

Rabbit Creek Greenbelt Plan



Municipality of Anchorage
COMMUNITY PLANNING DEPARTMENT

R A B B I T C R E E K G R E E N B E L T P L A N

ADOPTED BY AR 87-16
MARCH 31, 1987

Community Planning Department
1987

RABBIT CREEK GREENBELT PLAN

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SUMMARY

Open space provisions, water quality and habitat protection, and public recreation are the central themes of this greenbelt plan. Over the years there has been considerable concern about creating a Rabbit Creek Greenbelt. Such concerns include those of Rabbit Creek residents who want to protect their property values, privacy, water quality, and the setting near the creek. There are also the concerns of public officials and environmental and park interests who share the desire to assure good water quality and see a need to provide limited recreation opportunities and to protect habitat. This plan has been written to address these various concerns, taking into account development patterns as well as natural areas which offer the greatest benefits in meeting the goals associated with greenbelt conservation.

Rabbit Creek flows approximately 11 miles from the alpine heights of Rabbit Lake to Potter Marsh. Much of its length, particularly the upper portion, is in its natural state, supporting a variety of fish and fauna. The creek is an anadromous fish stream with annual runs of salmon and Dolly Varden.

The retention of trees and other vegetation along the creek is particularly important. Such cover provides wildlife habitat and protects the fish associated with the stream from temperature increases which would be deleterious to many species. The soils and slopes associated with the drainage basin are subject to erosion and drainage patterns which can impair water quality. Protection of steep slopes is necessary to maintain the water quality of the stream.

In the last year, there have been two significant efforts to protect water quality within the Municipality which should help in the Rabbit Creek area as well. The first of these was the Stream Protection Ordinance which is instrumental in maintaining vegetation within twenty-five feet of the creek. The second is the recently enacted wastewater ordinance which will be instrumental in avoiding further on-site sewage problems.

Public access to the creek should be limited by sections of the corridor. From Chugach State Park to Rabbit Creek Road, provisions should be made for a footpath/horsetrail. In view of the near-wilderness characteristics of this section, it should be given highest priority for the use of acquisition funds. From Rabbit Creek Road to Buffalo Street, non-motorized trail access should be provided to the large municipal parcels for park purposes.

From Buffalo Street to Potter Marsh, there would be no formal trail development; bike trail provisions should be made along DeArmoun Road.

A variety of implementation measures should be used and encouraged. The public sector can work in regard to fee simple acquisition, purchase of easements and regulatory controls. Greenbelt acquisition will be pursued with willing property owners in those areas which have the highest priority in meeting the intent of this plan. The various recommendations and priorities contained in this plan are highlighted in the following pages.

Trail and park access recommendations:

1. The greenbelt and its associated trail(s) should be established as another means of access to Chugach State Park. A trail(s) for hiking, cross-country skiing and horseback riding should be established from Rabbit Creek Road to the State Park.
2. The rights-of-way of DeArmoun Road, Our Own Lane and Rabbit Creek Road should be used in establishing access to the 20-acre and 80-acre parcels on the greenbelt.
3. There should be no formal trail development west of Buffalo Street.
4. There should be no motorized trail use along the greenbelt. Selected access points, signs and related aspects of trail design should be used to eliminate motorized use.
5. A bike trail should be developed along DeArmoun Road, providing links to the Birch Road and Hillside Road bike trails.

Park recommendations:

1. Master plans should be drafted for the 20- and 80-acre municipal parcels to include limited development and conservation of open space. An exercise trail (for example, a Parcourse trail), picnic areas and similar less intensive uses should be studied.
2. A mini-park should be developed on the greenbelt between Old Rabbit Creek Road and Our Own Lane to serve residents in the area.
3. Municipal land at Old Seward Highway should be used in creating a neighborhood park along the creek.

Recommendations regarding water quality and greenbelt protection:

1. Excessive slopes, particularly those in excess of thirty percent lying to the south of the creek, should be protected. The excessive slopes south of the creek and east of Rabbit Creek Road should be included in the greenbelt. The lack of setbacks from and dumping fill over severe slopes are problems occasionally found on Rabbit Creek. In that such building and filling practices are problems in other areas of the Municipality as well, standards should be prepared to avoid slope failure, siltation of streams and associated problems.
2. Although there are provisions within Municipal Code regarding stream protection, many citizens are not aware of what they can do if they perceive a problem. There needs to be more public education on the benefits of stream protection: newspaper articles or a brochure with utility bills are some means to inform Rabbit Creek and other Municipal residents of the stream protection program.
3. Slope stabilization is a problem along Old Rabbit Creek and new Rabbit Creek Roads. The respective agencies in charge of maintaining these rights-of-way should undertake revegetation and related efforts to stop siltation from these road banks.
4. A program of monitoring the water quality of the creek needs to be further developed. The area's residents should contact the proper agencies to monitor the stream and see that corrections are made regarding water quality problems. A means to relate monitoring results to the public should be developed.

Priorities regarding greenbelt acquisition:

Working with willing property owners, priorities for greenbelt acquisition are as follows:

1. The highest priority should be that area east of Rabbit Creek Road. The width of the greenbelt in this area should encompass the severe slopes, floodplain and areas north of the creek where variation in terrain provides diverse habitat, water quality protection and space for trail development.
2. The second priority should be to form a greenbelt connection between the 20 and 80 acre municipal parcels.
3. The third priority should be along the south side of Our Own Lane. Acquisition in this area should be pursued only if there are overriding water quality benefits.

1.0 INTRODUCTION

In the fall of 1984, the Municipal Assembly heard testimony regarding the creation of a Rabbit Creek Greenbelt. That public hearing was conducted to discuss a draft greenbelt plan in which public and private open space, recreation and water quality were significant elements. As an outcome of the public hearing, the Community Planning Department was directed to further address the concept of a Rabbit Creek Greenbelt, particularly issues associated with water quality impacts to the stream. A major unresolved issue was water quality protection. Citizens did not feel comfortable with the concepts regarding a creek protection and a water quality protection district. A significant shortcoming in preparing the 1984 plan was the lack of soil and related environmental information in the upper portion of the drainage basin. Since 1984, three planning efforts have transpired which help in resolving water quality concerns in the Rabbit Creek area. They are:

1. The passage of the Stream Protection Ordinance in the Spring of 1985: this ordinance provides for the retention of vegetation within 25 feet of all streams in the Municipality; including Rabbit Creek.
2. The completion of the Rabbit Creek Greenbelt Management Recommendations and Technical Report by Arctic Geo Resource Associates: this report provides soil, vegetation and technical data which were used in preparing this plan and can be employed in making development decisions in the Rabbit Creek area.
3. On-site Wastewater Disposal Ordinance: this ordinance refines and sets more stringent standards for septic systems. Its application will help to prevent wastewater problems and to preserve Rabbit Creek's water quality.

1.1 Background: Previous Efforts to Realize a Rabbit Creek Greenbelt

The Rabbit Creek Greenbelt was proposed as early as 1961 when the City Planning Commission adopted the Anchorage Metropolitan Area General Plan. Funding shortfalls, emphasis on other park priorities and local residents concerns have contributed to a lack of success in setting aside the greenbelt.

The greenbelt concept was reiterated in the Anchorage Comprehensive Plan, adopted in 1975, and in the Rabbit Creek/Foothills Plan, prepared in 1975. A separate document the Rabbit Creek Greenbelt Plan, was approved by the Parks and Recreation Advisory Commission and the Assembly in the

fall of 1979. Implementation of that plan was set aside when Rabbit Creek area residents expressed concern about its intended scope, particularly about provisions for access to the creek and the types of recreational facilities that might be developed. Taking those concerns into account, the Comprehensive Plan, adopted in 1982, stated that:

The Rabbit Creek Greenbelt is considered a "Special Study Greenbelt" within the context of this Plan. The concepts are: 1) to provide creek maintenance provisions along the creek from Buffalo Street to the west, and 2) to provide both creek maintenance and public access along a linear park from Buffalo Street to the east.

This plan then is directed to resolve the "Special Study" status. It is intended that the components of this plan provide the policy direction and guidelines to realize the greenbelt, recreation opportunities and good water quality.

1.2 Goals

The overall goals to be pursued with adoption of this plan are:

1. To preserve and improve where necessary the water quality of the creek.
2. To provide appropriate access along the creek for recreation purposes upstream from Buffalo Street.
3. To provide for flood plain management along the creek.
4. To provide to as great a degree possible, a continuous greenbelt corridor from Rabbit Lake to Potter's Marsh for adequate wildlife habitat and protection of the natural system as it currently exists.
5. To provide neighborhood and community parks at selected areas along the stream.
6. To prevent and eliminate any motorized use along any trail(s) which are in the greenbelt or in its associated parks by selected access, signs and related facilities.
7. To preserve and enhance the indigenous and anadromous fisheries of Rabbit Creek.

2.0 PHYSIOGRAPHIC FEATURES, POPULATION INFORMATION, AND RELATIVE PLANS AND REGULATIONS

2.1 Characteristics of the Stream and Drainage Basin

Rabbit Creek drains an area of approximately 14 square miles. This area covers land ranging from sea level to peaks of the Chugach Mountains. The stream grade drops over 3,000 feet as water flows the 11.5 miles from Rabbit Lake to Turnagain Arm. The channel of the creek is well defined. From its headwaters north of Suicide Peak to its outlet at Potter Marsh, it rarely exceeds 20 to 30 feet in width.

The floodplain of the creek is relatively narrow. Historic evidence, gathered through the 1964 flood, indicates that the intermediate regional flood (i.e., so called 100-year flood) is approximately 150 feet wide in the area between Buffalo Street and New Rabbit Creek Road. Along the lower portion below Buffalo Street, there are occasional places where the floodplain exceeds 200 feet. Floods can occur during all seasons on Rabbit Creek. There are three types: those caused by glaciation during winter months, those caused by above normal snow fall and rapid snow melt, and those resulting from intense precipitation. Floods are generally of short duration with a flood peak occurring in a relatively short span of time. High velocity can be expected in the main channel and lower velocities would occur in the area surrounding the stream. Exacerbating flood characteristics along Rabbit Creek are man-made and natural hazards. The former include culverts and bridges while the latter includes fallen trees and brush. Erosion, as was seen in the 1964 flood, can be a major problem. The velocity of flooding tends to wash away fragile soils.

The narrow floodway described by the Corps of Engineers was adopted within the Flood Hazard Boundary Map, prepared by the Federal Insurance Administration, U.S. Department of Housing and Urban Development. This boundary forms a flood hazard district and is subject to regulation by Municipal Code. There are permitted uses for such districts, including parks, greenbelts and the like. Encroachments, such as buildings, can only be constructed with certification by a registered professional engineer or architect. Additional areas beyond the floodway can be subject to flooding depending upon such conditions as glaciation and the accumulation of debris. However, in the case of Rabbit Creek where there are water quality and habitat concerns, it is recommended that no building development be advanced in the floodplain to afford maximum greenbelt protection. Title 21.60.020-065 provides regulations regarding permitted uses and structures within the floodway and floodway fringe. Most uses which could cause debris to accumulate and exacerbate flooding are either prohibited or only permitted via a special flood hazard permit.

