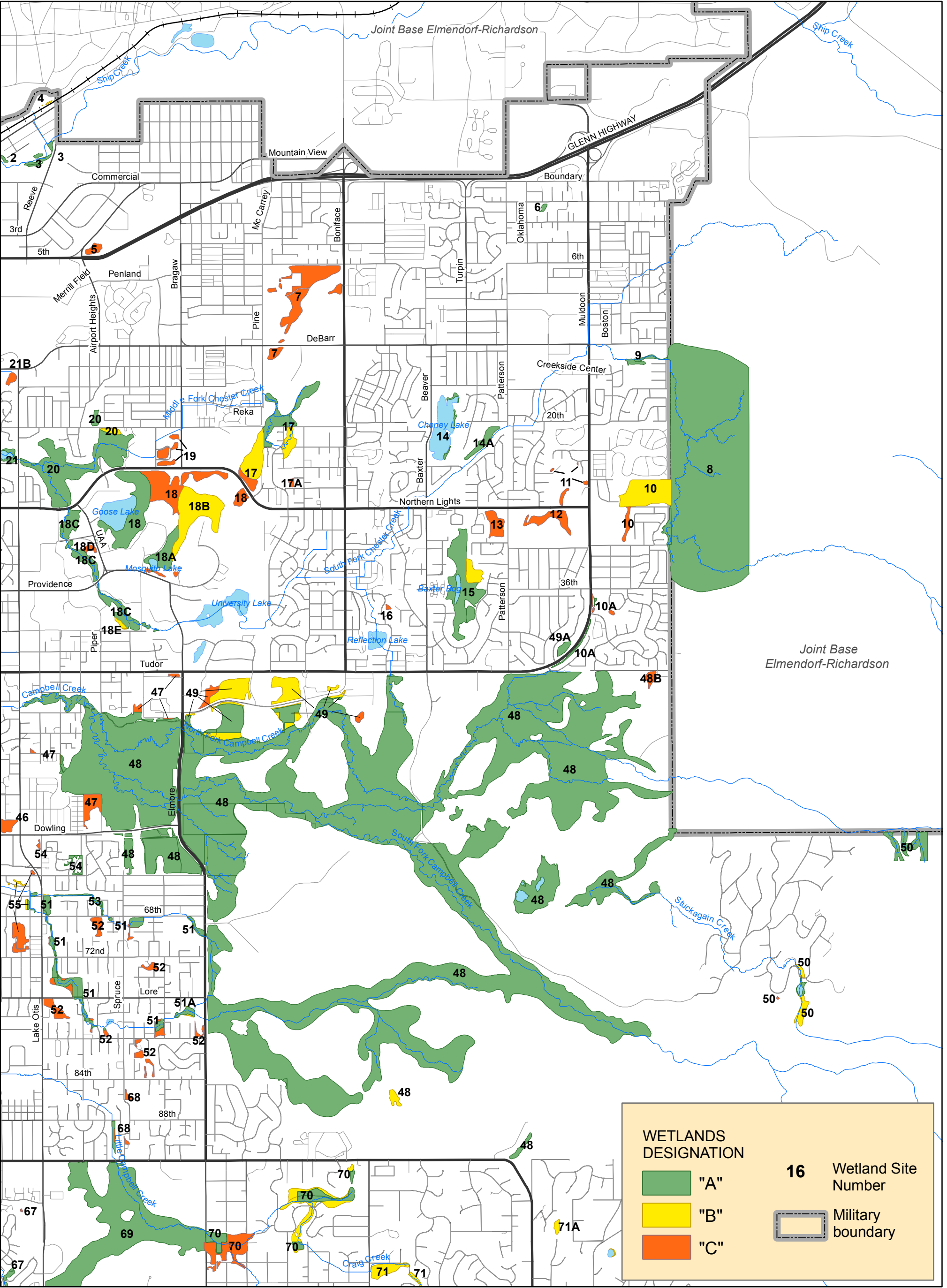


Figure 2

Wetland Designations

Anchorage Bowl - Northeast

Note that wetland maps produced by the Municipality are not all inclusive. Wetland boundaries depicted on municipally produced maps are approximate. It is not possible to map all wetlands especially on private property without the ability to ground-truth suspected features. To obtain the most accurate information, it is incumbent on individual landowners to request a Jurisdictional Determination and/or wetland delineation from the Corps of Engineers or hire a professional wetland scientist to make a determination for submission to the Corps. MOA Long-Range Planning staff are responsible for maintaining wetland maps and datasets to service the Municipality of Anchorage. For the most accurate, up-to-date wetlands mapping information, contact the Municipal Long-Range Planning Section staff at (907)343-7921. Stream data is approximate and shown as informational only. Inquiries regarding stream locations should be made to MOA-Watershed Management Section at (907)343-8135.

Revised June 3, 2013

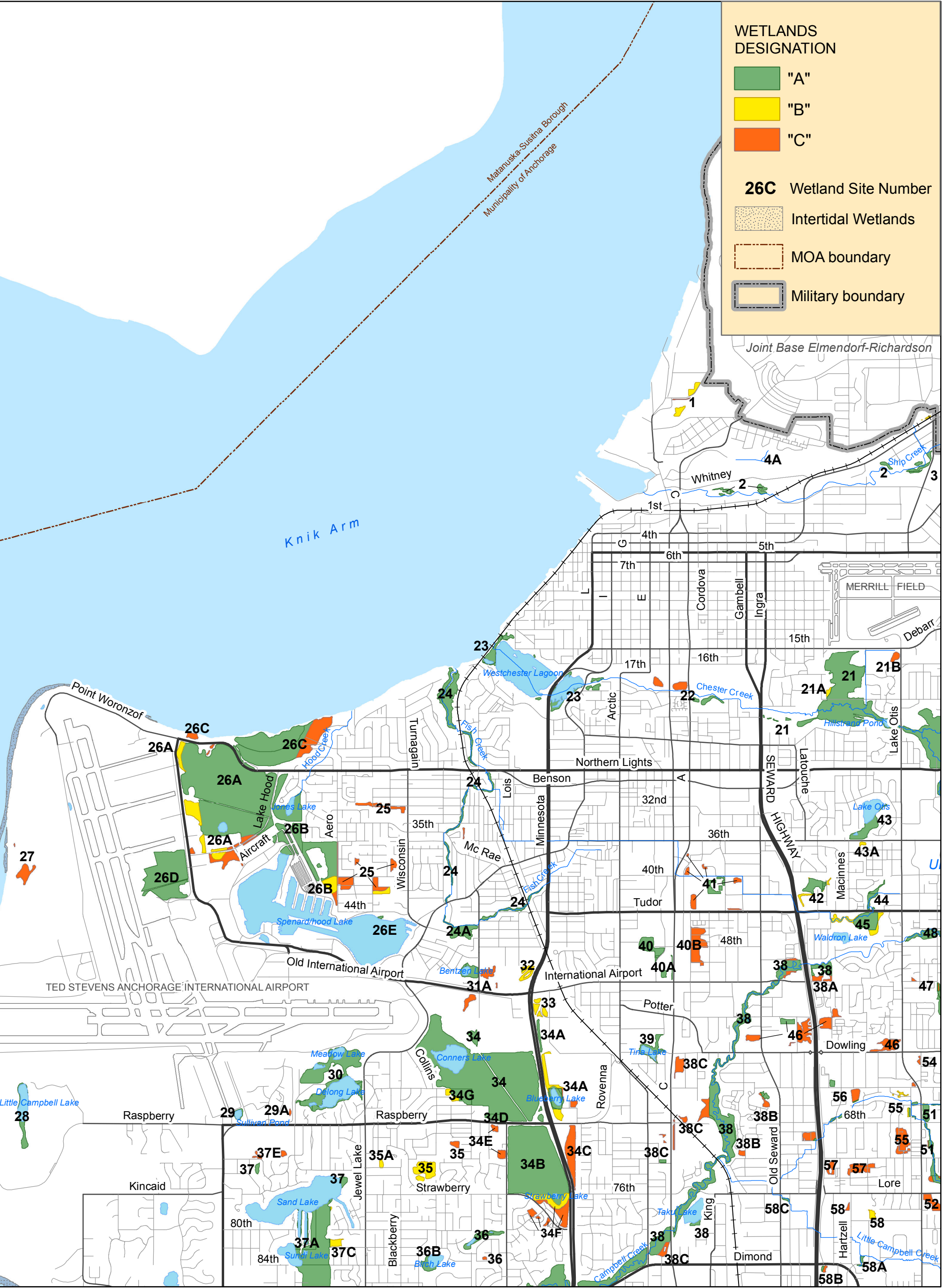


Figure 3

Wetland Designations

Anchorage Bowl - Northwest

Note that wetland maps produced by the Municipality are not all inclusive. Wetland boundaries depicted on municipally produced maps are approximate. It is not possible to map all wetlands especially on private property without the ability to ground-truth suspected features. To obtain the most accurate information, it is incumbent on individual landowners to request a Jurisdictional Determination and/or wetland delineation from the Corps of Engineers or hire a professional wetland scientist to make a determination for submission to the Corps. MOA Long-Range Planning staff are responsible for maintaining wetland maps and datasets to service the Municipality of Anchorage. For the most accurate, up-to-date wetlands mapping information, contact the Municipal Long-Range Planning Section staff at (907)343-7921. Stream data is approximate and shown as informational only. Inquiries regarding stream locations should be made to MOA-Watershed Management Section at (907)343-8135.