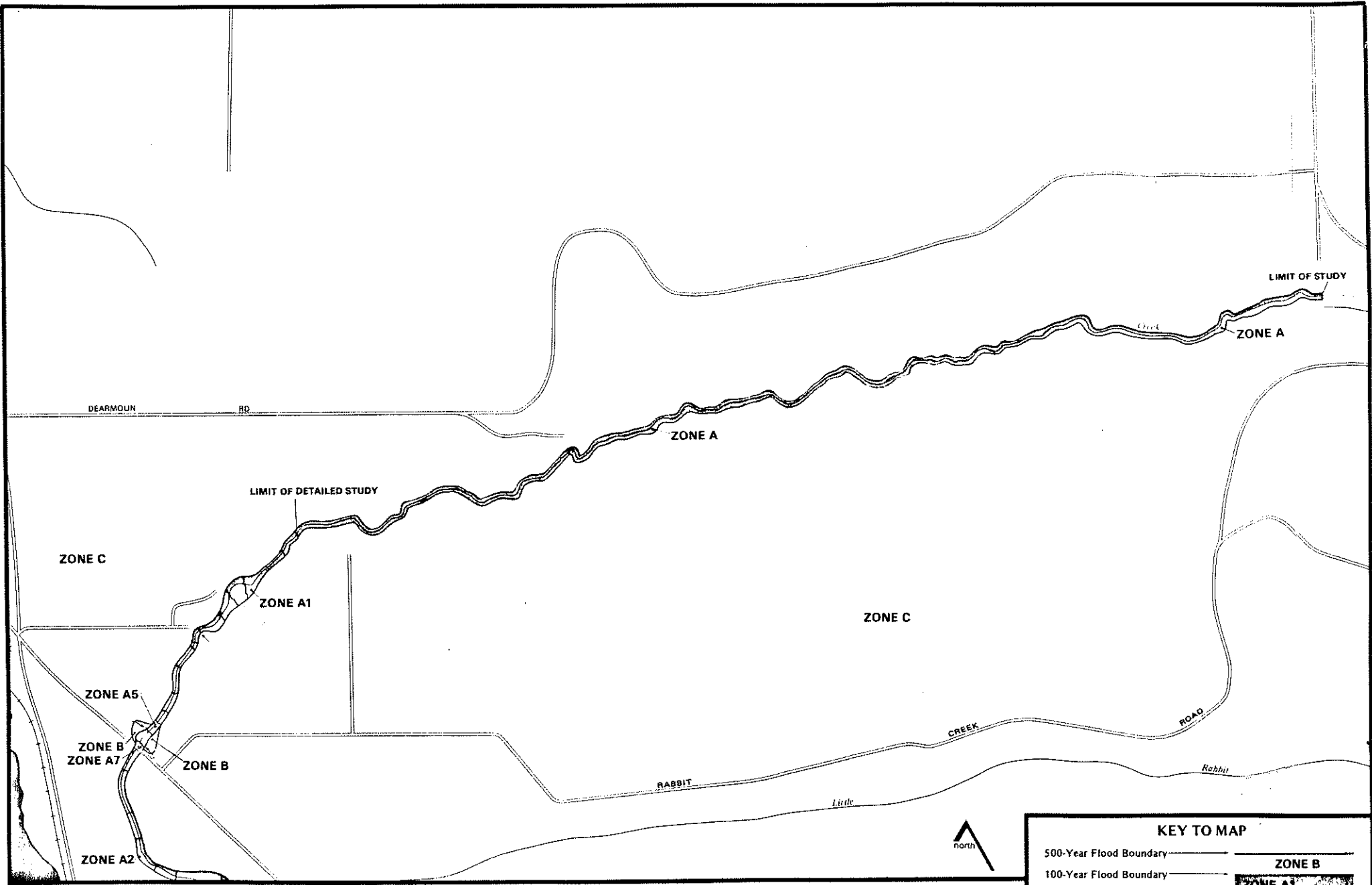


FIGURE 1: Floodplains

Rabbit Creek Greenbelt Plan

Note: more detailed maps of the flood plain are available in the Corps of Engineers' Flood Plain Information, Rabbit Creek, 1973.

KEY TO MAP

500-Year Flood Boundary	_____	ZONE B
100-Year Flood Boundary	_____	ZONE B
Zone Designations* With Date of Identification c.g., 12/2/74		ZONE A1 DATE
100-Year Flood Boundary	_____	ZONE A5 DATE
500-Year Flood Boundary	_____	ZONE B

2.2 Grades: Along the Corridor and on Slopes Leading Down to the Creek

The overall grade of Rabbit Creek is approximately 5 percent. In fact, as Figure 3 depicts, the grade does not vary considerably from one section to another. Starting from Rabbit Lake (elevation 3082 feet), the creek drops about 2,200 feet by the time Rabbit Creek Road is reached. This occurs over a distance of approximately 7.5 miles and amounts to a 5.6 percent grade overall. From Rabbit Creek Road (elevation: 870) to Buffalo Street (elevation: 440 feet), a distance of 9,600 feet, the creek drops another 430 feet. This amounts to a grade of 4.5 percent. From Buffalo Street to Old Seward (elevation: 100+ feet), a distance of 8,500 feet, the grade is approximately 4 percent.

Although the stream tumbles over slight waterfalls in places, its meandering course tends to ease the overall rate of fall. Within the corridor itself, the grades of many paths, which have been worn by informal use, are less steep as they tend to follow relatively flat portions of the topography.

The side slopes of the corridor vary considerably. In the upper drainage, the slope is steep because the peaks of the mountains rise above the valley. Flattop and Suicide Peaks are examples. These types of areas are fairly stable given the bedrock and compact soils. Lower in the valley, the side slopes can be characterized as generally steep on the south side and moderate to the north. Between Chugach State Park and Buffalo Street, the slope south of the creek is generally greater than 45 percent and is fragile because of its silt loam soils. West of Buffalo Street the same type situation (silt loam soils on 45 percent or greater slopes) exists along portions of the corridor. Where the length of these slopes is great, access to the corridor is difficult and greater potential for erosion exists.

2.3 Soils Along the Corridor

Soil and slope information provide the means to examine various alternatives for greenbelt planning. In looking at soil types, the following conditions are of particular concern:

1. Soils associated with the floodplain;
2. Soils which are highly susceptible to erosion and are present on steep slopes;
3. Soils which are poorly drained and have tendencies to cause wastewater disposal problems; and
4. Soils which are characteristic of wetlands.

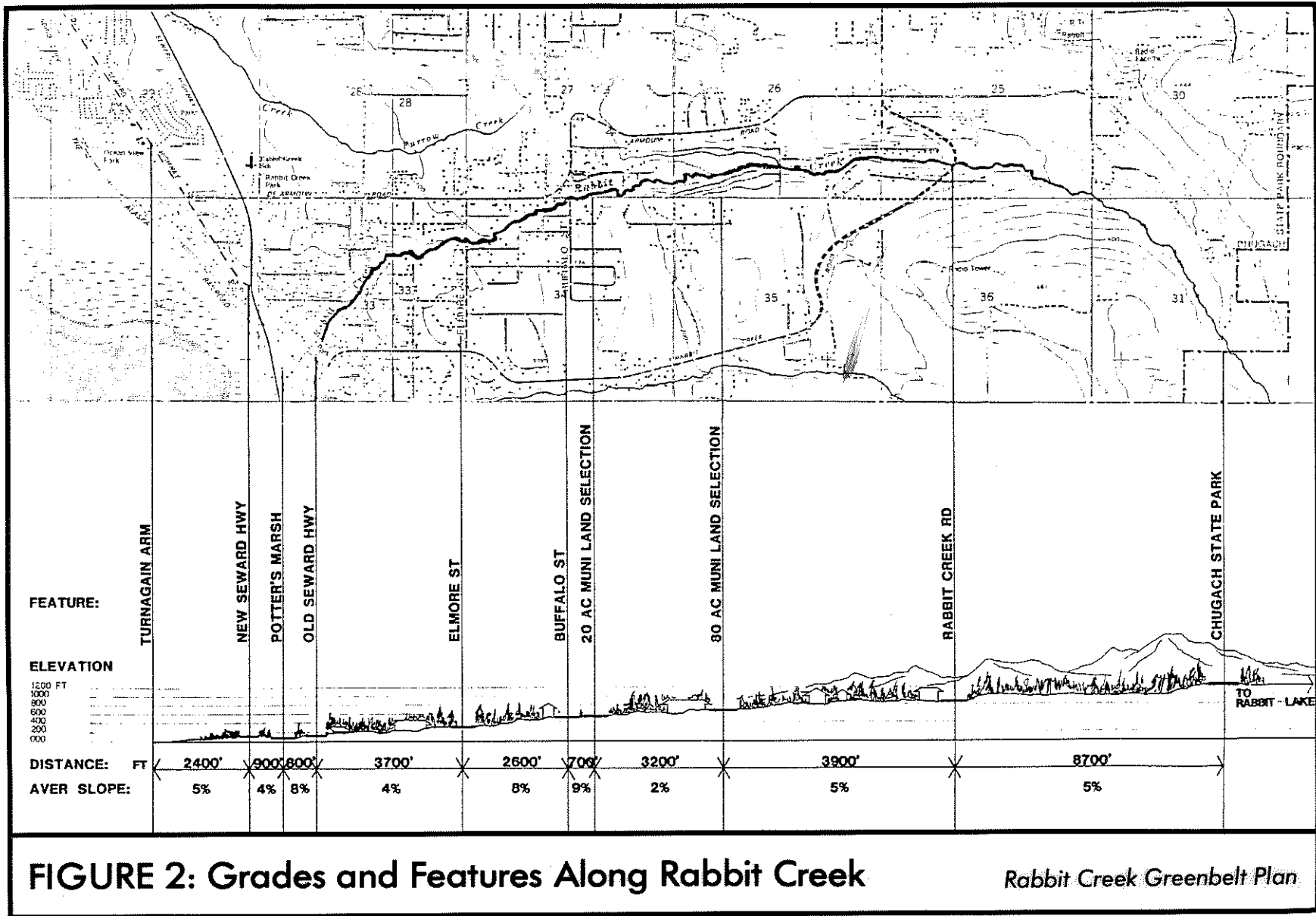


FIGURE 2: Grades and Features Along Rabbit Creek

Rabbit Creek Greenbelt Plan

The Municipality obtained the services of Arctic Geo Resource Associates, a team of soil scientists, to examine the Rabbit Creek watershed in terms of development potential and limitations, recreation potential, habitat values and water quality values. The technical discussion of their work is presented in Rabbit Creek Greenbelt: Management Recommendations and Technical Report (1985). In that report, soil limitations were mapped as severe, moderate or slight, based on the limitations previously described (that is, flooding, slope, permeability and wetness). Those areas characterized as having severe limitations are presented in the appendices of this report and are composed of the following soil types:

Chena Silt Loam Soils: these soils, which are located along the creek, were deposited as silts and gravels over time. These soils are associated with flooding problems, including spring floods and winter flooding due to auge.

Jacobsen Mucky Silt Loam Soils: These soils occupy relic channels and depressions at the bottom of upland slopes. Often lying between better drained soils, their drainage is impeded due to their low lying positions on the landscape. Sphagnum moss typifies their ground cover. Because of their high water table and their organic composition, they are often characterized as a wetland soil type.

Homestead Silt Loam (on severe slopes): this is a relatively well drained soil. Its characteristics for development are limited by its moderate permeability and on slopes in excess of 20 percent.

Slikok Mucky Silt Loam: these soils, have a high water table, typically within two feet of the surface. They sit at the bottom of slopes where runoff and seepage are prevalent. Sphagnum moss and Black Spruce are the common vegetation. Their major limitation is wetness.

Huffman Silt Loam: these soils are found at the lower end of steep slopes and often saturated. Wetness and erosion are their primary limitations.

Torpedo Lake Silt Loam: these soils consist of dense fine silty lacustrine sediments. Generally found at an appreciable distance to the creek, they are characterized by poor permeability.

Starichkof Peat: this is a very poorly drained soil formed in deep deposits of decomposed peat. Lying in depressions, these soils are usually saturated. The combination of organic soils and wetness result in its limitations for development.

These soils and their characteristics were used in making the greenbelt recommendations contained in this plan.

2.4 Fauna and Vegetation

Rabbit Creek is an anadromous stream. There, runs of King, Coho and Pink Salmon and Dolly Varden enter the stream at Potter's Marsh to spawn. State Fish and Game officials estimate that the extent of the runs is to a point roughly 2.5 miles above Old Seward Highway. Rainbow Trout and White Fish also inhabit Rabbit Creek. Fishing is prohibited in the Marsh; however, some fishing is permitted above Old Seward Highway. (Annual regulations should be checked in this regard.)

Potter Marsh is an extraordinary water fowl habitat. Migratory birds arrive in late spring and raise their young during the summer months. Prominent species include the Canadian Geese, Artic Terns, Horned Grebes, Green-winged Teals, Mew and Bonaparte Gulls, Northern Pintails, Northern Shovelers and Canvasbacks. Muskrat, mink and beaver have been observed in the Marsh.

As one heads upstream, the creek corridor becomes fairly well drained and different habitats emerge. Spruce, birch and cottonwood are predominant tree species along the creek and nearby slopes. The understory is a mixture of alder, willow, Devil's Club, berry plants, ferns and moss. These types of plants are common along most of the creek, eventually giving way to alpine species in the State Park.