Revised June 3, 2013

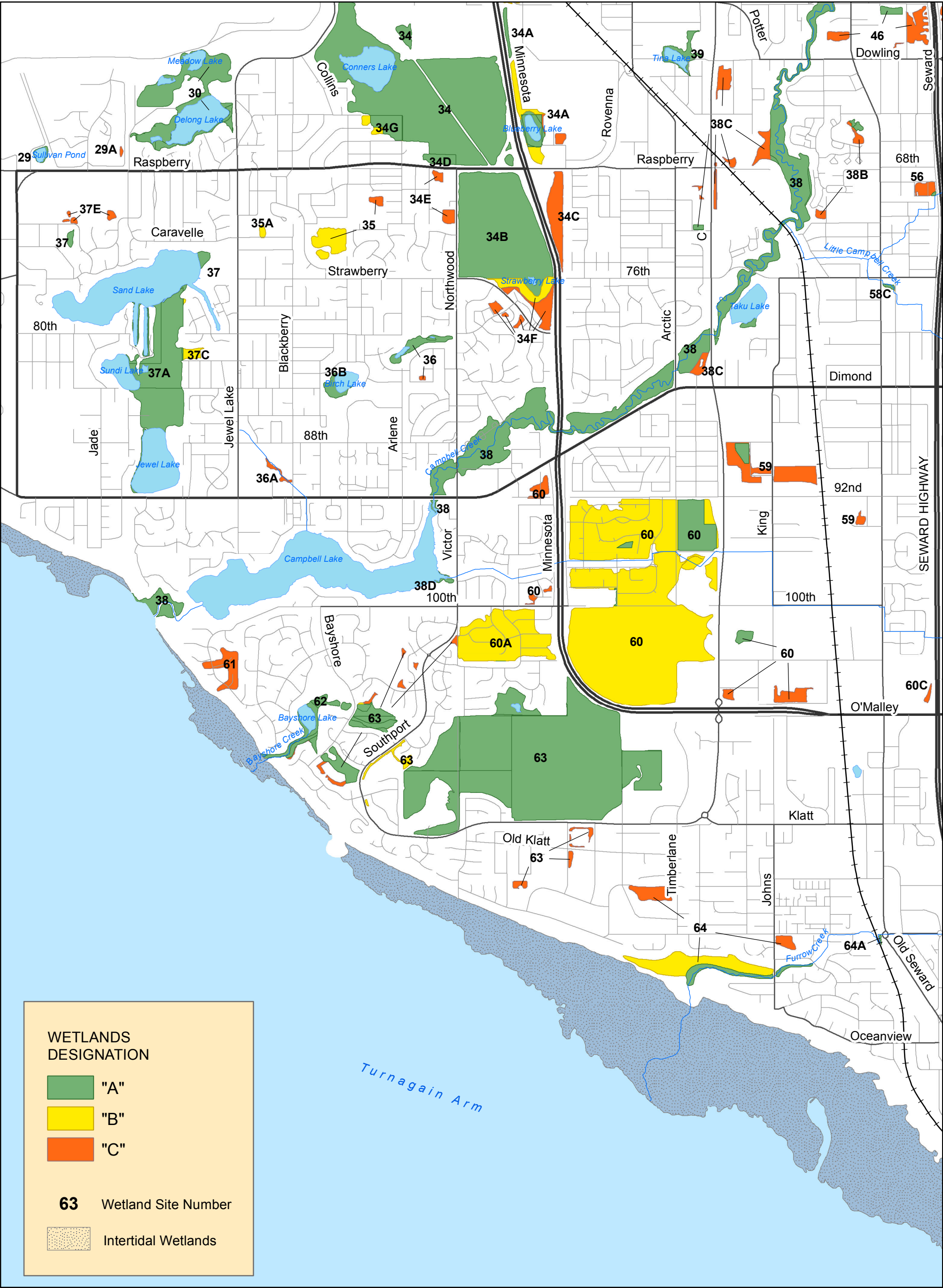


Figure 4

Wetland Designations

Anchorage Bowl - Southwest

Note that wetland maps produced by the Municipality are not all inclusive. Wetland boundaries depicted on municipally produced maps are approximate. It is not possible to map all wetlands especially on private property without the ability to ground-truth suspected features. To obtain the most accurate information, it is incumbent on individual landowners to request a Jurisdictional Determination and/or wetland delineation from the Corps of Engineers or hire a professional wetland scientist to make a determination for submission to the Corps. MOA Long-Range Planning staff are responsible for maintaining wetland maps and datasets to service the Municipality of Anchorage. For the most accurate, up-to-date wetlands mapping information, contact the Municipal Long-Range Planning Section staff at (907)343-7921. Stream data is approximate and shown as informational only. Inquiries regarding stream locations should be made to MOA-Watershed Management Section at (907)343-8135.

Revised June 3, 2013

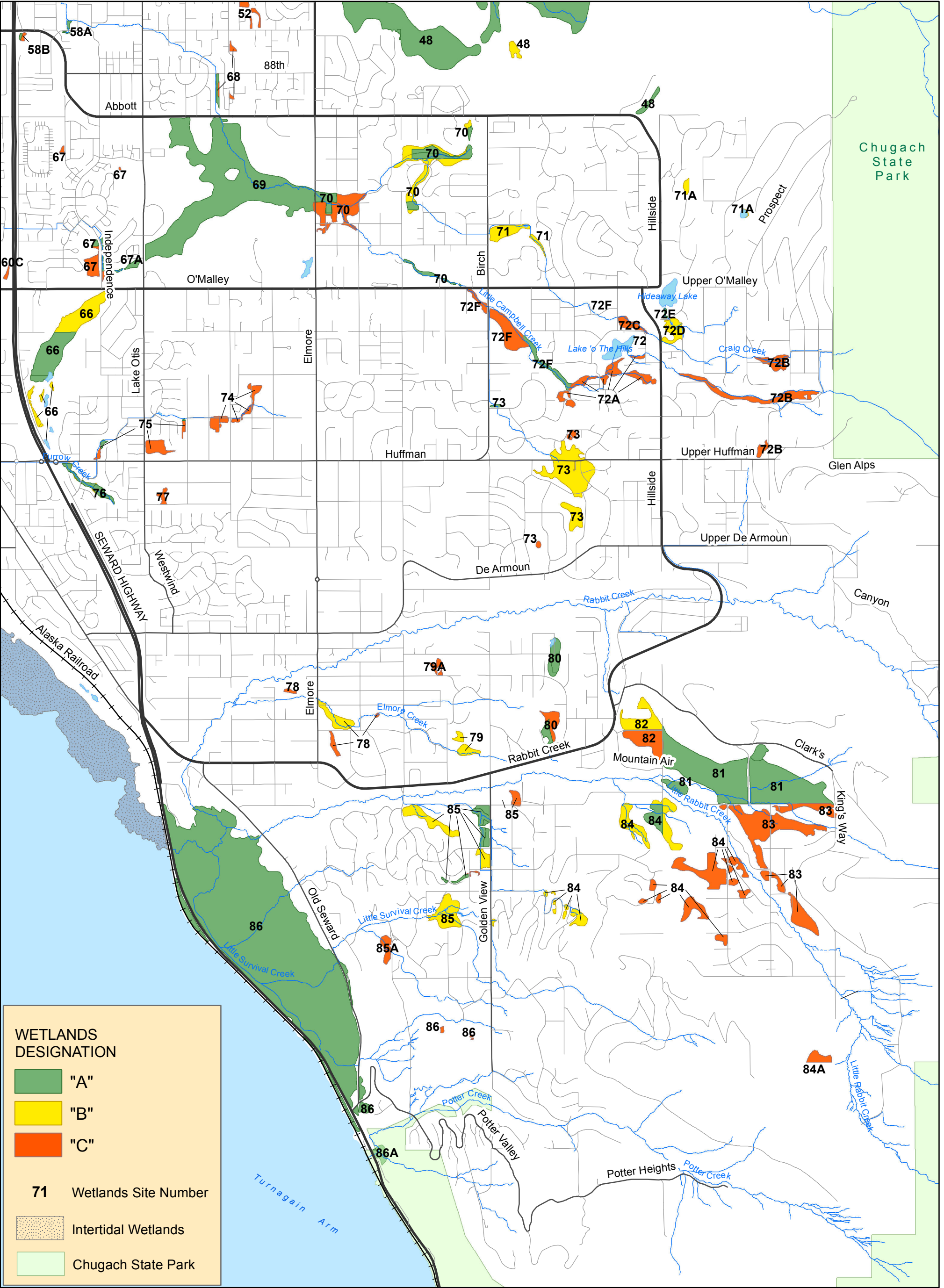


Figure 5

Wetland Designations

Anchorage Bowl - Southeast

Note that wetland maps produced by the Municipality are not all inclusive. Wetland boundaries depicted on municipally produced maps are approximate. It is not possible to map all wetlands especially on private property without the ability to ground-truth suspected features. To obtain the most accurate information, it is incumbent on individual landowners to request a Jurisdictional Determination and/or wetland delineation from the Corps of Engineers or hire a professional wetland scientist to make a determination for submission to the Corps. MOA Long-Range Planning staff are responsible for maintaining wetland maps and datasets to service the Municipality of Anchorage. For the most accurate, up-to-date wetlands mapping information, contact the Municipal Long-Range Planning Section staff at (907)343-7921. Stream data is approximate and shown as informational only. Inquiries regarding stream locations should be made to MOA-Watershed Management Section at (907)343-8135.

Revised June 3, 2013

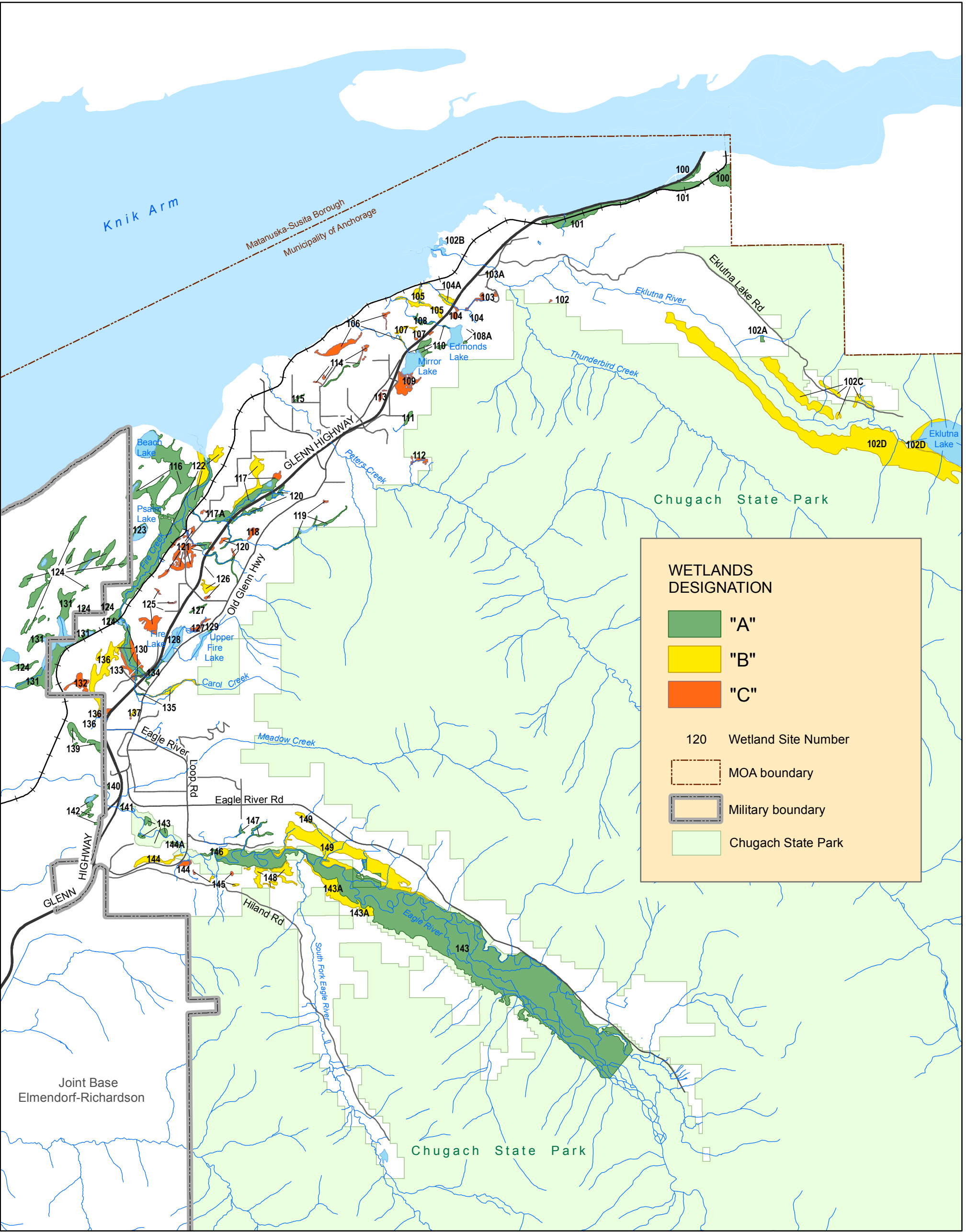
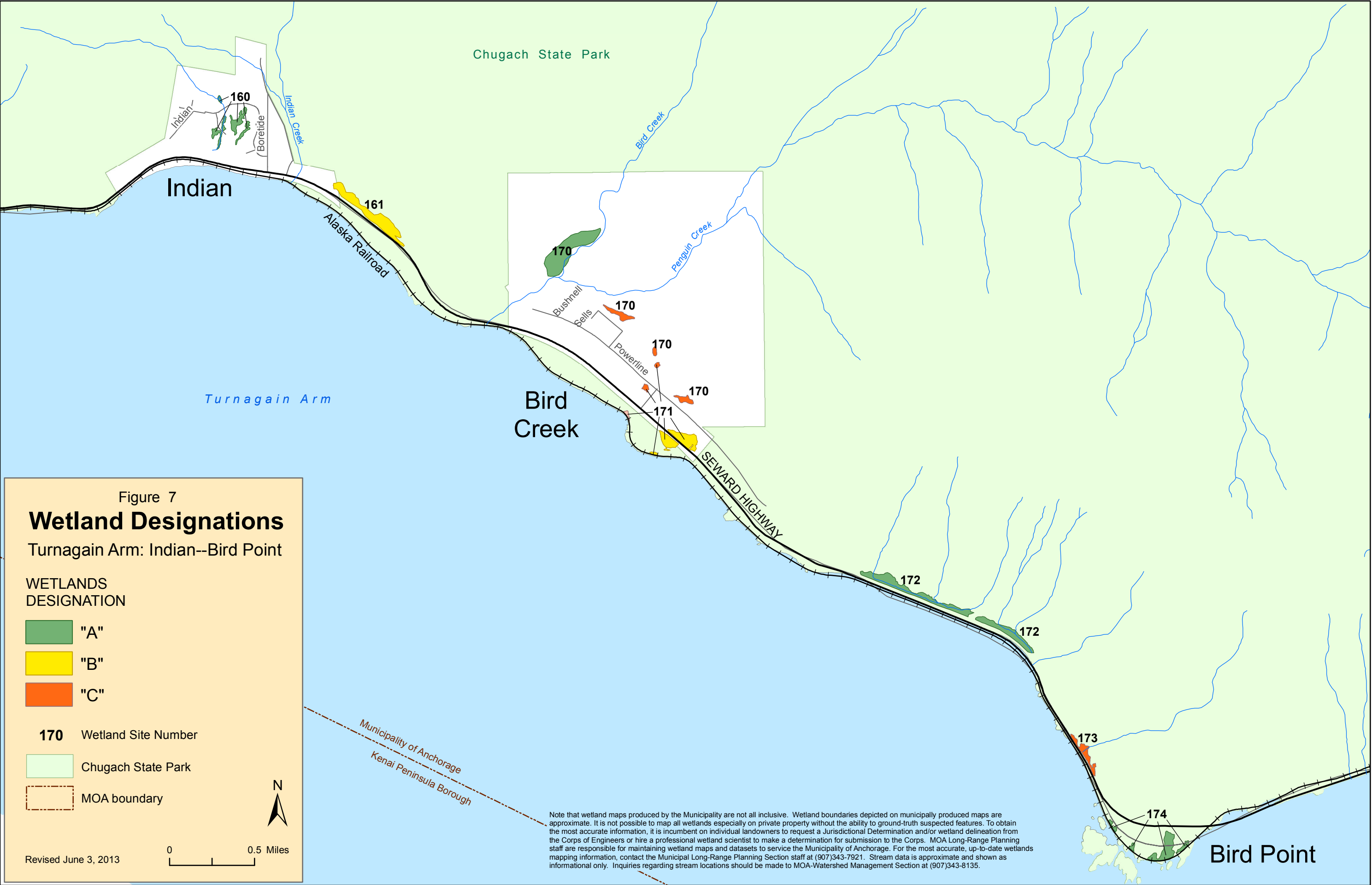


Figure 6

Wetland Designations Eagle River to Eklutna

Note that wetland maps produced by the Municipality are not all inclusive. Wetland boundaries depicted on municipally produced maps are approximate. It is not possible to map all wetlands especially on private property without the ability to ground-truth suspected features. To obtain the most accurate information, it is incumbent on individual landowners to request a Jurisdictional Determination and/or wetland delineation from the Corps of Engineers or hire a professional wetland scientist to make a determination for submission to the Corps. MOA Long-Range Planning staff are responsible for maintaining wetland maps and datasets to service the Municipality of Anchorage. For the most accurate, up-to-date wetlands mapping information, contact the Municipal Long-Range Planning Section staff at (907)343-7921. Stream data is approximate and shown as informational only. Inquiries regarding stream locations should be made to MOA-Watershed Management Section at (907)343-8135.

Revised June 3, 2013



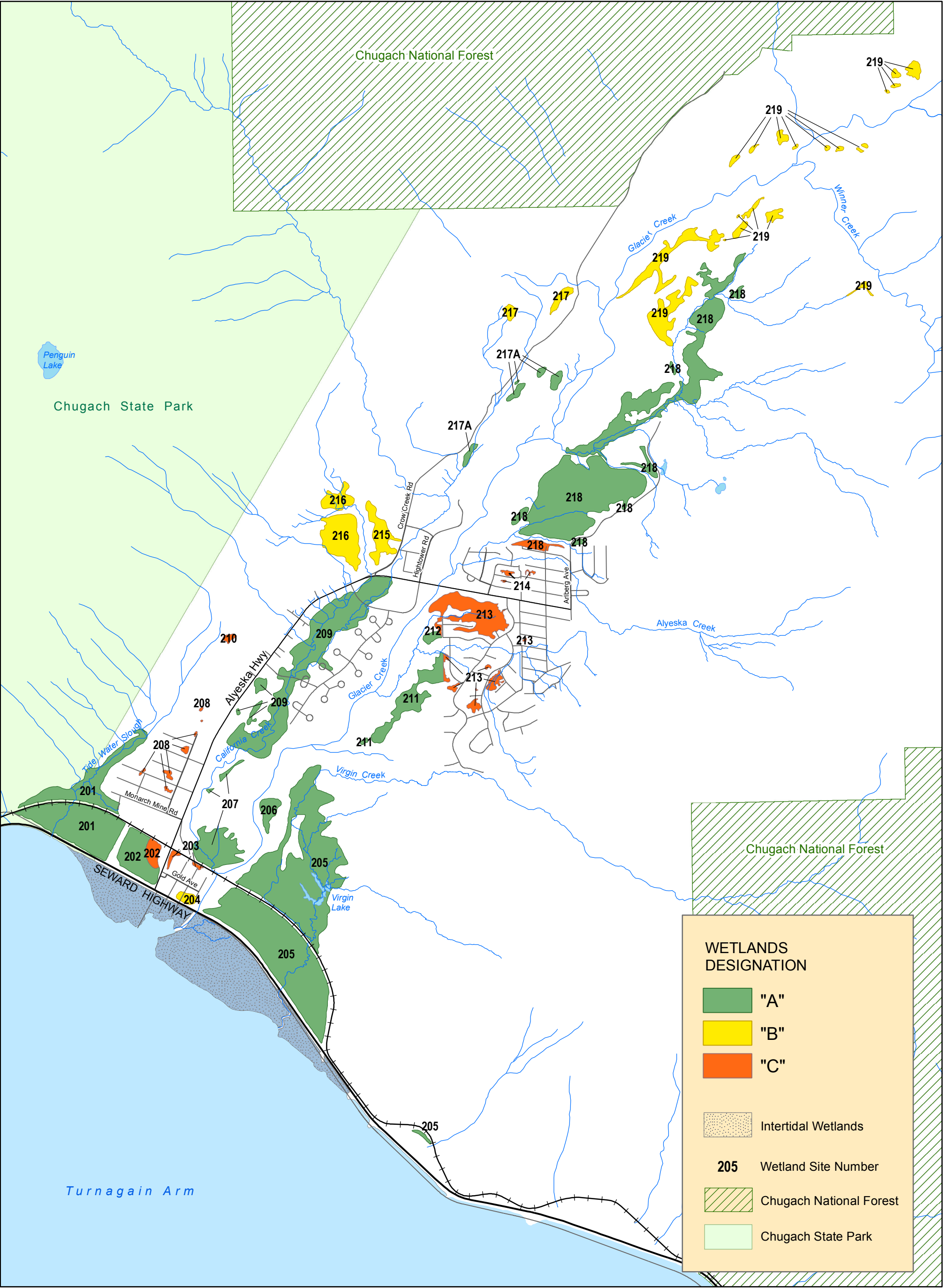


Figure 8

Wetland Designations

Turnagain Arm: Girdwood

Note that wetland maps produced by the Municipality are not all inclusive. Wetland boundaries depicted on municipally produced maps are approximate. It is not possible to map all wetlands especially on private property without the ability to ground-truth suspected features. To obtain the most accurate information, it is incumbent on individual landowners to request a Jurisdictional Determination and/or wetland delineation from the Corps of Engineers or hire a professional wetland scientist to make a determination for submission to the Corps. MOA Long-Range Planning staff are responsible for maintaining wetland maps and datasets to service the Municipality of Anchorage. For the most accurate, up-to-date wetlands mapping information, contact the Municipal Long-Range Planning Section staff at (907)343-7921. Stream data is approximate and shown as informational only. Inquiries regarding stream locations should be made to MOA-Watershed Management Section at (907)343-8135.

Revised June 3, 2013

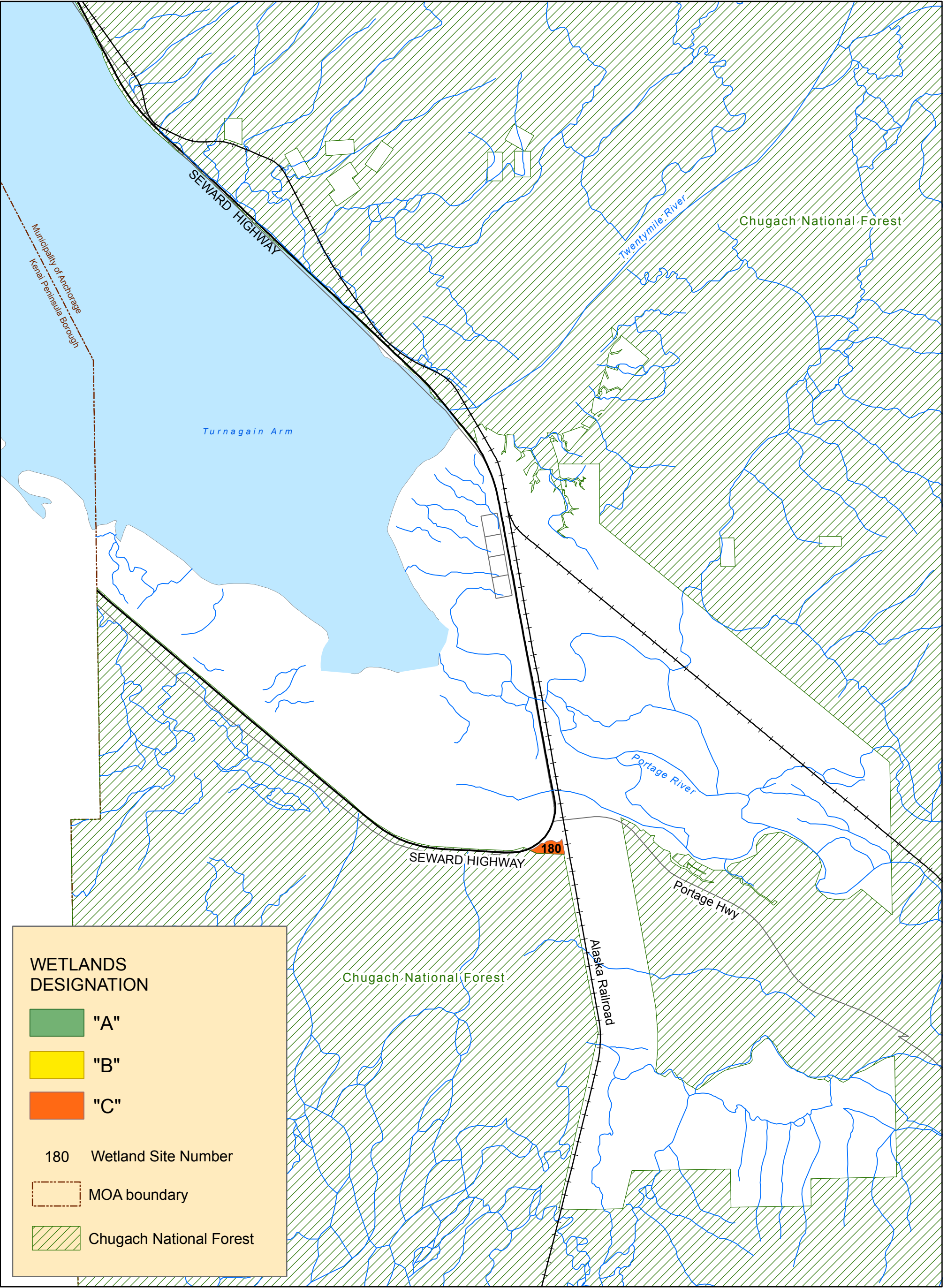


Figure 9

Wetland Designations

Turnagain Arm: Portage

Note that wetland maps produced by the Municipality are not all inclusive. Wetland boundaries depicted on municipally produced maps are approximate. It is not possible to map all wetlands especially on private property without the ability to ground-truth suspected features. To obtain the most accurate information, it is incumbent on individual landowners to request a Jurisdictional Determination and/or wetland delineation from the Corps of Engineers or hire a professional wetland scientist to make a determination for submission to the Corps. MOA Long-Range Planning staff are responsible for maintaining wetland maps and datasets to service the Municipality of Anchorage. For the most accurate, up-to-date wetlands mapping information, contact the Municipal Long-Range Planning Section staff at (907)343-7921. Stream data is approximate and shown as informational only. Inquiries regarding stream locations should be made to MOA-Watershed Management Section at (907)343-8135.