Small and large mammals can be seen along the length of the creek. Bear, ground-dwelling rodents and moose are occasionally seen in the upper reaches of the creek. Moose tend to come down the corridor in winter to browse in the thickets near the creek. The low-lying willow and alder understory of the proposed greenbelt are an extremely important habitat for moose.

2.5 Population, Housing and Land Use Characteristics

The Rabbit Creek community can, in general terms, be described as an affluent one composed of small nuclear families residing in their own homes. The average household size in the Rabbit Creek area is slightly larger than Anchorage as a whole. Household income is also above average. The number of households per acre is very low, amounting to less than one household per acre compared with over four households per acre elsewhere in Anchorage. This aspect of residential density is such that lower residential densities can be expected in future development, especially in view of the zoning for the upper drainage and the platting pattern in the lower area, west of Buffalo Street. Current land use is predomi-

nantly residential and, given the rural residential zoning for the area, will continue as such.

A profile of the community is presented in the following table with comparisons of the Anchorage population as a whole. The source of the information is the 1980 Census unless otherwise noted.

TABLE 1: POPULATION PROFILE

	Municipality of <u>Anchorage</u>	Rabbit Creek Comparatives	
		(a) Census Tract	(b) Geographic Rezone
		<u>28.02</u>	<u>Area #2</u>
1984 resident population (includes base military and group quarters)	248,263	10,869	33,339
a. 1985 persons per household	2.82	3.47	3.20
b. 1985 children per household	0.93		1.22
% of households with children	49.1%		60.0%
c. 1985 percent persons 20 yrs & older	67.7%		64.2%
1985 percent persons 18 yrs & older	70.6%		66.8%
1985 median age	27.2 yrs		27.7 yrs
income ²	28.3 yrs		27.3 yrs
f. 1980 managerial & professional specialty occupations	29,029	\$40,023	occupation ²
technical, sales, and administrative support operations	1980		
service occupations	30.5%		
farming, forestry, and fishing occupations	35.8%	30.6%	
precision production, draft and repair operations	12.5%	8.6%	
operators, fabricators and laborers	0.7%	1.6%	
	11.1%	12.3%	
	9.4%	6.8%	
TOTAL civilian employed	100.0%	100.0%	

	Municipality of <u>Anchorage</u>	Rabbit Creek Comparatives	
		(a)	(b)
		Census Tract <u>28.02</u>	Geographic Rezone <u>Area #2</u>
g.	1985 avg length of residence	8.8 yrs	9.1 yrs
	1977 avg length of residence in Anchorage ³	9.4 yrs	11.8 yrs Anchorage ¹
	1977 median length of residence in Anchorage ³	6.0 yrs	7.1 yrs
h.	1977 avg length of residence in present home ³	3.9 yrs	4.5 yrs
	1977 median lengths of residence in present home ³	2.0 yrs	3.0 yrs
i.	1985 percent owner-occupied housing units	58.9%	80.7%
j.	1984 race/ethnicity: ¹		
	White	86.7%	93.2%
	Black	4.1%	1.6%
	Native	4.5%	2.6%
	Asian	3.1%	2.4%
	Other	1.6%	0.3%
	TOTAL	100.0%	100.0%
	Hispanic Origin	2.6%	1.9%
k.	1984 mean educational level (for persons 25 yrs & older)	13.6 yrs	14.2 yrs
	high school graduate	92.1%	94.1%
	college graduate	27.6%	38.5%
l.	median value of owner occupied non-condominium housing units ¹	\$89,700	\$110,100
m.	1985 number of households	81,663	3,129
			10,432

Footnotes

1. 1984, 1985 Annual Household Survey, Municipality of Anchorage, Community Planning Department, Research Section, July 1984, 1985.
2. U.S. Bureau of the Census, Department of Commerce, April 1980.
3. 1978 Population Profile, Municipality of Anchorage, Community Planning Department, Research Section, 19 June, 1977.

2.6 Trails: Existing and Planned

Over the years, informal footpaths have evolved along most of the corridor. Along certain portions of the corridor a trail is very apparent, such as in the 80 acre Municipal parcel which is west of Kelly Ranch Road. Such trails are indication of the informal activities which transpire near the stream.

The Anchorage Trails Plan, adopted in 1985, serves as the basis for trail development in the Rabbit Creek area. The following recommendations for trail development are consistent with that plan.

1. A trail for walking, skiing and horseback-riding purposes (with associated bridges) should be provided from Rabbit Creek Road eastward into Chugach State Park. The natural character of the stream should be protected. The trail should be generally set back at least twenty-five feet from the stream bank except in those instances where stream crossings are necessary. The trail should not run strictly parallel to the stream so that the creek will be protected and trail users will experience varied terrain. It is expected that trail location and site planning will be conducted in conjunction with the community councils.
2. In the area between Buffalo Street and Rabbit Creek Road, the following trails are recommended. A trail for non-motorized uses should be provided from DeArmoun Road to the 20-acre municipal park which adjoins Rabbit Creek. Similarly, a non-motorized trail should be provided from Rabbit Creek Road/Hillside Drive to the 80-acre Municipal park. The non-motorized trail should not be paved.

Finally, a trail system should be designed for the 80-acre parcel; consideration should be given to an exercise trail system. All these improvements would be subject to site plan review in which alignments and design features would be discussed with the Community Council.

3. There should be no linear public trail development along Rabbit Creek west of Buffalo Street.
4. While Anchorage Trails Plan identifies the general alignment of equestrian trails along side roads in the Rabbit Creek area, the actual route on the south side of Rabbit Creek between Buffalo and Elmore will be determined at a later date through the appropriate public hearing process after adequate public notice. The public right-of-way of Elmore and Buffalo Streets are identified because riders need certain places to cross

the creek to join with DeArmoun Road and Rabbit Creek Road trails. Should there be problems in this regard, the Parks and Recreation Department should program improvemetns to protect the stream at Elmore Street and to direct horseback riders to use designated crosses. If problems develop whereby horseback riders use other crossings, routing measures, including the identification of a horse trail between Elmore and Buffalo Streets, should be sought in conjunction with the Parks and Recreation Department on the south side of Rabbit Creek. This trail shall not be in close proximity to Rabbit Creek. The dotted recommended trail identification in the Rabbit Creek Greenbelt Plan at Figure 5, sheet 1 of 2, between Buffalo and Elmore on the south side of Rabbit Creek shall be strongly considered for removal from the plan and replaced with an alternative route pursuant to the appropriate public hearing process.

5. A bike trail should be developed along DeArmoun Road, providing links to the Birch Road and Hillside Road bike trails.
6. The primary function of the greenbelt is to provide a natural area near the creek, protecting water quality. In view of that objective, trails should be generally set back a minimum of 25 feet from the creek. Only in those instances where bridging is necessary or unusual topographic conditions exist should trails be located closer to the stream.

2.7 Water Quality Protection Near the Creek:

Stream protection is covered under the Municipality's land use regulations, specifically the supplementary district and subdivision regulations, Titles 21.45.200 and 21.80.040, respectively. These sections of the code were drafted to protect the water quality of streams within the Municipality, including Rabbit Creek. In too many instances rerouting, culverting, filling and stripping have severely impacted streams. Rabbit Creek, fortunately, has largely escaped these abuses. Title 21.45.200 calls for a stream protection setback. This area is a 25 foot vegetated buffer adjacent to the stream. The closest 15 feet to the stream should remain undisturbed. The outer 10 feet of the buffer can be disturbed to accommodate utilities, drainage facilities, and where approved, such public recreation facilities as trails. In undertaking such improvements, disturbed areas must be revegetated. This buffer will provide the filtering of pollutants and main tenance of important vegetation to protect water temperature and stabilize stream banks. In addition, the code provisions allow limited disturbance of vegetation in stream easements as long as the disturbed areas are revegetated.

In those areas where wetlands adjoin streams, the required setback for structures and fill is 65 feet. Existing structures which do not conform to the stream protection provisions are "grandfathered" as nonconforming structures, allowing continued use of that property.

The other provision, that within the subdivision regulations, calls for a 25 foot stream maintenance and protection easement in platting new subdivisions through which significant streams flow. This area is measured landward from the outer edge of the stream bed. Within the area, there may be Municipal access to widen, deepen, slope and maintain the stream and protect the stream and adjacent property from soil erosion, flooding, pollution and destruction of fish and wildlife habitat.

2.8 Ownership Along the Corridor:

For planning purposes, the creek corridor can be divided into three sections. The lower section, running from Potter Marsh to Buffalo Street, has a land ownership pattern which is composed of BLM homesite lots (2.5 acres each) and a series of lots which are approximately one acre in size which have been platted between Elmore and Buffalo Streets. Slightly more than fifty lots adjoin the creek in the lower portion of the corridor.

The second section runs from Buffalo Street to the New Rabbit Creek Road. This section includes the 20 acre and 80 acre Municipal tracts, a series of 2.5 acre BLM parcels and a series of lots which were platted as part of the Hillside Subdivision #2 and the South Hill Subdivision. All housing in this area was built to the north of the creek. In the two miles between Buffalo Street and Rabbit Creek Road, there are approximately 32 lots which border the stream. Since the moratorium on land acquisition was lifted last year, seven whole lots and six partial lots totalling almost 18 acres have been purchased by the Municipality.

The third section lies east of Rabbit Creek Road and runs for approximately two miles until the creek enters Chugach State Park. With the exception of eight relatively small lots just east of Rabbit Creek Road (part of South Hills Subdivision), the land ownership patterns in the upper section can be characterized as extremely large, privately-owned parcels, ranging in size from 20 to approximately 160 acres. The area is virtually undisturbed and the creek is clear and in its natural state. Following the moratorium on land acquisition,* two parcels, totalling 42 acres, have been purchased in the upper portion of the drainage near Chugach State Park.

* This moratorium on land acquisition was imposed in the late-1970s in view of area resident's dissatisfaction

with a greenbelt acquisition plan which included property along the entire creek. Because of extensive residential development in the lower sections of the watershed, homeowners were instrumental in having the Assembly impose an acquisition moratorium until a new plan was developed. The 1984 draft, although not adopted by the Assembly, eased resident's concerns about Municipal intent regarding a Rabbit Creek greenbelt; consequently, the moratorium was lifted whereby property owners could approach the Municipality about their intent to sell.

3.0 IMPLEMENTATION METHODS

There are two general aspects to consider in setting aside a greenbelt: public access to portions of the creek and preservation of water quality and natural features. A combination of implementation measures should be used in reaching these goals. Some regulatory measures are already in effect. These include the Municipality's flood hazard district provisions (Title 21.60.040 - 21.60.070), setback provisions for buildings, stream protection provisions (Title 21.45.020 and 21.80.040), setback requirements under the wetland management program, and on-site waste disposal provisions (Title 15). Other issues need to be addressed, including setbacks from the slopes, especially to the south side, prohibition of dumping fill over the slopes, and controls regarding sediments running into the streams.

3.1 Water Quality Measures:

The Department of Environmental Conservation has designated water quality standards for various types of streams. In the case of Rabbit Creek, where at least a few residents reportedly use the creek for water supply and contact recreation, the criteria depicted in Table 2 are recommended.

Two efforts to monitor Rabbit Creek water quality are being undertaken at this time. One effort is through the Municipal Department of Health and Human Services, Environmental Quality Division, by which wells have been sunk at selected locations in the drainage basin to monitor ground water quality. Additionally the U.S. Geological Survey's Water Resources Division has collected water samples in recent years. Such monitoring has not resulted in sufficient data to determine any trends. (An explanation of U.S.G.S. efforts is attached as appendix B.)

In order to control sediment load from entering Rabbit Creek, detention basins should be used on municipal land as long as such features have been identified in a drainage plan for the area and are developed via site planning for the publicly owned land.

There are four basic water quality concerns:

1. Turbidity and suspended sediments: clearing near the creek can cause these problems; fill for lot development and road side banks are other common sediment sources if revegetation is not properly accomplished (see Figure 2a); storm sewer and open ditch outfalls into the creek are other problematic sources.
2. Fecal coliform and other bacteria: problems in this regard are due to one or more of the following - an

inadequate sewer system, inadequate septic systems, horses, other farm animals or kennels near the creek.

3. Petroleum and oils: such problems are generally caused by runoff from impervious surfaces such as rooftops, asphalt and oiled roads.
4. Water temperature: clearing of trees near the stream can cause an increase in water temperature because of additional sunlight penetration to the stream. With the increased temperature and absence of shaded cool pools, fish behavior will be altered. This particularly has negative implications for anadromous fish.

The Department of Health and Human Services (DHHS) is developing a Water Quality Monitoring Plan for the lakes and watersheds of the Municipality. The parameters for Rabbit Creek monitoring, will be consistent with State standards, and Environmental Protection Agency criteria, and include non-toxic mineral monitoring and biological monitoring. It is projected that, in addition to the current program of ground water monitoring, that three surface water monitoring stations will be included in the Rabbit Creek portion of the program.

Table 3 provides jurisdictional responsibility regarding these problems.



Figure 2a: Sediment from slopes where revegetation has failed to take hold or on slopes which have not been revegetated cause severe turbidity problems, particularly during "breakup."

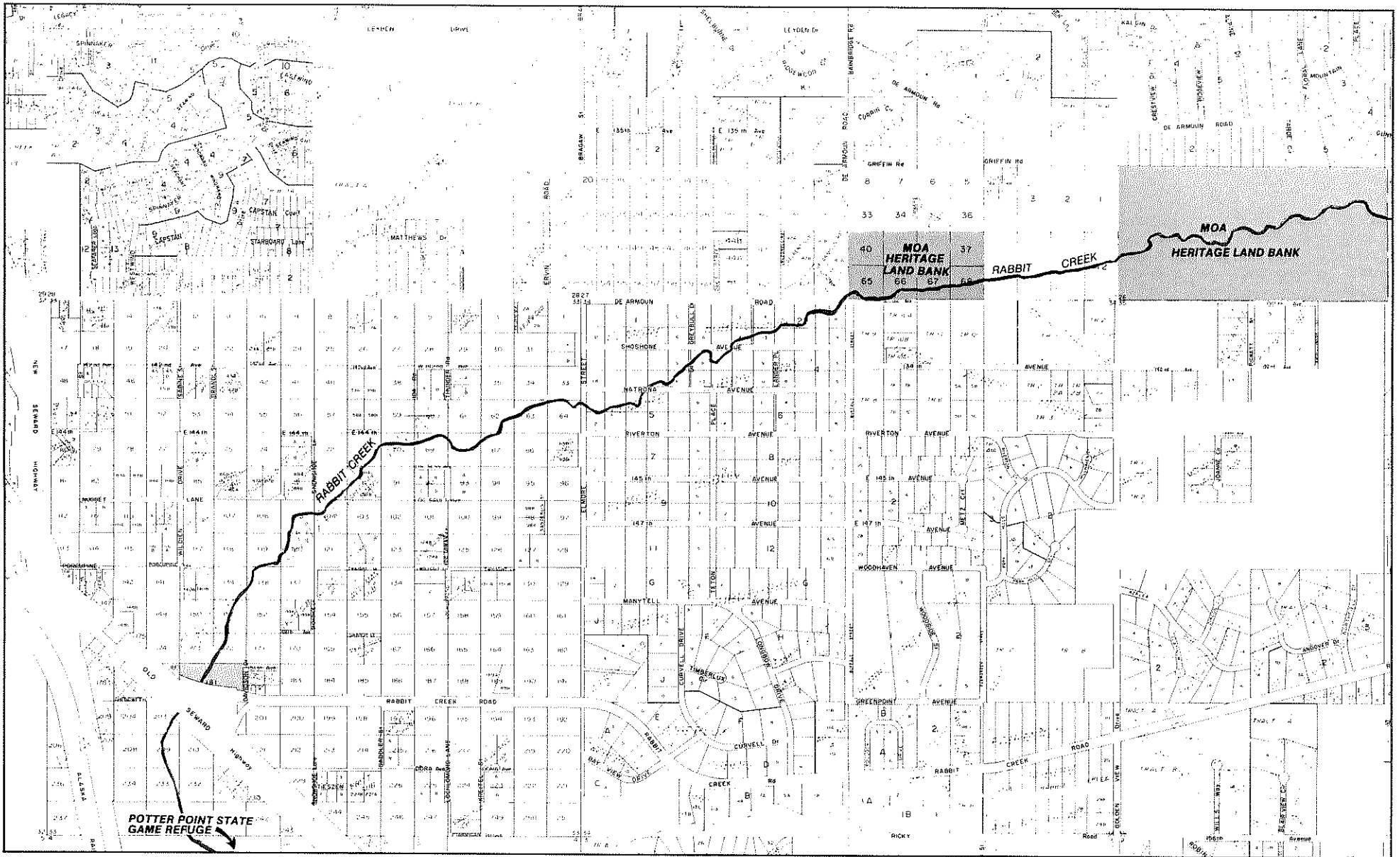


FIGURE 3: Existing Publicly Owned Parcels

Rabbit Creek Greenbelt Plan

- Municipal Land
- State Land

Scale: 1" = 1000'



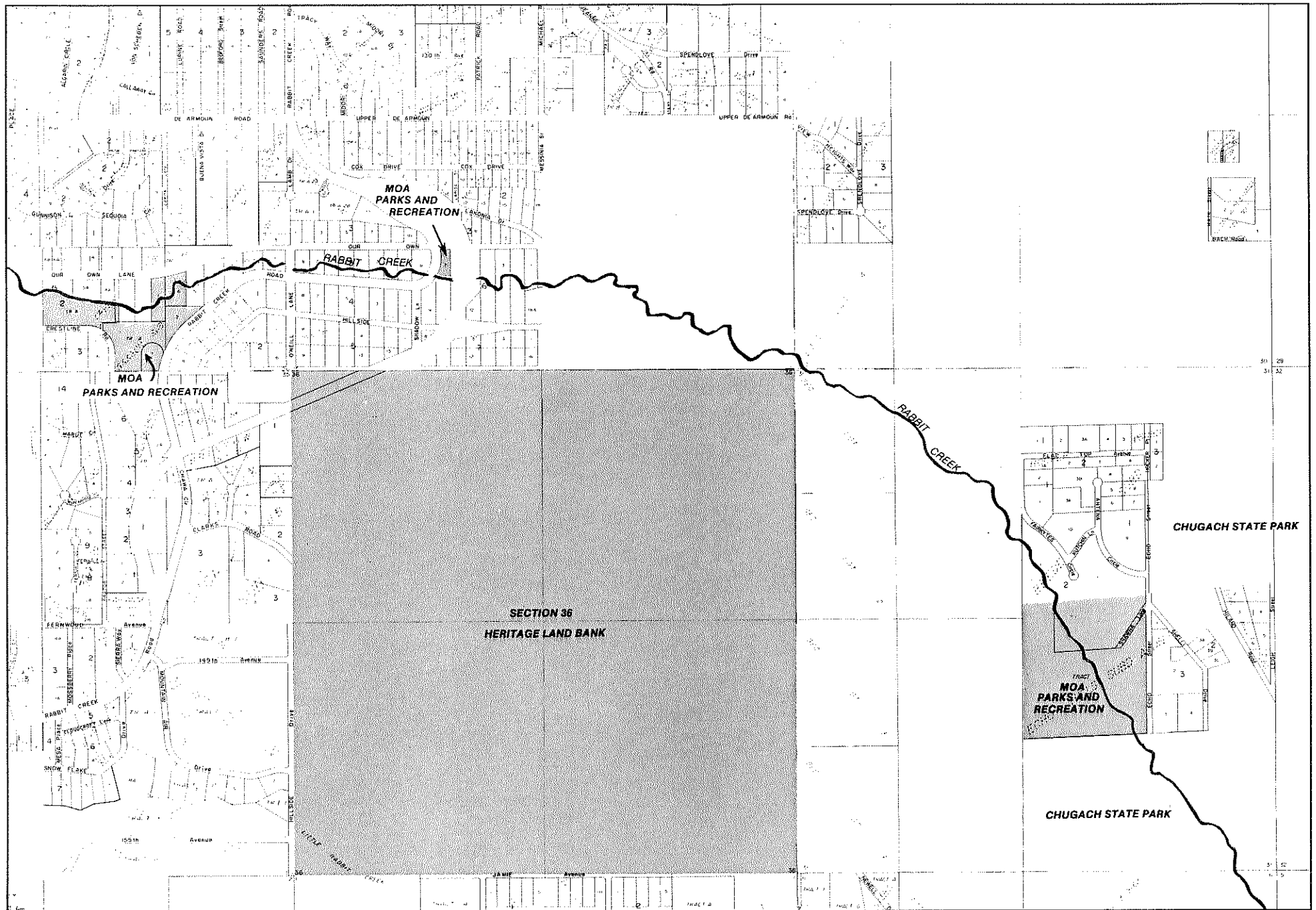


FIGURE 3: Existing Publicly Owned Parcels

TABLE 2: WATER QUALITY CRITERIA

Water Quality Parameters FRESH WATER USES	(1) FECAL COLIFORM BACTERIA (FC)	(2) DISSOLVED GAS	(3) pH (Variation of pH for waters naturally outside the specified range shall be towards the range).	(4) TURBIDITY (Not applicable for groundwater)	(5) TEMPERATURE	(6) DISSOLVED INORGANIC SUBSTANCES
Water supply for drinking, culinary, food processing, and contract recreation.	Based on a minimum of 5 samples taken in a period of 30 day, mean shall not exceed 20 FC/100 ml, and not more than 10% of the samples shall exceed 40 FC/100 ml. For groundwater the FC concentration shall be less than 1 FC/100 ml when using the fecal coliform Membrane Filter Technique or less than 3 FC/100 ml when using the fecal coliform MPN technique.	Dissolved oxygen (D.O) shall be greater than or equal to 4 mg/l	Shall not be less than 6.0 or greater than 8.5. Shall not vary more than 0.5 pH unit from natural condition.	Shall not exceed 5 NTU above natural conditions when the natural turbidity is 50 NTU or less, and not have more than 10% increase in turbidity when the natural condition is more than 50 NTU, not to exceed a maximum increased of 25 NTU.	Shall not exceed 15°C.	Total dissolved solids (TDS) from all sources shall not exceed 500 mg/l. Neither chlorides nor sulfates shall exceed 200 mg/l.

(7) SEDIMENT (NOT APPLICABLE TO GROUNDWATER SUPPLIES)	(8) TOXIC AND OTHER DELETERIOUS ORGANIC AND INORGANIC SUBSTANCES	(9) COLOR	(10) PETROLEUM HYDROCARBONS, OIL AND GREASE	(11) TOTAL RESIDUAL CHLORINE	(12) RESIDUES, FLOATING SOLIDS, DEBRIS, SLUDGE DEPOSITS, FOAM, SCUM
No measurable increase in concentrations of sediment above natural conditions.	Substances shall not exceed Alaska Drinking Water Standards (See Note 5) or EPA Quality Criteria for Water as applicable to substance.	Shall not exceed 75 color units where water supply is or will be treated. Shall not exceed 5 color units where water supply is not treated.	Shall not exceed 0.01 times the continuous flow 96 hour LC50 or if not available the static test 96 hour LC50 for the species involved.	Concentration shall not exceed 2.0 ug/l for salmonid fish, or 10.0 ug/l for other organisms	Shall not alone or in combination with other substances or water cause the water to be unfit for the use. Shall not cause detrimental effects on established water supply treatment levels.

TABLE 3: JURISDICTION OF AGENCIES REGARDING WATER QUALITY PROBLEMS

WATER QUALITY PROBLEM	AGENCY ADDRESS AND PHONE NO.	INDICATOR OF CAUSE OR EFFECT
(1) Turbidity and suspended sediments	Zoning Enforcement Municipality of Anchorage Pouch 6-650 Anchorage, Alaska 99502 786-8335	If, Creek maintenance easement is not being maintained; if building or development related problems are affecting the stream.
	Habitat Division Department of Fish and Game 333 Raspberry Road Anchorage, Alaska 99502 267-2284	If anadromous fish are endangered, or work is performed in the stream channel.
	Department of Environmental Conservation 437 E Street, Suite 200 Anchorage, Alaska 99501 274-2533	If turbidity is present in stream.
	Regulatory Functions Branch Alaska District Corps of Engineers Pouch 898 Anchorage, Alaska 99506 278-3714 or 552-4942	If unwarranted fill has been placed in or near stream or if fill or other changes to the stream are contemplated.
(2) Fecal Coliform Bacteria	Department of Environmental Conservation 437 E Street, Suite 200 Anchorage, Alaska 99501 274-2533	If problem is perceived or monitoring is desired.