Revised June 3, 2013



CHAPTER 5: IMPLEMENTATION

This chapter provides information for the public, land owners, developers, and state and federal permitting agencies about the methods and authorities to be used to implement the Anchorage Wetlands Management Plan.

Various mechanisms and authorities can be used to implement a wetlands management plan, including land and water resources use plans, municipal ordinances and resolutions (including zoning and subdivision ordinances and building codes); capital improvement programs; the purchase, sale, lease or exchange of land and water resources; cooperative agreements; memoranda of understanding; state and federal statutes and regulations; and coordinated project or permit review procedures.

I. PLAN IMPLEMENTATION RESPONSIBILITY

Fulfillment of wetlands program objectives and local implementation/enforcement of coastal management policies is the responsibility of the Municipality of Anchorage's Community Development Department. Implementation of the Municipality of Anchorage's Wetlands Management Plan is carried out by the Long-Range Planning Division of the Community Development Department. The Wetlands Coordinator can be reached at the following address:

Wetlands Coordinator
Long-Range Planning Section, Planning Division
Community Development Department
Municipality of Anchorage
P.O. Box 196650
Anchorage, AK 99519-6650
Phone: 343-7921
FAX: 343-7927

The Wetlands Coordinator performs several key functions to ensure that communication, information transfer, and project reviews are handled properly. The Wetlands Coordinator will function under the direction of the Community Development Department Director in representing local interests in coastal and wetlands affairs. The Wetlands Coordinator will:

1. Act as a point of contact for information on the wetlands management program;
2. Provide staff support and guidance for development activities, and convey comments to state and federal permitting agencies, the Planning and Zoning Commission, Anchorage Assembly, and municipal departments as needed;
3. Circulate informational and/or project review materials among municipal staff, as appropriate;
4. Provide guidance in the application of program policies to municipal staff during local reviews;
5. Decide which projects are routine, and which projects have great significance to wetlands, watercourses and/or waterbodies and should be reviewed and discussed with other departments and Commissions; routine approvals would be processed by the Wetlands Coordinator;

6. Determine if the information received from a state or federal permitting agency is adequate to provide comments; if not, the coordinator would submit a timely request for more information;
7. Evaluate the proposed project to identify potential impacts and appropriate conditions or project modifications based on the wetlands management plan policies;
8. Prepare and submit to the state or federal permitting agency the department's recommendation in a timely manner, and participate in any subsequent discussions and elevations, as appropriate;
9. Manage the Municipality's Five General Permits for Wetland Fills under the auspices of the Corps of Engineers; and
10. Provide coordination between federal and state agencies with municipal departments to resolve violations and permit non-compliance when appropriate.

II. LOCAL IMPLEMENTATION

A. Institutional Responsibilities

Municipal implementation of the Anchorage Wetlands Management Plan shall take place through the Management Strategies and Enforceable Policies identified throughout Chapter 4; the implementation direction provided in this chapter; and, where not in conflict with this plan, the implementation provisions of any future plan associated with the Anchorage Coastal Management Program, should that program be re-instated. Future municipal district or comprehensive plan revisions may recommend policy or wetland designations relevant to this plan.

For wetland development activities, that require local approvals and may not require state and federal permits, the Municipality of Anchorage will use its authority under Alaska State Statutes, Title 29 to implement and enforce this program at the local level. The Municipality of Anchorage intends to continue to implement the Anchorage Wetlands Management Plan at the local level as follows:

- Prior to issuing a conditional permit, variance, plat approval, or General Permit, projects will be subject to a local consistency review that evaluates a proposed project against the enforceable policies within the Anchorage Wetlands Management Plan.
- The latest comprehensive plans will be reviewed and revised, as appropriate, to be compatible with the wetlands management program.
- Zoning and/or subdivision ordinances will be revised as necessary, to incorporate enforceable policies and other measures outlined in the plan.

The original Anchorage Wetlands Management Plan adopting ordinance (Administrative Order #82-33S) both incorporated the plan into municipal code and affected additional changes to various other municipal ordinances as appropriate. The ordinance presented to the Assembly for the updated AWMP final adoption contains appropriate changes to the municipal code in order to incorporate new policies and maintain consistency between the AWMP and revised Anchorage Municipal Code, Title 21. **Table 5** outlines municipal department responsibilities related to implementation of the Anchorage Wetlands Management Plan.

Table 5
INSTITUTIONAL RESPONSIBILITIES
ANCHORAGE WETLANDS MANAGEMENT PLAN IMPLEMENTATION

Implementation Action:	Primary Responsibility	Secondary Responsibility
<u>Programming</u> Land Use Marginal Lands	Community Development Department	Long-Range Planning Section
<u>Phasing Strategies</u> Phasing Strategies Access to Facilities	Community Development Department	Long-Range Planning, Current Planning Sections Anchorage Water & Wastewater Utility, CEA and other utility companies, Public Works Department
<u>Implementation</u> Traditional Zoning Innovative Zoning Conservation Subdivision Planned Unit Development Watershed District Zoning	Community Development Department	Long-Range Planning, Current Planning Sections Public Works Department/ Watershed Management Section
<u>Acquisition</u> Fee Simple Less than Fee Simple Land Trade/Land Banking	Real Estate Department	Heritage Land Bank
<u>Municipal Lands</u> Use Designation	Community Development Department	Long-Range Planning Section
<u>Institutional</u> Federal Local Water Quality Management Subdivision Regulation Site Plan Review Criteria General Permits	U.S. Army Corps of Engineers Community Development Department	Watershed Management Section Private Development Section Current Planning Section Long-Range Planning Section

The current Anchorage Wetlands Management Plan 2012 update has been built around existing ordinances, programs, and other land use plans, all of which are administered by the Municipality of Anchorage.

- **Community Development Department**

Implementation of the Anchorage Wetlands Management Plan shall be the responsibility of the Municipality of Anchorage's Community Development Department. Most management strategies and enforceable policies deal with land use regulations which are administered by this Department. The Department shall be responsible for various reviews conducted, the General Permits and other permits issued under local, state, and federal environmental and land use decision-making processes. The Department shall be responsible for development of additional techniques necessary to implement the Anchorage Wetlands Management Plan. The Department shall also be responsible for plan maintenance and future revisions.

- **Real Estate Services Department-Heritage Land Bank and the Parks and Recreation Department**

These Departments shall be responsible for those activities involving acquisition and future management of acquired wetlands. Guidance as to the areas to be acquired under fee simple or other methods shall occur through the development of the Municipality of Anchorage's capital improvement program, Heritage Land Bank work program, and/or with the guidance of federal agencies permitting actions. Recommendations and priorities of wetland sites for future acquisition will be dependent on funding and priorities will be forwarded by the Community Development Department through the Anchorage Bowl, Turnagain Arm and Chugiak-Eagle River comprehensive plans, and other means as appropriate. Management of wetlands acquisitions would be primarily under the direction of Heritage Land Bank, using a wetlands mitigation bank or preserving lands with Conservation Easements.

- **Public Works Department.** The Public Works Department is the lead municipal agency responsible for review of any and all drainage plans and water quality issues related to wetland permits, rezoning actions and plats, and subdivision reviews. The Project Management and Engineering Division which includes the Watershed Management Section (WMS) will be consulted regarding the location and classification of watercourses and water bodies within the Municipality. MOA-WMS will provide essential support in the review of General Permits and other Corps permits under public notice. The Project Management and Engineering Division will be a working partner with the Community Development Department in guiding projects within the parameters of the wetlands plan and applicable municipal codes and regulations.

Municipal departments may respond to and work with state and federal permit application requests for comments on their own accord, but generally comments will be coordinated by the Community Development Department and are included in final municipal response letters.

B. GENERAL PERMIT IMPLEMENTATION

The Corps of Engineers issues the five Anchorage Regional General Permits and allows the Municipality of Anchorage's Community Development Department to administer them. Every five years, the Corps of Engineers revises and renews the Anchorage Regional General Permits which were most recently reauthorized in April of 2010. Under direction by the Corps of Engineers, the General Permits allow the Municipality to issue an *opinion of compliance* or request the Corps' *verification* for activities within certain "C" wetlands. The General Permits are issued under five categories of development: residential, roads, commercial/institutional, industrial or wetland restoration/enhancement.

Once a project is designed, an applicant must first consult with the Municipality of Anchorage's Community Development Department and, or the Corps of Engineers to determine if the General Permit may be applied to the "C" wetland in the project area. Each project must meet the enforceable policies contained in Chapter 4 of the Anchorage Wetland Management Plan for each wetland unit and conditions outlined in the Corps of Engineers' General Permits. Appropriate drainage plans and other Best Management Practices, as necessary, shall be reviewed and approved by the Community Development Department in consultation with the Municipality's Watershed Management Section and other municipal departments as applicable. If the project is limited in wetland impacts and less than 16,500 square feet in size, the Municipality may issue an *opinion of compliance*. If the impacts involve greater than 16,500 square feet, the Municipality sends the application to the Corps of Engineers for issuance. The Municipality solicits resource agency input and determines if the project complies with the terms and conditions of the General Permits. The Corps of Engineers may impose additional special conditions as appropriate, and provides the information to the Municipality to complete processing. Compensatory mitigation is required in the form of an in-lieu-fee of mitigation, which is updated every year. Further information including the General Permit application, fees and Corps of Engineers guidelines and conditions may be obtained through the Municipality's wetlands coordinator, Community Development Department; or at the department's website under the Long-Range Planning Section:

<http://www.muni.org/Departments/OCPD/Planning/Physical/EnvPlanning/Pages/WetlandPermit.aspx>

III. APPEALS

A. MUNICIPAL-LEVEL APPEAL

An applicant for a local General Permit approval can appeal a municipal decision. The Corps of Engineers would review General Permit appeals and respond accordingly.

B. FEDERAL-LEVEL APPEAL

For Individual and Nationwide Permits, appeals to Corps of Engineers Permit decisions are processed directly through the Corps of Engineers office. The Municipality of Anchorage's Community Development Department, through the Wetlands Coordinator is available to assist with information relative to municipal procedure and policy.

IV. MONITORING AND ENFORCEMENT

The Municipality of Anchorage's Community Development Department continues to monitor and enforce General Permit conditions and other projects in wetlands, watercourses and water bodies. Potential wetland violations are reported to the Corps of Engineers for resolution. Municipal enforcement is implemented for municipal standards and regulations via the Municipality's Land Use Enforcement Section. The Municipality of Anchorage will notify the appropriate state or federal agency if it observes an action that appears to violate a state- or federal-issued permit or statute. The Municipality will work with the state or federal agency involved to ensure compliance by the permittee and/or violator. In cases where only a municipal permit is issued, the appropriate departments will enforce permit conditions through its own municipal authorities.

V. PROGRAM AMENDMENTS

Any changes to adopted wetland designations or enforceable management strategies require Anchorage Assembly approval and shall be based on results of applying the Anchorage Wetland Assessment Methodology, and presenting any new site information. Final designation changes or management strategy changes shall be made only after necessary approvals by the Corps of Engineers and Environmental Protection Agency. Proposed development in any newly identified wetland is subject to conditions attached to any Corps of Engineers Section 404 Individual or Nationwide Permit.

The following is an outline of the process that must be followed to amend a wetland designation. Designation change requests can be submitted to the Municipality of Anchorage's Community Development Department at any time, but must include the following data to justify a change request:

1. A map of the wetland site indicating existing wetland boundaries and designation;
2. A Jurisdictional Determination from the Corps of Engineers approving the new wetlands determination;
3. A completed *Anchorage Wetland Assessment Methodology* for the subject site;
4. Any and all new relevant data from the site, including soils, hydrology, plant community, fish and wildlife, and social function information; [redundant to #3]
5. A formal written request for the change and the reasons for the request.

Upon receiving a complete packet for each designation change request, the Municipality of Anchorage's Community Development Department will determine the validity of the request and the supporting data. If the information is complete and appropriate, the department can forward the request, with a staff recommendation, to the Assembly for Public Hearing. If the Assembly approves the request, the Municipality would then submit the formal amendment and back-up data to the Corps of Engineers for review and approval. Because of the time and expense involved with processing amendments, the process may be deferred until the next Wetlands Management Plan update is due, at which time the site can be evaluated and recommended for a designation change. Amending the plan to change a designation is not necessary before applying for a permit from the Corps of Engineers. It may be in the best interest of the project to work with the Municipality and the Corps of Engineers on the best means to permit a project rather than seeking a designation change.

Wetlands not previously designated as "C" when the General Permits are issued can only be added after a public review by the Corps of Engineers. A public notice would be issued to solicit comments from resource agencies and the public. Once the site is verified by the Corps of Engineers that its inclusion would have no more than minimal impacts when considered individually or cumulatively, that site may use the General Permit for development.

Although this updated Plan incorporates many previously undesignated wetlands which were missed in the original plan, it is likely that there remain wetlands which are still unidentified. Land owners and contractors should be conscious of this fact and be alert to the possibility that areas may be technically wetland, but not included in this plan. Planning Department staff, the Corps of Engineers, or qualified wetland delineation consultants can provide wetland delineations of these areas. **Any previously unmapped, undesignated wetland is not eligible for the General Permit. Permitting may occur under Individual or Nationwide Section 404 permits through the Corps of Engineers.** Wetlands not previously designated, but determined to be of a lower value, could be included under the General Permit only after undergoing the previously outlined public notice and review procedure.

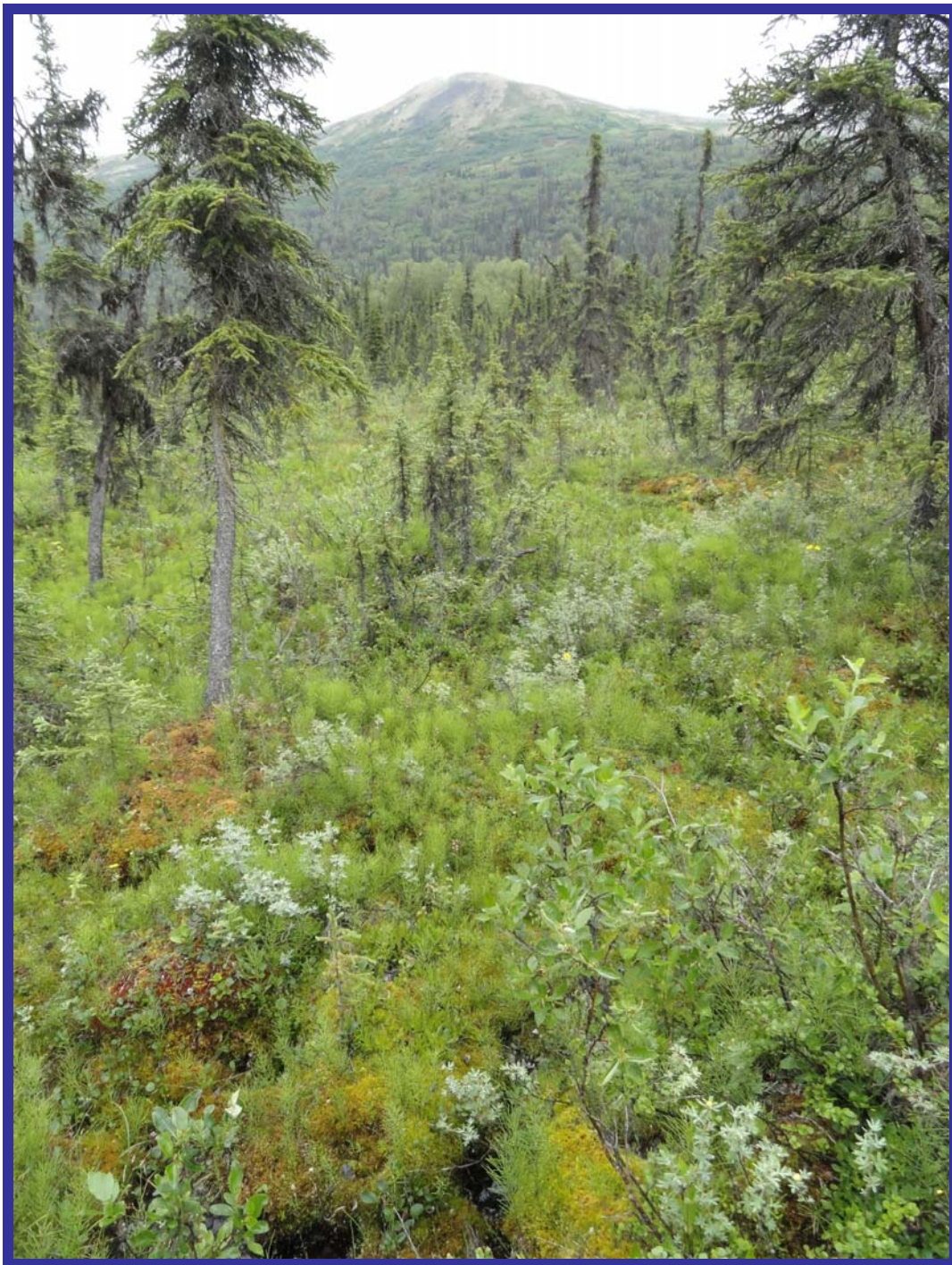
VI. WETLANDS PLAN REVIEW PROCESS

The original adopting ordinance for the 1982 Wetlands Plan required that the plan be reviewed and revised in ten years. With potential changes in federal wetlands legislation, and the 5-year renewal timeframe for authorization of the General Permits, the Municipality shall revisit this plan every 10 years from the last adoption date. At that time, the following information shall be evaluated:

1. The effectiveness of the individual management strategies in protecting and facilitating development;
2. The consistency of the plan with both federal and state coastal management/wetlands law and management programs;
3. The effectiveness of enforcement actions and Best Management Practices in newly filled wetlands.

If significant discrepancies are revealed during this review, the plan should be revised accordingly. If the review reveals mixed results or indicates that the plan is continuing to be effective, a minor update could be done otherwise a full revision could be deferred another five years. The Municipality of Anchorage's Community Development Department shall be responsible for the evaluation effort.

Once a plan revision receives final Assembly adoption, the adopting ordinance will include additional sections, as necessary, to amend Anchorage Municipal Code, Title 21 to include the plan's adoption date.





CHAPTER 6: MITIGATION

As described in Chapter 4, the approach taken in the Anchorage Wetlands Management Plan has been to allow for some development to occur, while retaining or avoiding the most critical wetland areas. A balance can be achieved between developing wetlands with a subsequent loss of function and preserving wetlands in a city with limited land available for development. Although wetlands for which development is recommended are generally those with limited wetland values, the proposed development should incorporate mitigating measures to minimize the degradation or loss of wetland values and functions to the maximum extent practicable. It should be clearly recognized that, whether and if, these mitigation techniques can be applied will depend on the adoption of land management techniques providing increased site design flexibility and changes to current municipal site review procedures. Please note that the Corps of Engineers guides mitigation under the Clean Water Act, Section 404 permit process.

The Mitigation sequence is defined as the following:

1. **Avoid:** *Avoiding the adverse impacts altogether by not taking a certain action;*
2. **Minimize:** *Minimizing impacts by limiting the degree or magnitude of the action;*
3. **Compensation:** *Compensating for the impact by replacing or providing substitute resources or environments through:*
 - a. *Rectifying the impact by repairing, rehabilitating or **restoring** the affected environment;*
 - b. **Create** *or establish new wetlands where they did not exist before;*
 - c. **Enhancement** *of existing degraded wetlands improving one or more of their functions.*
 - d. **Preservation** *of wetlands in perpetuity using a conservation easement or other mechanism.*
 - i. **Mitigation Banking** *allows developers who will incur wetland impacts to compensate by purchasing credits from a wetland mitigation bank prior to filling wetlands. Mitigation Banks basically preserve wetlands and sell the credits for a fee established by the bank.*
 - ii. **In-lieu-fee mitigation** *allows payment of a set fee to compensate for wetland impacts assessed by the Anchorage Debit-Credit Methodology or other method accepted by the Corps of Engineers. Fees are used by authorized entities to purchase wetlands to be preserved or to enhance or restore existing wetlands.*

I. DESCRIPTION OF POTENTIAL MITIGATION MEASURES

In order to determine which mitigating measures are likely to be most effective and economic, the type and extent of impacts must be understood. Although each development proposal must be examined in relation to the wetland and wetland resources potentially affected, it is useful to consider the impacts which are typically associated with the more common development activities.

It is possible to define certain general classes of mitigation techniques according to the three phases of development: planning and design; construction; and operation. In all cases, specific wetland development plans and initiation measures must be approved by the Municipality and/or the Corps of Engineers or other federal and state permitting agencies prior to applying for plats and initiating site preparation and construction.

Actual on-site mitigation measures may include some of the following descriptive mitigation methods or some combination of these and other methods. **Table 6** should be referred to for a more definitive listing of mitigation techniques relative to Anchorage wetlands.

A. PLANNING AND DESIGN

The best, and essentially the only, time to develop effective and economical wetlands mitigation measures is during initial project planning and conceptual design. It cannot be emphasized too strongly that the effectiveness of this plan and its associated mitigation techniques will greatly depend upon an adequate development review process and the capability of including mitigation measures in project development plans. Revising a plan after it has been finalized is not only costly, but it is less likely to be effective in protecting the wetland values. Major mitigation measures for typical wetland developments in Anchorage are discussed in **Table 6**.