TABLE 3: JURISDICTION OF AGENCIES REGARDING WATER QUALITY PROBLEMS

(Continued)

WATER QUALITY PROBLEM	AGENCY ADDRESS AND PHONE NO.	INDICATOR OF CAUSE OR EFFECT
	Department of Environmental Conservation 437 E Street, Suite 200 Anchorage, Alaska 99501 274-2533	If problem is perceived or if monitoring is desired.
(3) Petroleum and Oils	Department of Environmental Conservation 437 E Street, Suite 200 Anchorage, Alaska 99501 274-2533	If the presence of oil is perceived.
	Department of Fish and Game 333 Raspberry Road Anchorage, Alaska 99502 267-2284	If habitat of anadromous fish appear to be affected.
(4) Water Temperature	Zoning Enforcement Division Municipality of Anchorage Pouch 6-650 Anchorage, Alaska 99502 786-8335	If trees or other vegetation is cleared within 25 feet of the creek.
	Department of Environmental Conservation 437 E Street, Suite 200 Anchorage, Alaska 99501 274-2533	If changes in temperature are suspected.
	Department of Fish and Game 333 Raspberry Road Anchorage, Alaska 99502 267-2284	If anadromous fish appear to be affected.

3.2 Greenbelt Purchase and Regulatory Measures:

The other type of implementation measures involve land use regulation, the dedication of easements and land purchase. As part of the subdivision regulations, trail easements can be dedicated by the Platting Board in keeping with the plan. In that subdivision activity has not been pronounced in this area, there have been no trail easements set aside following the adoption of the Anchorage Trails Plan. (This includes both the original plan dating from 1978 and the updated edition, adopted in 1985.)

The Parks and Recreation Department is responsible for administering the acquisition program. As part of that program, potential acquisitions will be brought to the attention of the community council for their review and recommendations.

Each section of the potential greenbelt will require different attention. This is because of land ownership patterns, the size of tracts, the extent of existing development, public land ownership and physical characteristics. The following should be considered in achieving the greenbelt:

A. Life Estates

Under this mechanism the land is bought at its current market value yet present property owners are given the right to live on the property until they decide to move on. At that time the Municipality assumes full control. Depending on the structural condition of the building, its distance to the creek and similar considerations, the Municipality may wish to lease or resell the building with provisions for setting aside a portion of the property for a greenbelt.

B. The Heritage Land Bank

The Municipality has established a Heritage Land Bank (HLB). This bank will be used to sell land to buy other land where it is needed for public purposes. In the case of Rabbit Creek there may be a number of opportunities to use this fund to acquire greenbelt land. The Parks and Recreation Department has noted that land acquisition in the upper portion of the Rabbit Creek drainage is among its highest priorities for uses of HLB funds.

C. Fee Simple Purchase and Right of First Purchase

In many cases there are lots or parcels of land which are of such relative importance to the total greenbelt that money should be allocated through the Capital Improvements Program for land acquisition. In the case of extremely large parcels, an adequate greenbelt could be set aside, allowing subdivision of land to the periphery upon which low density residential development could occur.

In order to provide park space, especially neighborhood park land, the acquisition of lots at selected points along the greenbelt should be used. "Nodes" refer to points where the greenbelt would be wider to accommodate a park, this tool may have particularly applicability in the area west of Elmore Street to provide park space to serve the adjacent neighborhood. One possibility in this regard is the use of Municipal land where Rabbit Creek crosses Old Seward Highway.

The Municipality should develop agreements with those property owners who so desire to have the opportunity to purchase a particular parcel when it comes up for sale. Such a right would protect the owner's current use of the land and would serve to fairly compensate the owner when sale is contemplated.

D. Stream Protection Area

The vegetation near the creek is of critical importance in maintaining habitat and water quality. Trees and natural understory are significant factors in maintaining the temperature of the creek, in regulating its natural flow and providing water retention and filtering of runoff before it enters the stream. In order to conserve the area near streams, the Municipality has adopted a stream protection ordinance (AO 85-57). Provisions of this ordinance are discussed on pages 13-14 of this plan.

E. Water Quality Bonds

In October 1985, Anchorage voters approved a \$10 million water quality bond measure. The funds garnered from the sale of those bonds will be used on a variety of stream protection projects, including the purchase of greenbelt space. Rabbit Creek is one of the streams included for funding under the program. The Community Planning Department and Parks and Recreation Department have collaborated in recommending priorities for Rabbit Creek greenbelt acquisition. The priorities were set with water quality being a significant factor (see pages

25-27 and 30-36 concerning recommendations regarding acquisition). The Water Quality Council, created in the fall of 1984, makes recommendations to the Mayor and Assembly regarding expenditures of bond funds.

F. Trail Easements

The Anchorage Trails Plan calls for the dedication of trail easements at the time of subdivision. The trail easement should be set aside parallel and adjacent to the creek maintenance easement. The only applicable area is upstream from Rabbit Creek Road where the land is largely unsubdivided.

G. Donation of Parkland or Conservation Easements

Some property owners may wish to donate all or part of their land as a philanthropic measure to achieve the greenbelt. The Municipality could assist in determination of the value of such an easement and/or parcel valuation and work with the individual in establishing that value as a charitable donation. Such donations generally have favorable tax advantages.

H. Planned Unit Development (PUD)

Some land owners may wish to consider Planned Unit Development (PUD) provisions in developing their land. This planning tool applies to parcels 5 acres in size or larger. PUD regulations enable residential development at a slightly higher density than is allowed under the existing zone. In the case of the upper Rabbit Creek area R-6, R-8 and R-9 zones can be used for PUDs. A minimum of 30 percent of the tract must be set aside as usable open space. This could enable the developer to set aside a greenbelt along Rabbit Creek as part of his planned unit development. More detailed Municipal regulations (Title 21) should be examined in considering this type of development.

I. Cluster Housing

Cluster housing development is a technique to provide housing on lots smaller than otherwise permitted to allow the preservation of open space or other site amenities. The community receives the benefits of open space while the developer can construct the same number of units as allowed in the underlying zone. In turn, the developer can benefit by using the more developable portion of his property thereby saving construction and infrastructure costs.

In the case of Rabbit Creek, all the adjacent residential zones (R-6, R-8, R-9 and R-10) can be adapted to

cluster housing. However, a minimum site area of 5.0 acres is needed to use this option. Cluster housing may offer a potential means to set aside portions of the greenbelt providing a pleasant environment for future area residents. However, in many areas of upper Rabbit Creek, where this technique would be most applicable, the soils have such limitations as extensive slopes or high water tables that there may not be adequate sites which can adequately absorb the transferred density. In other words, caution should be exercised in transferring density. For instance, the density which could be transferred from extremely sloped slope acreage (40 percent or more) to a marginal area, having modestly steep slopes (15 to 30 percent), may be too much for that area to sustain development with adequate wastewater disposal. For more information regarding cluster housing, see the Anchorage Municipal Code, Land Use Regulations (21.045.190).

3.3 Recent Land Acquisition Along Rabbit Creek:

During the last year and one-half, following the lifting of the moratorium regarding property acquisition along Rabbit Creek, the Parks and Recreation department purchased approximately 59.45 acres for greenbelt purposes. (The moratorium regarding property acquisition by the Municipal Assembly in the late - 1970s and removed in 1984 following public testimony on an earlier draft Rabbit Creek Greenbelt Plan.) This acquired acreage, which is depicted in Table 3, cost \$1,267,500. That table lists the property, size, zoning and acquisition costs.

The acquisitions were concentrated in two areas: the first near the 80-acre municipal parcel, the second near the State Park. The high costs of parcels labeled c and d were because a dwelling and partially completed dwelling were on the lots. There needs to be a system whereby the overall benefits are weighed against cost to set priorities for future greenbelt acquisition. In short, the Municipality should be getting the biggest "bang for its buck" in making acquisition decisions.

TABLE 4: RABBIT CREEK GREENBELT ACQUISITION, 1984-85

PARCEL(S) NO.	FORMER OWNER	LOCATION	ACREAGE	ZONING	ACQUISITION COST
a. 04209106	Bloom	Upper Rabbit Creek, adjacent to State Park	31.8	R-8	\$ 242,500
b. 04209105	Northcott	Upper Rabbit Creek, adjacent to Bloom	10.0	R-8	112,500
c. 01706333	Rupert	Off Our Own Lane	1.6	R-6	217,500
d. 01706332	Guffin	Off Our Own Lane	1.8	R-6	233,000
e. 01706315 01706320-23 01706349	Raasch	Between Old Rabbit Creek Road and Our Own Lane	10.25	R-6	291,000
f. 0170623-25 (Portions) 0170629 (Portions)	Calhoun	East to 80-acre Municipal Parcel	4.0	R-6	171,000

3.4 Setting Acquisition Priorities:

Priorities are needed to assist the Municipality in decision making regarding water quality and greenbelt expenditures. In the past few years, sellers have approached the Municipality when they were ready to move on, or in the case of vacant land, when it was realized that Municipal acquisition funds were available. In the past, there has been no overall assessment of economic, environmental or recreational values of one parcel vis-a-vis another. Given the finite amount of existing and expected funds, a set of priorities needs to be established for future acquisition. Before moving into a discussion of the factors used in setting priorities, it should be noted that the policy of buying from willing sellers is to continue.

Factors to be employed in setting priorities:

1. Water quality protection: place high priority on acquiring those areas where there are natural buffers to protect runoff to the stream, where there are wetland soils, where there is excessive, erosion-prone slopes (greater than 30 percent), and those areas encompassing the floodplain.
2. Cost: highest priority should be given to undeveloped land, avoiding acquisition of housing. Further, subdivided lots which are not developed should be given foremost consideration. Such areas should be included in the greenbelt before additional costs would result because of improvements.
3. Passive and active recreation: place high priority on those areas which remain in their natural condition. Areas with a variety of vegetative types and terrain, lending interest in walking, skiing or horseback riding through the area, should be considered.
4. Fish and Wildlife Habitat: high priority should be placed on acquiring those areas which are undisturbed, where water quality is good, where a variety of vegetative types lend support to diverse habitat.
5. Continuity of the greenbelt system: high priority should be placed where there are realistic opportunities to provide a continuous greenbelt, resulting in an uninterrupted linear corridor. Areas which have a series of developed lots should be avoided. The greenbelt space should be sufficiently wide to assure a sense of enclosure within natural surroundings and allow for public access without impinging on the privacy of residents in developed areas.

Comparative Land Values and Notes Regarding Acquisition

In this section, various areas between Buffalo Street and Chugach State Park are compared in terms of land value and extent of development. The area west of Buffalo Street, which includes 52 lots and high degree of development has been recognized as an area through which a public greenbelt cannot be feasibly extended (see Anchorage Park, Greenbelt and Recreation Facility Plan, adopted December 17, 1985).

In Table 5, the various acquisition areas are examined. They can be categorized as follows:

1. The area between the 20 and 80 Municipal parcels:

Eight 2.5 acres lots are located in this area. Two substantial homes have been developed on two of these lots. The assessed land value for this area is \$440,400. Three of the lots, which straddle the creek, are more limited to development and are valued considerably less than the other parcels. Acquisition should be pursued if a means is seen to form a continuous greenbelt using selected lots or portions of lots. The opportunity in this area is to join the two large municipal parcels, expanding the recreation opportunities within the area.

2. South of Our Own Lane:

There are 16 lots along the southern edge of Our Own Lane. This area, approximately 20 acres in size, includes 11 dwelling units. The total assessed value of the area approaches \$2 million. The expense of acquiring both land and dwelling units in this area makes it an impractical acquisition objective for recreation purposes. Unless there are overriding water quality concerns, this area should not be considered as a high priority for acquisition. Recent municipal acquisition to the west end of Our Own Lane provided opportunities for a mini-park and access to the 80 acre municipal parcel as well as slope protection along the small drainage which runs into Rabbit Creek beyond the west side of Old Rabbit Creek Road.

There may be two benefits in purchasing lots along Our Own Lane should willing sellers approach the Municipality. First, if the potential density of development or the size of the lots could cause water quality problems, then purchase could be considered. Second, if a long-term objective is to have a continuous greenbelt in this area, then the retention of the southern portion of the creek-oriented lots could be sought. In either case, the Municipality should not

retain entire lots upon which housing is purchased. Instead, the greenbelt area should be extracted and platted. Thereafter, the remaining lot and improvements should be sold.