B. SITE SELECTION

In the past, development sites have often been selected without regard for the wetland values which may be impacted. With growing awareness of the importance of wetlands and knowledge of the costs of construction and facility installation in these areas, development in wetlands is expected to become much more selective. Increasingly, development should occur in areas of less critical wetlands, with the most important hydraulic and habitat regions being protected.

C. SIZE OF DEVELOPMENT

All other considerations being equal, the loss of wetland values is a direct function of the size of development. In the Anchorage Wetlands Management Plan, critical areas are given a protected status, with development being allowed to proceed in other areas under the "C" designation. Nonetheless, certain of the large "C" areas may contain pockets of higher functioning or valued wetlands that should, to the extent practicable, be avoided in the construction of the project. A major incentive for avoiding development within higher valued wetland sites is the cost of mitigation measures. Where feasible, information from prior wetland assessments and from various resource agencies should be evaluated prior to final project sizing.

D. BUFFER ZONES

The interface between the wetland and the surrounding uplands is the most critical impact zone. If these wetland edges can be protected from significant disturbance, loss of wetland values can be minimized. One means of achieving this protection is by providing a buffer zone, such as a greenbelt or vegetative screen, between the wetland and the development. Using a conservation subdivision technique, by clustering homesites and providing a community greenbelt, the maximum housing density can be achieved with minimum impacts.

Table 6**MITIGATION MEASURES**

1 = Primary mitigation measure, 2 = Secondary mitigation measure

Activity	Mitigation Measures	Wetland Type		
		"A"	"B"	"C"
Planning	Roads, Utility Lines Delete from long range plan Restrict hook-ups Use common corridors	1	1 1 1	2 2 1
	Housing Trade density for open space Retain wetlands and watercourses/waterbodies		1 1	1 1
	Land Exchange Encourage land trades	1	2	1
	Restoration Restore valuable wetlands	1	2	2
Design	Site Design Cluster building Creek, lake and wetland setbacks Minimize paved areas		1 1 1	1 1 1
	Facility Design Pilings for foundations Minimize structure pad size Impervious barriers in trenches Avoid perforated storm drains Decrease road right-of-way Use pervious pavement Use filter fabric, porous pad material Consider elevated causeways Use multiple culverts Replace lost wetland functions Avoid stream re-channelization		2 2 1 1 1 2 2 1 1 1 1	1 1 1 1 1 1 1 1 1 1
	Surcharging		2	1
	Avoid Critical Wildlife Cycles		1	1
	Proper Disposal of Debris		1	1
	Minimize Ground Cover Disturbance		2	1
	Consider Winter Construction		1	1
	Avoid Fill in Creeks and Lakes		1	1

The mitigation measures recommended in **Table 6** are to be used as guidelines, not as requirements. **Table 6** is to be viewed as a checklist of techniques which reduce the impacts of development on wetlands. It can

be used as an aid in evaluating future site-specific proposals. ~~“D” and “P” designated wetlands are subject to mitigation measures per Corps of Engineers permitting guidelines based on information presented from wetland delineations and other sources as required by the reviewing federal and/or state agencies.~~

E. MINIMIZE FILL

The most serious impacts to wetlands are caused by excavation and filling. Excavating wetlands may change flow or circulation patterns as well as bottom elevations. The release of sediments during excavation may also cause physical and chemical changes, such as reduced light transmission, smothering of bottom organisms, and alteration of substrate composition. Pollutants associated with sediments may be released by excavation, and pH and dissolved oxygen levels may be adversely affected.

Placement of fill into a wetland not only destroys the existing resource in the area filled, but it may also have far reaching effects on adjacent areas. Placement of fill may impair natural circulation and flow patterns and be a source of sediment that alters bottom substrate, reduces light transmission, and smothers or damages aquatic organisms. If the fill is dredge spoil or industrial waste, with a fine particle size or high organic or toxic contents, these may create additional water quality problems. Alternatives to filling wetlands, such as the use of pilings, should be addressed before final development plans are prepared.

If excavation is necessary, sediments suspended by dredging should be contained to the maximum extent possible. This can be accomplished by surrounding excavation locations with a silt fence/curtain or similar device. Another effective method is "dry" dredging; i.e., leaving a dike or earth plug between open water and the excavated area.

If filling is necessary, fill should not be placed in main channels of watercourses or within water bodies. As necessary, fill should be contained to prevent siltation and transport back to the watercourses or water bodies. This can be accomplished by surrounding the fill area with coir logs, silt fences or similar containment device. If the filled area is large or could affect area hydrology, provide open channels, culverts, or permeable areas to allow for continued water circulation. In all cases, fill areas subject to erosion should be protected by planting vegetation, applying filter-fabric blankets, or using similar erosion control technology.

F. MINIMIZE DRAINAGE

A wetland without water is no longer a wetland. Drainage and water diversion change the habitat and composition of vegetation and wildlife. These activities result in lowered water tables that also affect adjacent areas. In many cases, wetlands have been shown to purify incoming water by removing sediments and nutrients. Diversion of water may result in water quality problems (usually eutrophication) for the lakes or streams which previously received water "purified" by the wetland.

As a general policy, drainage and water diversion should be avoided within a wetland that is intended for development. Drainage of an area that is hydrologically linked with, or in close proximity to, other wetland areas should be avoided unless the entire wetland area is to be developed. Diverted water should, in general, not be directed into receiving waters unless retention structures and water quality control devices are used prior to discharge.

G. MINIMIZE CHANNELIZATION

Channelization is potentially very damaging to wetland areas. It may result in increased erosion, the lowering of local water tables, and increased peak runoff flows, as well as increased flooding. It may also

cause the transfer of water to downstream watercourses or water bodies without the benefit of purification that often occurs when water has passed through a wetland area. Channelization also results in the production of dredge spoil which may lead to disposal problems.

As a general policy, channelization should not be considered except in extreme cases where all alternative practices have been rejected. Channelization should be restricted to existing stream channels or to existing drainage ditches. Construction of blind channels and finger-fill development, which often cause adverse circulation and water quality impacts, should be avoided. If an existing channel is to be widened, only one side should be enlarged. Vegetation which shades a stream should be retained or replanted. Culverts should be installed in such a way as to not create a barrier to aquatic life. The use of bottomless or arched culverts with natural rock substrate is an example of an optimal design.

H. MINIMIZE SITE CLEARING AND GRADING

Clearing and grading will not only destroy the wetland habitat, but may also have adverse effects on surrounding areas through erosion of sediments and destruction of drainage and flow patterns. As a general policy, the time and extent of exposed soil should be minimized and existing drainage patterns should be retained. Soil should not be pushed onto stream banks or onto areas where it will be transported into the water course. Where feasible, tracked-wheel equipment should be used rather than wheeled vehicles to reduce the impact upon soils. Runoff should be diverted around the exposed area until it is stabilized. Temporary sediment barriers should be utilized to reduce runoff velocities and entrap suspended sediments. Vegetation should be retained along the edge of the wetland.

I. CONSTRUCTION SCHEDULING

Although construction impacts are generally short term, they are often very intense and, consequently, may produce lasting changes in the wetlands environment. Measures to mitigate impacts through scheduling of construction activities include:

Avoiding Critical Periods for Fish and Wildlife Populations:

Critical fish and wildlife periods generally include mating and reproduction activities. Such activities vary in kind and intensity from wetland to wetland, therefore site-specific information is needed. Updated information can be obtained from staff with the Alaska Department of Fish and Game, the U.S. Fish and Wildlife Service, as well as the Municipality of Anchorage's Community Development Department, Corps of Engineers and EPA. The General Permits are conditioned that no fill activity can occur between April 15 and July 15 to protect nesting and migratory birds.

J. POST-CONSTRUCTION ACTIVITIES

Long-term effects of development in wetlands result from the conversion of wetlands to uplands after construction. It is important that developments and fill activities within wetlands including any structures, i.e. stormwater, continue to be maintained to prevent impacts to adjacent wetlands, watercourses or water bodies. In general, a developer must demonstrate a commitment to protecting values of the remaining wetland even after the facility is built and in operation. Some of the means to mitigate the long-term operational impacts of these developments are as follows:

1. Maintain All Mitigative Design Measures

If culverts are included in a fill design, it is necessary that they be inspected routinely to prevent clogging and retardation of flow. Oil/grit separators and other mechanical water quality devices should be maintained and cleaned out regularly. If greenbelts or vegetative screens are

established, they must be maintained so that heavy use does not result in adverse impacts to water quality or wildlife habitat. Maintenance practices such as snow removal from bridges could be mitigated by varying snowplowing techniques to reduce impacts of contaminated snow melt within watercourses. In general, a developer must demonstrate a commitment to protecting wetland values even after the facility is built and in operation.

2. Restore or Rehabilitate Lost Resources

In certain cases, loss of a wetland value may be an inevitable result of development. However, such a loss may be acceptable as long as the loss of wetland functions and values are mitigated. Because the possibilities for wetland restoration and rehabilitation are numerous, depending on the value lost and the approach taken, this should be a discussion between the Municipality, permitting agencies and the developer on a case-by-case basis.

II. RELATIONSHIP OF MITIGATION MEASURES TO PLAN DESIGNATIONS

There is an intended, direct relationship between the wetland designations given in this Plan and the associated mitigation measures. Particular uses are associated with the various plan designations, and correspond to limited activities and uses within the "A" wetland environment and to fairly extensive permitted uses in "C" wetland zones. The intent of the "A" designation is to protect the natural features of the wetland by leaving it in a natural state. Full development, consistent with zoning use categories and the use categories of the comprehensive plan, is anticipated within "C" wetland areas as long as mitigation measures and proper engineering practices are utilized.

It should be stressed that the mitigation techniques identified here are generalized methods. It is intended that both developers and reviewing agencies will use these techniques as a checklist in the project plan review process.

It is further intended that the developer is to be provided flexibility in the type of mitigation techniques to be used in project design and construction. Depending on the type of wetland, severity of impact, and cost or feasibility of technique, any one or combination of techniques may be selected. In this sense, the concept to be applied in project review is that of performance criteria. The developer is to be allowed flexibility in design, but must demonstrate an adequate incorporation of available, feasible mitigation measures in the planning, design, construction and post-construction aspects of project development. The plat and regulatory review processes are expected to ensure the satisfactory consideration and incorporation of these mitigation features.

It must be reiterated that the effective use of mitigation measures in a systematic and comprehensive manner will depend greatly on changes to the Municipality's land control ordinances, as described earlier in this Chapter. Under the auspices of the EPA, the Corps of Engineers is the final authority in determining appropriate mitigation for any regulated activity.

III. MITIGATION RECOMMENDATIONS

A. USE OF MITIGATION MEASURES

The intent of the Anchorage Wetlands Management Plan is to identify and designate Anchorage wetlands by type, according to their relative functions and values. Critical wetland areas performing significant habitat, water quality, or other functions have been designated "A" for protection. Those of less critical value are classified either "B" or "C" and it is these wetlands, since they are intended to be impacted by development, that the mitigation techniques are to be applied.

It is important to recognize that the use of mitigation techniques, while applicable to all "C" wetlands, is especially critical within areas designed as "B" wetlands and in certain large undisturbed wetland tracts, e.g., portions of Connor's Bog and Campbell/Klatt Bog. These areas have important, associated open space and wildlife values due to their size and relative isolation. Major portions of these wetlands should be reserved in their natural state or protected through the use of mitigation measures that allow the important wetland values to be retained.

In wetlands classified as "C," techniques generally will be limited to those mitigating the major impacts of development. It must also be recognized that the use of these techniques may require the amendment of current municipal codes and regulations, especially those related to the review and approval of zoning ordinances and subdivision plats or variances to municipal code. Because "A" wetlands are to be retained in their original state, the use of mitigation techniques is not as necessary. Such techniques should be carefully considered, however, for those wetlands designated "C" adjoining critical wetland areas.