3. Rabbit Creek Road to Chugach State Park:

East of Rabbit Creek Road are four lots, approximately 1.75 acres in size, which are undeveloped. Most of the remaining property is characteristically large, undivided tracts, generally exceeding 60 acres. These tracts cover a variety of terrain, ranging from severe slopes to forested areas near the creek.

The cost of land per acre near the creek, particularly the north side of the creek, should be appreciably higher than what is reflected in Table 5. The overall low cost per acre is derived from the facts that much of these tracts include steep slopes and have not been subdivided. The creek side property is attractive from a development standpoint because of its proximity to the stream and because of the generally level terrain.

The total assessed value of this area, which is comprised of approximately 310 acres, is approximately \$1,900,000. Not all of that acreage would necessarily be needed in a greenbelt. The key portions which should be included are the severe slopes south of the creek, the flood hazard area, and an adequate area north of creek to protect water quality and habitat. Because of the lack of development and lower land costs, the most cost effective acquisition program - in terms of meeting water quality, slope protection and recreation objectives - can be carried out in this area. The Municipality gets its greatest return in meeting its greenbelt goals along the upper portion of Rabbit Creek between Rabbit Creek Road and the Municipal Park parcels adjacent to Chugach State Park.

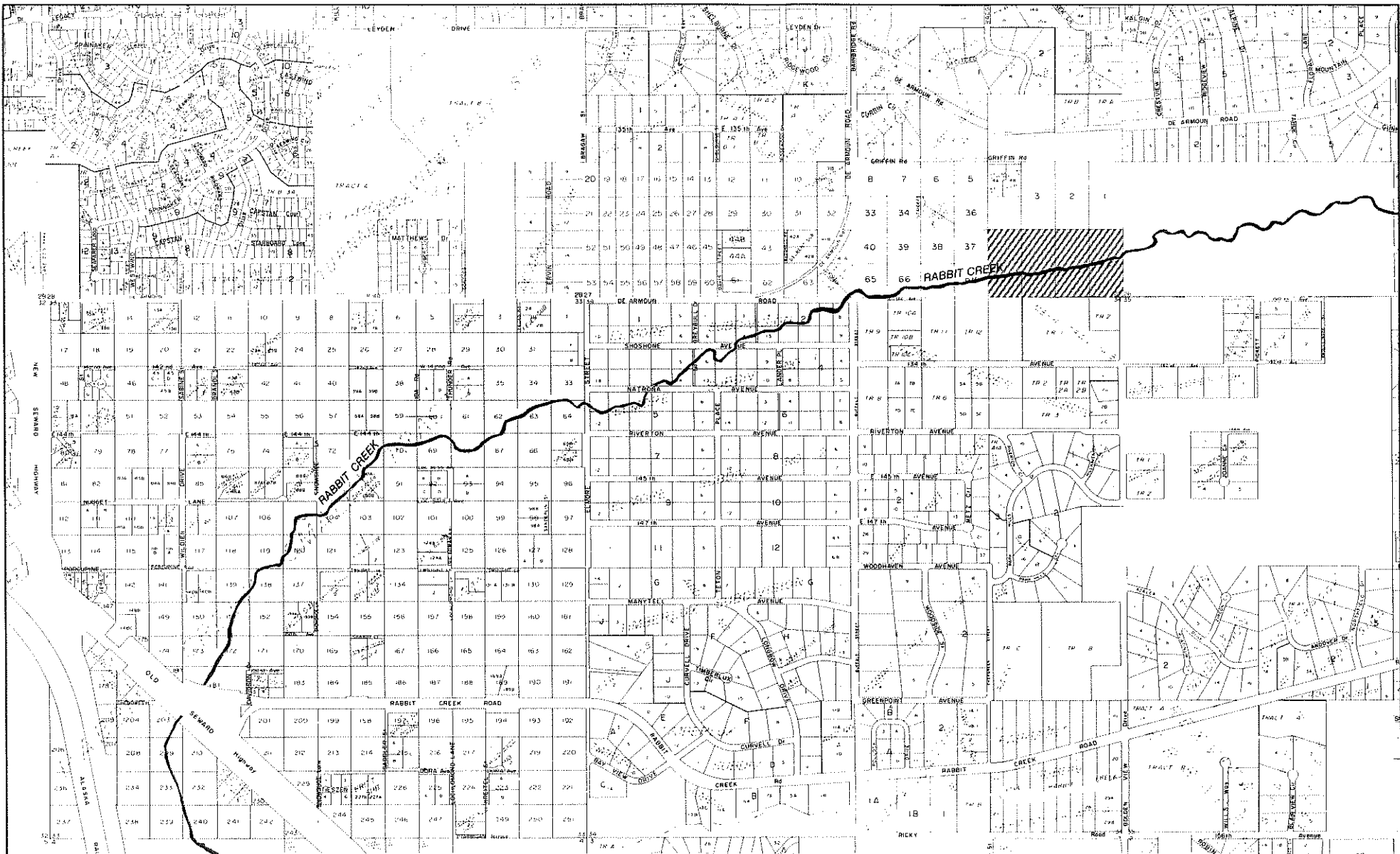


FIGURE 4: Comparative Land Values

Rabbit Creek Greenbelt Plan



Area Between 20 and 80 Acre Municipal Parcels



Areas East of Rabbit Creek Road

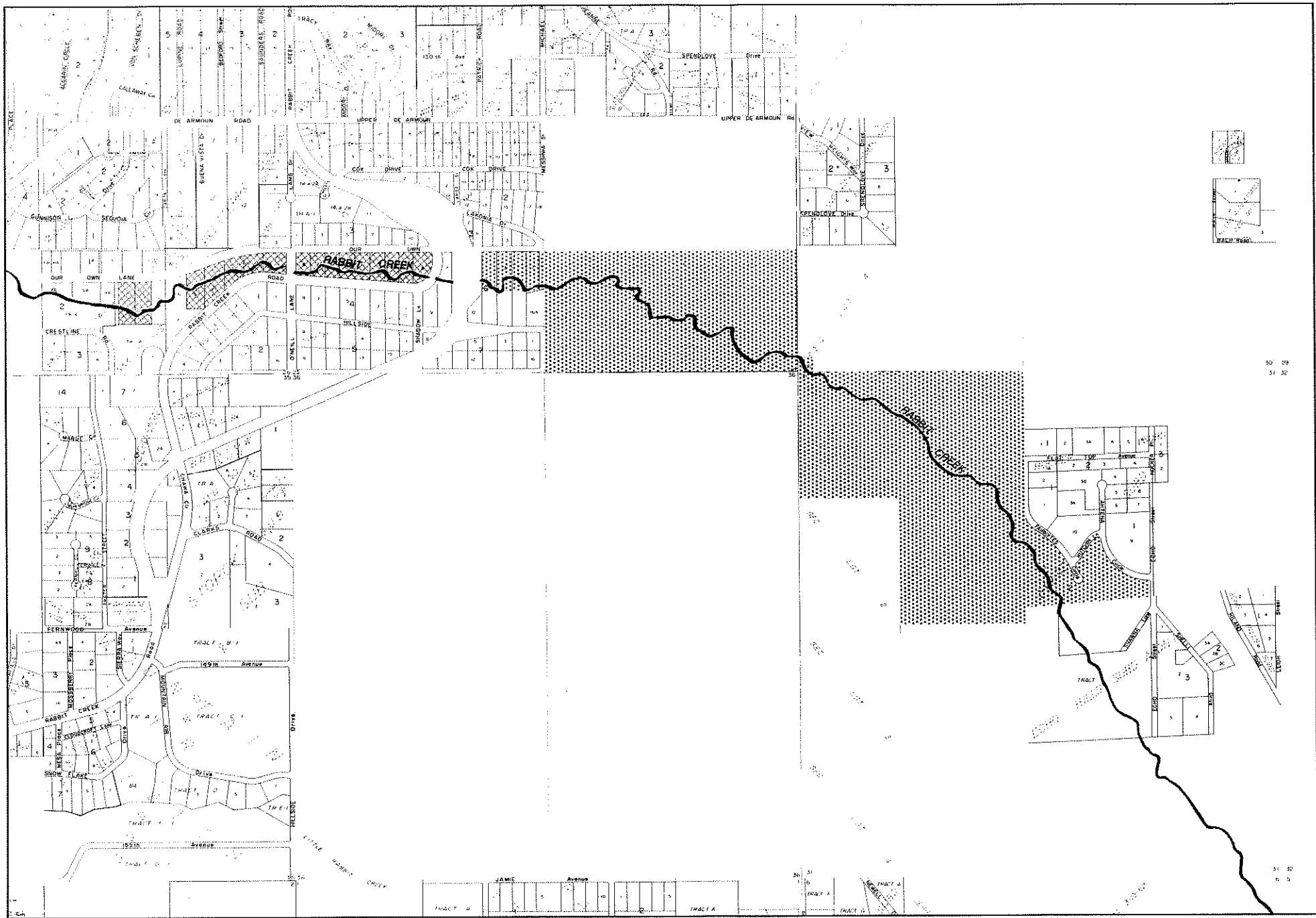


Area South of Our Own Lane

Scale: 1" = 1000'



Note: See table 5 for parcel numbers and assessed valuations.



50 29
51 32

51 32
52 35

FIGURE 4: Comparative Land Values

TABLE 5:
COMPARATIVE LAND VALUES AS A MEASURE
OF POTENTIAL ACQUISITION COST
ALONG RABBIT CREEK; BUFFALO ST TO CHUGACH STATE PARK

AREA	DESCRIPTION	ACRES	NO. OF PARCELS	NUMBER OF PERMANENT DU'S (a)	ASSESSED LAND VALUE OF AREA	ASSESSED BUILDING VALUE	TOTAL ASSESSED VALUE OF AREA	AVERAGE COST/ACRE
1	Area between 20 and 80 acre municipal parcels	20.0	8	2	\$ 440,400	\$ 316,000	\$ 756,400	\$ 37,820
2a	West end of Our Own Lane	10.21	7	4	367,300	457,800	825,100	37,131
2a	East end of Our Own Lane	9.28	9	7	404,300	580,300	984,600	43,985
3a	Immediately east of Rabbit Creek Road	4.49	4	0	145,506	0	145,506	32,406
3b	S 1/2 of SE 1/4 of Section 25 (Mills Property)	80.0	1	0	513,000	0	513,000	6,412
3c	N 1/2 of SE 1/4 of Section 25 (Mills Property)	70.0	1	0	461,000	0	461,000	6,595
3d	SE Corner of Section 30 (Ward Property)	1.8	1	0	46,000	0	46,000	25,555
3e	N 1/2 of NE 1/4 of Section 31 (Rohaley Property)	68.8	1	0	333,900	0	333,900	4,853
3f	S 1/2 of NE 1/4 of Section 31	70.6	1	1	337,600	13,700	351,300	4,853
3g	South portion of the Beede Subdivision	14.16	1	0	99,300	0	99,300	7,012

Source: Municipal Property Assessments, 1986

(a) "Permanent" dwellings, for purposes of this discussion does not include mobile homes and other units whose tax appraisal value is less than \$25,000.