The effective use of mitigation techniques will vary greatly, depending upon major changes in current municipal review procedures and land use ordinances. Currently, the site plan review process of development proposals within wetlands does not require a thorough consideration of mitigation measures. Accordingly, each of the following processes must be established or amended in order to ensure the use of mitigation techniques.

B. PLAT PRE-APPLICATION CONFERENCE

Representatives of the Corps of Engineers and other resource agencies are included in the pre-application plat review process administered by the Municipality. This review process is conducted for the majority of development proposals in uplands as well as within wetlands. For development in wetlands, the platting process requires, as a condition of plat approval, the issuance of a fill permit from the Corps of Engineers. However, in current practice, the design aspects of the subdivision plat are generally approved prior to Corps of Engineers review and action, thus minimizing any effective inclusion of mitigation measures. Developers are encouraged to seek Corps of Engineers permits and authorizations prior to submitting for municipal plats and other approvals.

C. SUBDIVISION ORDINANCE AMENDMENT

The existing subdivision ordinance (AMC 21.85) does not require the inclusion of mitigation measures as a feature of subdivision design. It is important to have a process that will enable the developer to tailor mitigation technique(s) to specific characteristics of the topography and environmental functions of a particular site, thereby allowing flexibility in site design and the types of engineering measures to be applied. The provisionally adopted, Anchorage Municipal Code, Title 21 assisted in remedying existing code

by creating a conservation subdivision under 21.08.070, which allows developers a means to create denser development on uplands while avoiding higher valued wetlands.

D. ZONING ORDINANCE AMENDMENT

Many mitigation techniques identified here cannot be effectively applied under the current zoning district procedures. For example, front, back and side yard setbacks; lot coverage; and density level requirements within each zoning category effectively preclude any of the “clustering” techniques described in Chapter 4. To utilize mitigation measures, which require the avoidance of critical land areas and the minimization of site clearing and grading, zoning ordinance changes allowing the clustering of structures have been implemented. These techniques, and the Planned Unit Development standards, allow development to take place at specific, limited areas on the site, actually in a concentrated pattern, and usually to the underlying densities of the district use zone. The Provisionally Adopted Code addresses the Planned Unit Development in 21.03.080F. and has included another technique, Conservation Subdivisions.

IV. MITIGATION BANKING AND IN-LIEU-FEE PROGRAMS

Mitigation banking has developed into a widely accepted method of compensatory mitigation per EPA and Corps of Engineers regulations. The Municipality has seen the establishment of a private mitigation bank and in-lieu-fee program since the 1996 plan, with other programs in process of seeking establishment. Within South-central Alaska, other banks now exist in communities such as the Matanuska-Susitna valley. Mitigation banks preserve wetlands with ecological importance to the watershed while providing a means for developers to compensate for projects in less valuable wetlands.

A mitigation bank is a wetland, stream segment, or other aquatic resource area that has been restored, established, enhanced, or (in certain circumstances) preserved for the purpose of providing compensation for unavoidable impacts to aquatic resources permitted under Section 404 or a similar state or local wetland regulation. A mitigation bank may be created when a government agency, corporation, nonprofit organization, or other entity undertakes these activities under a formal agreement with a regulatory agency such as the Corps of Engineers.

The value of a bank is defined in “compensatory mitigation credits.” A bank’s instrument identifies the number of credits available for sale and requires the use of ecological assessment techniques to certify that those credits provide the required ecological functions (see “REV,” Relative Ecological Value, under definitions, in Chapter 4). The EPA and Corps of Engineers, in conjunction with the Municipality, have developed a methodology to calculate credits and debits for use in mitigation banks and in-lieu-fee programs. The Anchorage Debit-Credit Methodology can be accessed at:

<http://www.muni.org/Departments/OCPD/Planning/Physical/EnvPlanning/Pages/CreditDebitMethod.aspx>

Mitigation banks are a form of “third-party” compensatory mitigation, in which the responsibility for compensatory mitigation implementation and success is assumed by a party other than the permittee. This transfer of liability has been a very attractive feature for Section 404 permit-holders, who would otherwise be responsible for the design, construction, monitoring, ecological success, and long-term protection of the site.

Under an In-Lieu-Fee program (ILF), a permittee can pay a set fee for compensatory mitigation in lieu of providing other types of mitigation. An ILF program provides predictability and helps streamline the permitting process for applicants. The Municipality’s General Permits operate using a fee-in-lieu-of mitigation charge. It should be emphasized that a fee-in-lieu of mitigation is the last level of the federal mitigation sequence. It is not generally used unless other mitigation avenues are not possible or practicable to use.

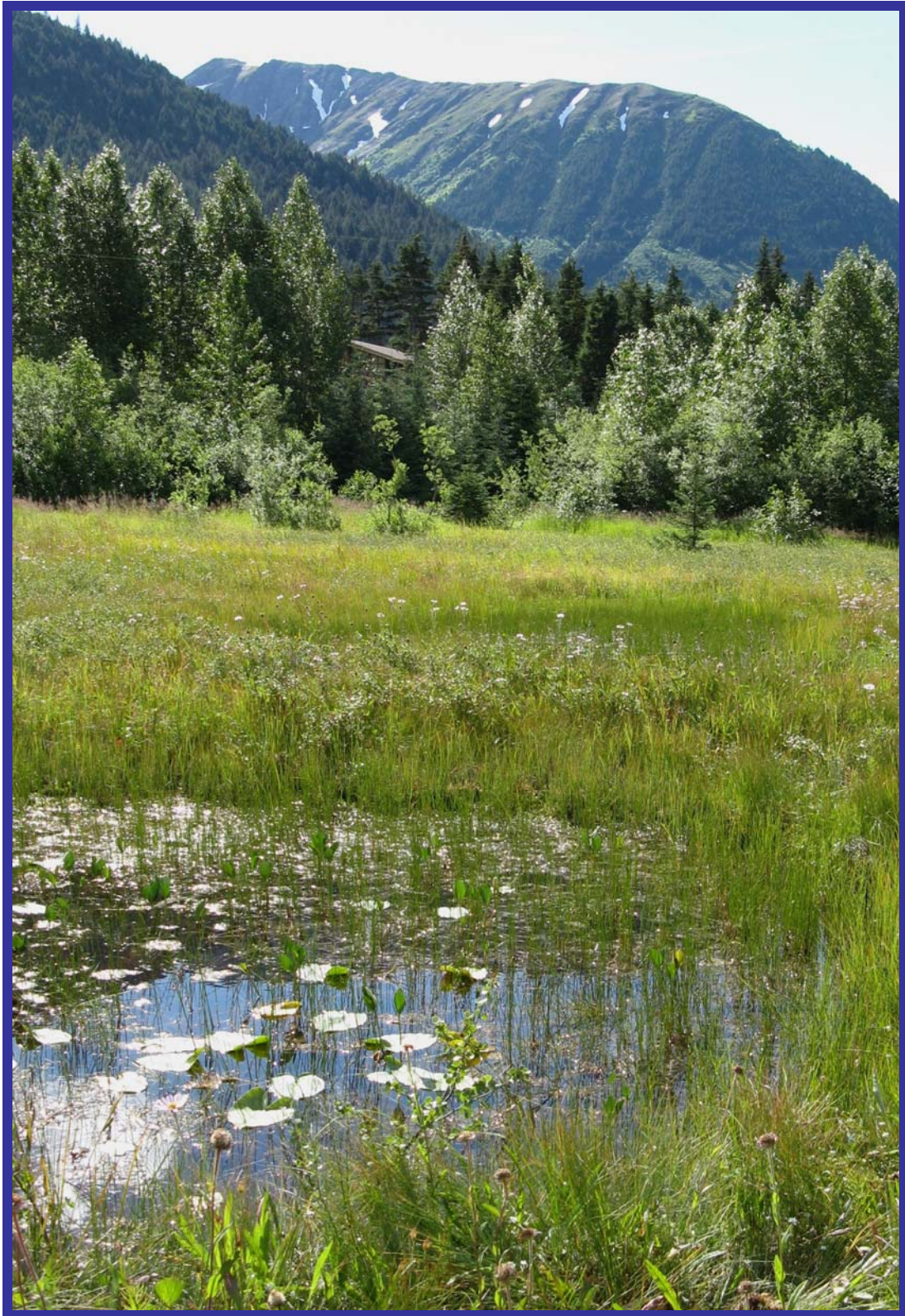
V. SUMMARY

The use of mitigation techniques is generally confined to wetlands where lesser value portions may be more easily developed. Filling these wetlands accommodates the need for development and it is these areas for which mitigation is especially critical. The types of mitigation techniques vary widely, and generally affect the planning, design, construction, and post-construction aspects of a development project. The use of mitigation techniques is strongly encouraged and required under Section 404 guidelines. It is recognized that current review and land management requirements have adopted some of the initial mitigation ideas from previous wetlands plans. This Plan therefore recommends:

1. Continuation of a coordinated wetland review process; and
2. Inclusion of a design review process and design/construction requirements, as appropriate, in the Anchorage Municipal Code.

These changes would ensure the adequate consideration and use of wetland construction mitigation techniques.







APPENDICES

AO No. 95-129

AM 775-95

AIM 109-95

Final version will include--2012 AWMP AOs/AMs



BIBLIOGRAPHY

Alaska Department of Fish and Game and Municipality of Anchorage Coastal Management Program. Public Access, Resource Protection and Scenic Areas Plan for the Anchorage Bowl.

Alaska Department of Fish and Game, 1973. Alaska's Wildlife and Habitats, Volume I.

_____, 1978a. Alaska's Wildlife and Habitats, Volume II.

_____, 1978b. Alaska's Fisheries Atlas, Volume I and Volume II (and subsequent updates).

Allen, Hollis H., 1978. Role of Wetland Plants in Erosion Control of Riparian Shorelines. In: Wetland Functions and Values: the State of our Understanding, AWRA.

Ballinger, D.G., and McKee, G.D., 1971. Chemical Characterization of Bottom Sediments. Journal of the Water Pollution Control Federation, Volume 43, No. 2, pages 216-227.

Batten, A.R., 1980. A Proposed Classification Framework for Alaskan Wetland and Aquatic Vegetation. Final Report of U.S. Forest Service, Pacific Northwest Forest and Range Experimental Station.

Boto, K.G., and Patrick, William H., 1978. Role of Wetlands in the Removal of Suspended Sediments. In: American Water Resources Association, 1978. Wetland Functions and Values: the State of our Understanding.

Brown, R.G. and Stark, S.R., 1989. Hydrologic and Water Quality Characteristics of a Wetland Receiving Wastewater Effluent in St. Joseph's, Minnesota. In: Wetlands 9(2):191-206.

Buchanan, T.J., and Somers, W.P., 1976. Discharge Measurements at Gaging Stations. Techniques of Water Resources Investigations of the U.S. Geological Survey. Chapter A8, Book 3.

Cederstrom, D.J. et al., 1964. Geology and Groundwater Resources of the Anchorage Area, Alaska. U.S. Geological Survey. Water Supply Paper 1773.

Clark, Judith, 1978. Freshwater Wetlands: Habitats for Aquatic Invertebrates, Amphibians, Reptiles and Fish. In: American Water Resources Association, 1978. Wetland Functions and Values: the State of our Understanding.

Dearborn, L.L., and Freethey, G.W., 1974. Water Table Contour Map, Anchorage Area, Alaska. U.S. Geological Survey, Open File Report, 1974.

Donaldson, D.E., 1976. Water Quality and Bathymetry of Sand Lake, Anchorage, Alaska. U.S. Geological Survey, Open File Report, pages 76-254, 1 map.

Donaldson, D.E. et al., 1975. Water Quality Data, 1948-1973, Anchorage and Vicinity, Alaska. U.S. Geological Survey, Open File Report.

- Environment Canada/Ontario Ministry of Natural Resources, 1984. An Evaluation System for Wetlands of Ontario South of the Pre-Cambrian Shield. 2nd Edition. Canada and Ontario Ministry of Natural Resources.
- EPA fact sheet, Mitigation Banking. <<http://www.epa.gov/owow/wetlands/facts/fact16.html#one#one>> September, 2011.
- Ertec Northwest, Inc., 1981. Anchorage Wetlands Study: Summary Report. Ertec Northwest, Inc., Anchorage, Alaska.
- Flake, Lester D., 1978. Wetland Diversity and Waterfowl. *In*: American Water Resources Association, 1978. Wetland Functions and Values: the State of our Understanding.
- Freethy, G.W., 1976. Preliminary Report on Water Availability in the Lower Ship Creek Basin, Anchorage, Alaska--with special reference to the fish hatchery on Fort Richardson and a proposed fish hatchery site near the Elmendorf Air Force Base power plant. U.S. Geological Survey, Water Resources Investigations, pages 48-75.
- Freethy, G.W. et al., 1974. Map Showing Depth to Water, Anchorage Area, Alaska. U.S. Geological Survey, Open File Report.
- Fugro Northwest, Inc., 1980a. Municipality of Anchorage Wetlands Hydrology Study. Prepared for the Municipality of Anchorage, Alaska.
- _____, 1980b. Anchorage Wetlands Study: Mapping and Classification of Freshwater Wetlands. Prepared for the Municipality of Anchorage, Alaska.
- Glass, R.L., 1986a. Hydrologic Conditions in Connor's Bog Area, Anchorage, Alaska. U.S. Geological Survey Water Resources Investigations Report 86-4044.
- _____, 1986b. Hydrologic Conditions in the Klatt Bog Area, Anchorage, Alaska. U.S. Geological Survey Water Resources Investigations Report No. 85-4330.
- Golet, F.C., and Larson, J.S., 1974. Classification of Freshwater Wetlands in the Glaciated Northeast. Bureau of Sport Fisheries and Wildlife Resource. Publication 115.
- Gosselink, J.G., and Turner, R.E., 1978. The Role of Hydrology in Freshwater Wetland Ecosystems. *In*: Good, Ralph E. et al., eds. Freshwater Wetlands Ecological Processes and Management Potential. Academic Press.
- Greater Anchorage Area Borough, 1975. Solid Waste Management Master Plan Summary. Department of Public Works, Anchorage, Alaska.
- Greeson, P.E., Clark, J.R., and Clark, J., 1978. Wetland Functions and Values: The State of our Understanding. Proceedings of the National Symposium on Wetlands. American Water Resource Association, Minneapolis, Minnesota.
- Hogan, M., and Tande, G.F., 1983. Vegetation Types and Bird Use of Anchorage Wetlands. U.S. Fish and Wildlife Service Special Studies, Anchorage, Alaska.

- Horwitz, Elinor, 1978. Our Nation's Wetlands: an Interagency Task Force Report. Coordinated by the Council on Environmental Quality.
- Jacobs, Katharine et al., 1980 (and updates). Coastal Habitat Map.
- Jeglum, J. et al., 1974. Toward a Wetland Classification for Ontario. Canada Forest Service, Sault Ste. Marie. Ontario Information Report O-X-215, 54 pages.
- Kaat, Alex, and Joosten, Hans, Fact Book for UNFCCC Policies on Peat Carbon Emissions. Wetlands International, December, 2009., <www.wetlands.org>
- Kadlec, Robert H., and Kadlec, John A., 1978. Wetlands and Water Quality. In: American Water Resources Association, 1978. Wetland Functions and Values: the State of our Understanding.
- Klein, Eric, Berg, Edward E., and Dial, Roman, 2005. Wetland Drying and Succession across the Kenai Peninsula Lowlands, South-central Alaska. In: NRC Research Press Website, September 17, 2005.
- Livingston, Robert J., and Loucks, Orie L., 1978. Productivity Trophic Interactions and Food-Web Relationships in Wetlands and Associated Systems. In: American Water Resources Association, 1978. Wetland Functions and Values: the State of our Understanding.
- Moore, P.D., and Bellamy, D.J., 1974. Peatlands. Springer-Verlag, New York.
- Municipality of Anchorage, 1979a. 2007. Anchorage Coastal Management Plan Program Document. Anchorage, Alaska.
- _____, 1979b. 208 Areawide Water Quality Management Plan. Anchorage, Alaska.
- _____, 2001. Anchorage 2020: Anchorage Bowl Comprehensive Plan. Anchorage, Alaska.
- _____, 1982b. Anchorage Wetlands Management Plan. Anchorage, Alaska.
- _____, 1996. Anchorage Wetlands Management Plan. Anchorage, Alaska.
- _____, 1994. Anchorage Wetlands Management Plan Volume II-Background Information. Anchorage, AK.
- _____, 2009. Turnagain Arm Comprehensive Plan. Anchorage, Alaska.
- _____, 2007. Municipal Design Criteria Manual. Anchorage, Alaska.
- _____, 1988. Revegetation Guide (incl.1990 revision). Anchorage, Alaska.
- _____, 2006. Chugiak-Eagle River Comprehensive Plan. Anchorage, Alaska.
- Murray, D.F., and Lipkin, R., 1987. Candidate Threatened and Endangered Plants of Alaska with Comments on Other Rare Plants. University of Alaska Museum, Fairbanks, Alaska.
- "National Weather Service, Anchorage Forecast Office Climate." *National Weather Service, Anchorage Forecast Office*. Web. 16 Aug. 2011. <<http://pafc.arh.noaa.gov/climate.php>>.

- Newman, J.E., and Branton, C.I., 1972. Annual Water Balance and Agricultural Development in Alaska. In: Ecology, Volume 53.
- Patric, J.H., and Black, P.E., 1968. Potential Evapotranspiration and Climate in Alaska by Thornthwaite's Classification. United States Department of Agriculture, Forest Service. Research paper PNW-71.
- Quadra Engineering, Inc., 1980. Sand Lake Area Drainage and Water Quality Management Study, Phase I Report. Prepared for the Municipality of Anchorage by Quadra Engineering, Inc.
- Richardson, C.J. et al., 1978. Nutrient Dynamics of Northern Wetland Ecosystems. In: Good et al., eds. Freshwater Wetlands Ecological Processes and Management Potential. New York, New York.
- Santeford, H. S. 1980. U.S. National Weather Service. Pers. Comm.
- Schmoll, H.R., and Dobrovolsky, E., 1972. Generalized Geologic Map of Anchorage and Vicinity, Alaska. U.S. Geological Survey Map 1-787-A.
- Scully, D.R. et al., 1978. Surface Water Records of Cook Inlet Basin, Alaska, Through September 1975. U.S. Geological Survey, Open File Report 78-498.
- Seibert, P., 1968. Importance of Natural Vegetation for the Protection of the Banks of Streams, Rivers, Canals. In: Nature and Environmental Series, Council of Europe.
- Selberhorn, Gene M. et al., 1974. Coastal Wetlands of Virginia: Interim Report #3, Guidelines for Activities Affecting Virginia Wetlands. Institute of Marine Science, Gloucester Pt., Virginia.
- Shuldene et al., 1979. Ecological Effects of Highway Fills on Wetlands. American Association of State Highway and Transportation Officials. Final Report #TRB/NCHRP/REP 218A.
- Stanek, W., 1977. Classification of Muskeg In: Radforth, N.W., and Brawner, C.O., eds. Muskeg and the Northern Environment in Canada. University of Toronto Press, pages 31-62. State of Alaska, 1991.
- Thurrow, Charles et al., 1974. Wetlands Guidelines. Virginia Marine Resources Commission, Newport News, Virginia.
- _____, 1975. Performance Controls for Sensitive Lands. ASPO.
- _____, no date. Implementation Aids for Inland Wetland and Watercourse Agencies. Connecticut Inland Wetlands Project, Middletown, Connecticut.
- U.S. Army Corps of Engineers, 1979a. Metropolitan Anchorage Urban Study, Volume 1, Summary Report. Prepared by U.S. Department of the Army, Alaska District, Corps of Engineers in conjunction with the Municipality of Anchorage.
- _____, 1979b. Metropolitan Anchorage Urban Study, Volume 5, Stormwater Quality Management for Existing Urban Areas. Prepared by Woodward-Clyde Consultants for the U.S. Army Corps of Engineers.
- _____, 1979c. Metropolitan Anchorage Urban Study, Volume 7, Anchorage Area Soil Survey. Anchorage, Alaska.

- _____, 1987. Wetlands Delineation Manual. Environmental Laboratory. Department of the Army, Waterways Experiment Station, Vicksburg, MS.
- _____, 2007. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region. Version 2.0.
- U.S. Department of Housing and Urban Development, 1979. Floodway: Flood Boundary and Flooding Maps, Municipality of Anchorage. National Flood Insurance Program. Panels 230, 235, 240, 245 and subsequent updates.
- U.S. Department of the Interior, no date. Water for Anchorage, a Summary of Water in the Anchorage Area. Prepared by the U.S. Geological Survey, Water Resources Division, Alaska District; published by the City of Anchorage and the Greater Anchorage Area Borough.
- U.S. Fish and Wildlife Service, 1980. Terrestrial Habitat Evaluation Criteria Handbook. Alaska Division of Ecological Services, Anchorage.
- _____, 1988. Changes in Anchorage Wetlands Between 1982 and 1988. Anchorage Ecological Services Field Office, Alaska.
- _____, 1993. Anchorage Wetland Trends Study (1950-1990). Anchorage Ecological Services Field Office, Alaska.
- U.S. Geological Survey, 1975. 1974 Water Resources Data for Alaska: Part 1, Surface Water Records; Part 2, Water Quality Records. U.S. Geological Survey.
- _____, 1976. Water Resources Data for Alaska Water Year 1975. U.S. Geological Survey, Water Data Report AK-75-1.
- _____, 1977. Water Resources Data for Alaska Water Year 1976. U.S. Geological Survey, Water Data Report AK-76-1.
- _____, 1978. Water Resources Data for Alaska Water Year 1977. U.S. Geological Survey, Water Data Report AK-77-1.
- _____, 1979. Water Resources Data for Alaska Water Year 1978. U.S. Geological Survey, Water Data Report AK-78-1.
- Verry, E.S., and Boelter, D.H., 1978. Peatland Hydrology. In: American Water Resources Association, 1978. Wetland Functions and Values: the State of our Understanding.
- Viereck, L.A., and Dryness, C.T., 1980. A Preliminary Classification System for Vegetation of Alaska. U.S. Forest Service. Pacific Northwest General Technical Report, PNW-106.
- Western Regional Climate Center, Historical Climate Data: Alaska. ([www. wrcc@dri.edu](http://www.wrcc@dri.edu)) June, 2011.
- Worley, I.A., and Sullivan, J.R., 1979. A Classification Scheme for the Peatlands of Maine. Vermont Agricultural Experiment Station.
- Zenone, C., 1974. Geology and Water Resources of the Girdwood-Alyeska Area, Alaska. U.S. Geological Survey, Open File Report, pages 76-254, 1 map.

- _____, 1976. Geohydrology of the Lowland Lakes Area, Anchorage, Alaska. U.S. Geological Survey, Water Resources Investigations, WRI 76-22, 1 map.
- Zenone, C., and Donaldson, D.E., 1974. Water Quality and Geohydrology Data at Two Sanitary Landfill Sites Near Anchorage, Alaska. U.S. Geological Survey, Open File Report 1974, 1 map.