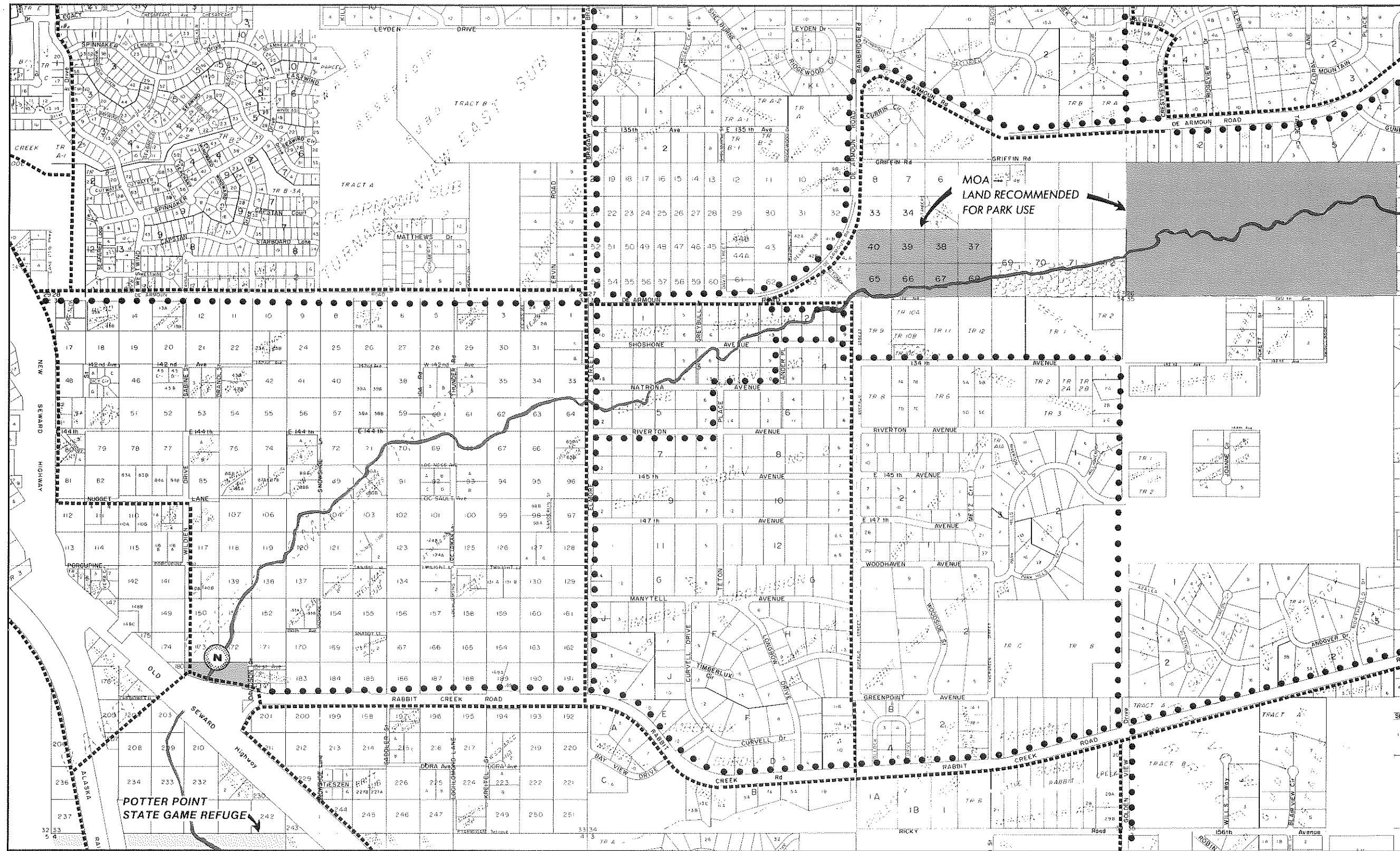
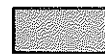


FIGURE 5: Rabbit Creek Greenbelt Plan – western portion

Rabbit Creek Greenbelt Plan



Area Recommended For Greenbelt Acquisition



Municipal Land



State Land

RECOMMENDED TRAILS

..... Bike Trails

•••• Horse Trails



Recommended Neighborhood Park



Scale: 1" = 1000'

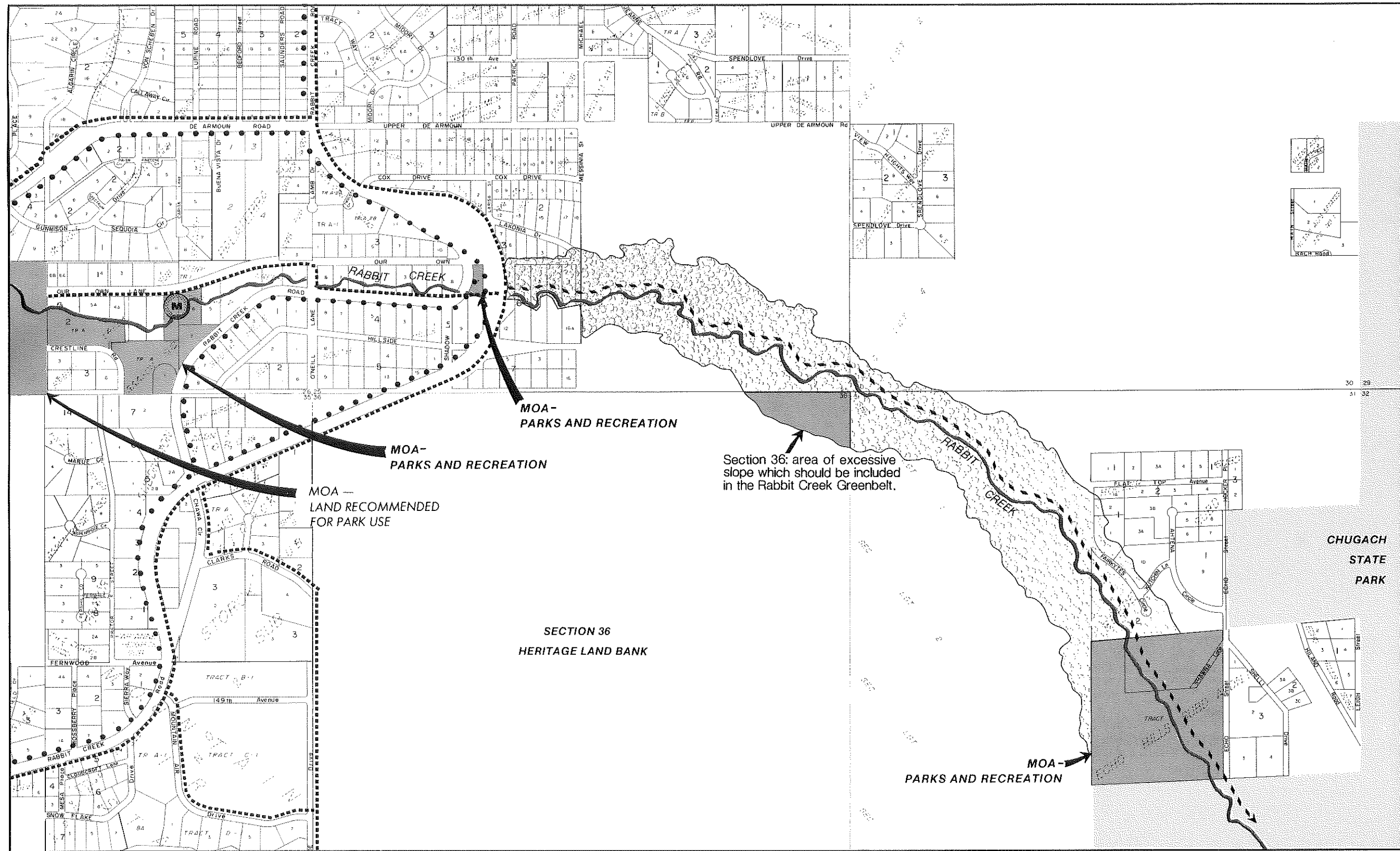



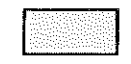


FIGURE 5: Rabbit Creek Greenbelt Plan – eastern portion

Rabbit Creek Greenbelt Plan

-  Area Recommended For Greenbelt Acquisition
-  Municipal Areas to be Included in Greenbelt
-  Recommended Mini Park

 State Land

- RECOMMENDED TRAILS**
-  Bike Trails
 -  Horse Trails
 -  Foot and Horse Trails



Scale: 1" = 1000'

4.0 RECOMMENDED PLAN

In this chapter, the dimensions, improvements and related recommendations are discussed. It is not possible to set aside the greenbelt at once. The kinds of implementation measures discussed previously need to be explored for various areas along the creek. Over half of the greenbelt can be said to be established. This is because over five and one-half miles of Rabbit Creek lie within Chugach State Park. Additionally, another 160 acres of Municipal land is slated to be part of the greenbelt, including the 20 and 80 acre parcels.

Development of parks, trails and related public facilities along the greenbelt. Development of park improvements, including locations and types of trails, parking and similar capital expenditures will be made only following public review. No facilities should be constructed without prior assurance of adequate funding for construction, maintenance, sanitation and public safety. No facilities attractive to persons outside the immediate vicinity should be constructed without simultaneous construction of adequate access, and parking to keep traffic from significantly impacting local roads and out of local driveways. The hearing process regarding such improvements would be pursuant to Municipal regulations regarding site plan review.

In developing facilities (including trails) within the greenbelt, buffers should be maintained between those facilities and adjoining private property. Such buffers will include the retention of existing vegetation and will generally not be less than 25 feet in width. This criteria regarding buffering should be accounted for in the preparation of site plans regarding facility improvements.

4.1 Rabbit Lake to Rabbit Creek Road

Length of section: 7.5 miles

Elevation difference: 3082 feet at Rabbit Lake to 870 feet
at Rabbit Creek Road

Approximate grade: 5.6 percent

Approximate number of parcels (privately owned): 10

Publicly-owned parcels: Approximately 5.5 miles of the
corridor within Chugach State Park

Recommended improvements:

A trail for hiking, cross-country skiing, and equestrian use should be developed over time. Sites for trail heads and picnic facilities should be selected, using particular sensitivity to the natural characteristics of the area. The first five and one-half miles of the stream course are within Chugach State Park. Therefore, coordination will be needed between Municipal and State Park Officials to realize the best possible access and parking facilities, particularly trail head location and design.

Trail location in this section should be varied. Its location should generally not be closer than twenty-five feet from the creek and should not constantly run parallel to the stream course. Trail locations should be sought to take advantage of those soils which can best accommodate the impacts of hiking and horseback riding and be routed through a variety of terrain within the greenbelt. Non linear ancillary footpaths should be considered to access creekside points of particular interest. In carrying out the site plan for the location and design of facilities for foot and equestrian use, potential conflicts between horses and hikers or skiers should be taken into account. Separate trails should be considered if the projected or actual use by horseback riders unnecessarily endangers pedestrian or skiing use. Other potential solutions to potential conflicts include limiting the use of the trail to one particular activity by day or season and the potential curtailment of equestrian use if it is found that the soils cannot sustain such use. Signs which prohibit motorized use should be posted at all feasible entries to the trail. As required by Municipal law, site and design plans regarding trail development will be presented to the Community Councils.

Near Rabbit Creek Road, there is a series of relatively small lots which adjoin the creek. These particular lots lie just to the east side of Rabbit Creek Road as it turns into Hillside Drive. Given the proximity to the arterial street above, this particular site could serve as a park along the greenbelt. This possibility should be further explored, including such improvements as a picnic area, a trail head and the beginning of a footpath up Rabbit Creek. The provision of a grade separated crossing under Rabbit Creek Road will be warranted to facilitate and provide safe trail use.

In the case east of Rabbit Creek Road, the concept has been to provide a horse trail through a natural setting to provide a means where horseback riders could reach

the Rabbit Lake Trail of Chugach State Park without having to transport their horses via van to obtain such a backcountry experience. In short, the idea is that in a low-density area as the Hillside, horseback riding, as an element of rural lifestyle, should be maintained and that those persons who enjoy such experiences as riding in mountain valleys can be accommodated.

In order to safeguard the stream east of Rabbit Creek Road, the development of hiking/cross country skiing and equestrian trails would be subject to the following criteria:

1. that the equestrian trail be generally separated from the hiking/cross-country skiing trail by a minimum 25 feet of open space (this would not preclude occasional crossings of the trails which may be necessary to meet topographical constraints);
2. that it can be shown during site planning that these trails can be so located or so designed to prevent soil erosion; and
3. that a time frame for seasonal trail closures (e.g. "breakup") be established during site planning to prevent terrain damage.

If these criteria can be met, the greenbelt provides the best location for hiking/cross country skiing and equestrian trails. Such an alternative as upper DeArmoun and related roads leading to Chugach State Park, as presently constructed, is too narrow, steep and seasonally hazardous to serve road and trail purposes.

Greenbelt dimensions:

In examining the upper drainage of Rabbit Creek, the basic question becomes: how wide should the greenbelt be? Rather than an arbitrary figure, such as 200 feet to either side of the creek, the landscape was examined in terms of soils, slope, vegetative types, water quality protection and trail-related recreation.

The landforms in the upper portion of Rabbit Creek are complex. The varied underlying soils result in the growth of different vegetative types. In turn, these support a food chain for a wide variety of invertebrate, aquatic, bird and mammal life. The greenbelt boundary should encompass a variety of the vegetation types to adequately protect different types of habitat and to maintain the ambience of forest variety for those who walk in the greenbelt.

Within the proposed greenbelt, there are four basic vegetative patterns which emerge across the landscape. To the south side of the creek are the extremely steep slopes whose Homestead soils are held in place by a white spruce - birch forest and associated understory. The slopes range from 45 to 70 percent making them impractical for development, and because of their severe erosion potential, should not be denuded.

At the bottom of the creek basin, lying in the soils associated with the floodplain, are open stands of balsam poplar and occasional stands of young white spruce. The understory in this area is characterized by willow and alder. Forming modest benches above the floodplain are silt loam soils. White spruce and birch are characteristic of these areas with some balsam poplar near the floodplain.

Sitting in poorly drained pockets and commonly found at the toe of the slopes are wetland vegetative types. Jacobsen mucky silt loam, Slikok mucky silt loam and Starichkof peat are the soils associated with these areas and are typified by the growth of black spruce and shagnum mosses. Such pockets act as filters to silt and other pollutants which impair water quality. Their decomposing organic material is important in the food chain in that microorganisms supply nutrients to invertebrates in the nearby stream.

It is recommended that these areas - the steep north-facing slope, floodplain, and poorly drained pockets at the toe of south-facing slopes - be the limits of the greenbelt in the upper drainage (see Figures 5 and 6 and the soil limitation maps presented in Appendix A).

Coming down the creek from the State Park, one enters a series of large parcels. The Municipality, having purchased two of the parcels since the moratorium was lifted, now owns approximately 42 acres of greenbelt land above Rabbit Creek. These purchases have been the most significant in terms of preserving the natural surroundings and water quality of the creek. The Parks and Recreation Department in conjunction with the Alaska Division of Parks should ascertain if additional greenbelt land is needed along the creek to make the connection to Chugach State Park through the southern portion of Echo Hills Subdivision. A continuous connection between the other parcels should be the first objective. It cannot be overemphasized that the highest priority for greenbelt acquisition be given to the length of creek between Rabbit Creek Road and Chugach State Park. It is not necessary to set aside entire parcels, some of which are in excess of a few hundred acres. Housing

densities will be low in the area and the impact of a few residential units which are located a few hundred feet from the stream would not greatly impact water quality or one's enjoyment of the natural terrain when walking or skiing along the corridor.

Water Quality Considerations:

The water is extremely clear and has none of the turbidity which marks the lower portion of the stream. This pristine quality of the water is presently lost during certain times of the year at Rabbit Creek Road where runoff from the slopes of roads and recent development have resulted in an appreciable quantity of mud flowing into the stream. This condition is particularly bad during breakup. The failure of slope stabilization on road cuts has not been resolved since the construction of the New Rabbit Creek, and needs to be rectified. The new Title 15 provisions, particularly those related to the establishment of wastewater capability for each subdivided lot, will be significant in maintaining water quality. The slopes above the south bank of the creek are extremely fragile and subject to erosion if disturbed. In order to maintain high water quality in this area, there should be no development and no dumping of fill on the excessive slopes south of the creek (i.e. those whose slopes are in excess of 45 percent). There should be setbacks for buildings from the top edge of those slopes which are in excess of 30 percent.

There is not a storm drainage plan for most of the area. As additional streets are constructed and paved, there will be an impact on water quality of Rabbit Creek. A faster rate of runoff and an increase in peak flows can be expected, resulting in bank erosion. Storm drain outfalls should be limited and detention basins should be permitted within the Municipality's portion of the greenbelt. This will allow control of peak flow discharges and sedimentation to help maintain the creek's water quality.

Other Issues: Section 36

Section 36, a public parcel, is situated south of the creek and east of Rabbit Creek Road. Most of its 640 acres has been transferred to the Municipality. However, the north one-half of the north one-half, the area which is closest to the creek has not been transferred. That 160 acre parcel should eventually be transferred. It is a Federal land grant which has been approved as a patent to the State but is yet to be patented. The critical aspect of Section 36 in relation to the greenbelt is the steep slope in its northeast

corner. In the greenbelt plan map, presented in this report (see Figure 5), it is recommended that the severely sloped areas which lie to the south of the creek (i.e. those areas which predominantly have a slope greater than 30 percent) be included in the Rabbit Creek Greenbelt. In order to do this, the mapped area will have to be platted and turned over to the Parks and Recreation Department for management.

4.2 Rabbit Creek Road to Buffalo Street:

Length of section: 9,600 feet

Elevation difference: 870 feet to 440 feet

Approximate Grade: 4.5 percent

Approximate number of parcels (privately owned): approx. 28

Publicly-owned acreage: 120 acres

Recommended improvements:

Trails: In the area between Buffalo Street and Rabbit Creek Road, the following trails are recommended. An unpaved trail for non-motorized uses should be provided from DeArmoun Road to the 20-acre municipal park which adjoins Rabbit Creek. Similarly, a non-motorized trail should be provided from Old Rabbit Creek Road to the 80-acre Municipal park. Finally, a trail system should be designed for the 80-acre park; consideration should be given to an exercise trail system. All these improvements would be subject to site plan review in which alignments and design features would be discussed with the community council.

The primary objective - to protect water quality - must be accounted for in this area, and the guideline of the minimum separation of 25 feet between trail and stream should be followed in site planning. The "non-motorized" trails in this area should be unpaved. Signs, bollards and related measures should be designed and placed at entrances to the 20- and 80-acre parcels to prohibit off-road vehicle use. It is recommended that the option of joining the 20-acre and 80-acre parcel be left open. Much of the 80-acre parcel is unusable for trail purposes because of its excessive slopes. Should the greenbelt recommendation of joining the 20- and 80-acre parcels be realized someday, a connecting trail would greatly enhance the sense of overall park space in this section along the creek.

Facilities: No major facilities of intensive nature (e.g. ball fields) should be developed. Improvements

should be limited to such facilities as picnic grounds, and exercise trails. A mini-park should be developed on the cleared parcels, lying between Our Own Lane and Old Rabbit Creek Road. This site has decent access from surrounding subdivisions and park development could be completed as part of site rehabilitation.

Greenbelt provisions:

Slope stabilization measures and selected acquisitions for creek maintenance, habitat and public access should be the objectives in this section.

The 80-acre Municipal land parcel lies just beyond Kelly Ranch. The feeling of walking inside this 80 acres is one in which the primeval sense of the landscape comes alive. Mature spruce, birch and cottonwood grow extensively through the area and it has not been significantly disturbed. A footpath runs through the property from west to east. The Municipality owns a good deal of land up to and including the slopes on both sides of the creek; however, given the extensiveness of those slopes, access from the south or north is not recommended. Cuts in either of those banks would cause extreme erosion and impair water quality. In fact, runoff from an adjoining cul-de-sac north of this parcel has cut an appreciable gully and silt-laden debris flows through the 80-acre parcel.

Between the 80-acre Municipal parcel and the 20-acre Municipal parcel, a series of lots was platted by the U.S. Bureau of Land Management. The possibility of extending the greenbelt along the creek exists and is recommended in those cases where property owners desire to sell their property to the Municipality. Easements, first right-of-purchase, and life estates should be three of the primary means investigated for greenbelt acquisition in the area. There is a slope erosion problem on the south side of the creek along the eastern edge of this section which needs attention.

The 20-acre Municipal parcel marks the point where the bike trail would join DeArmoun Road. A bike trail connection should be planned to join this future park to DeArmoun Road. The Birch Road bicycle trail could be joined with the upper extension of the DeArmoun Road trail and the Rabbit Creek Road trail.

The slopes to the south of the creek in this vicinity are extremely high, rising to over 100 feet above the creek, often in excess of 40 percent grades. There is severe erosion potential. Slope protection, including setbacks for development, should be addressed.

The Heritage Land Bank Report includes recommendations that the 20-acre Municipal parcel and the vast majority of the 80-acre parcel be included in the greenbelt for Parks and Recreation Department management (the southeast corner of the 80-acre parcel, sitting south of the extensive slope has potential for residential development and is not necessary as part of the greenbelt).

4.3 Buffalo Street to Seward Highway:

Length of section: 9,000 feet

Elevation difference: 440 feet to sea level

Approximate grade: 4 percent

Approximate number of parcels (privately owned): 50

Publicly-owned parcels: portions of Potter Marsh

Easements: street right-of-way and limited easements.

Recommended public improvements:

A neighborhood park, using Municipal land at Old Seward Highway, should be the extent of development.

Greenbelt provisions:

Slope stabilization, setback requirements for water quality purposes, and the 25 foot stream protection area (with no public access) are the types of tools called for in this area.

West of Buffalo Street, the creek enters a series of lots which have been platted at the size of one lot per acre. The bank on the south portion of the stream is not as severe in this vicinity. West of this area starting at Elmore Street, a series of 2.5 acre parcels (BLM homesites) are platted as one heads to Old Seward Highway. Much of this lower section has not been developed.

The objectives for this area should be protection of water quality and habitat along the corridor. Thus, slope stabilization, setbacks, and retention of vegetation are emphasized.

Other concerns:

There have been a number of streets such as Elmore, Shoshoni and Natrona which as platted would cross the creek. These remain as paper platted roads and have not been constructed. Should construction occur, there would be impact to the natural stream conditions. Bridges rather than culverts should be employed in designing a street crossing. Better yet, the need for these crossings can be questioned and a study of vacating those portions over the stream should be undertaken.

Slope protection is a particular concern in that earth has been pushed over the south slope and is currently causing water quality problems. This type of activity needs to be regulated particularly because this portion of the creek is a major portion of the anadromous fish stream.

A P P E N D I X A

In their study, Rabbit Creek Greenbelt Management Recommendations and Technical Report, Arctic Geo-Resource Associates prepared a soil survey for the upper drainage of the creek. This information was not available prior to 1985. With the soils identified, it was possible to account for various factors such as slopes which are susceptible to erosion, floodplains and wetlands which have implications for water quality and greenbelt planning. The soil limitation maps which are reproduced in this appendix were the basis of the recommendations in the greenbelt above Rabbit Creek Road.

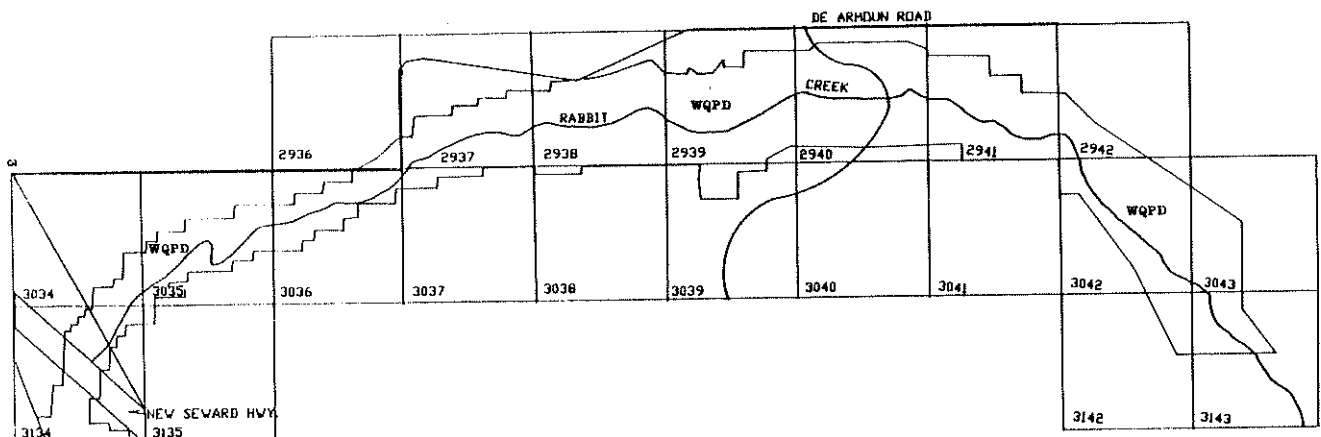
The greenbelt area is delineated, including the excessive slopes typically (40 percent or more) south of the stream, the floodplain and a mixture of sloped areas, wet areas and moderate drainage areas north of the creek. The area north of the creek can sustain hiking/horse trail improvement. It would serve as a filter in cleansing runoff from developed areas upslope, protecting water quality. Finally, because of the variety of terrain, fish, bird and mammal habitat would be sustained.

The soil survey is part of the technical report. Copies of the report can be purchased at the Community Planning Department or reviewed at the Dimond Library or Main Library.

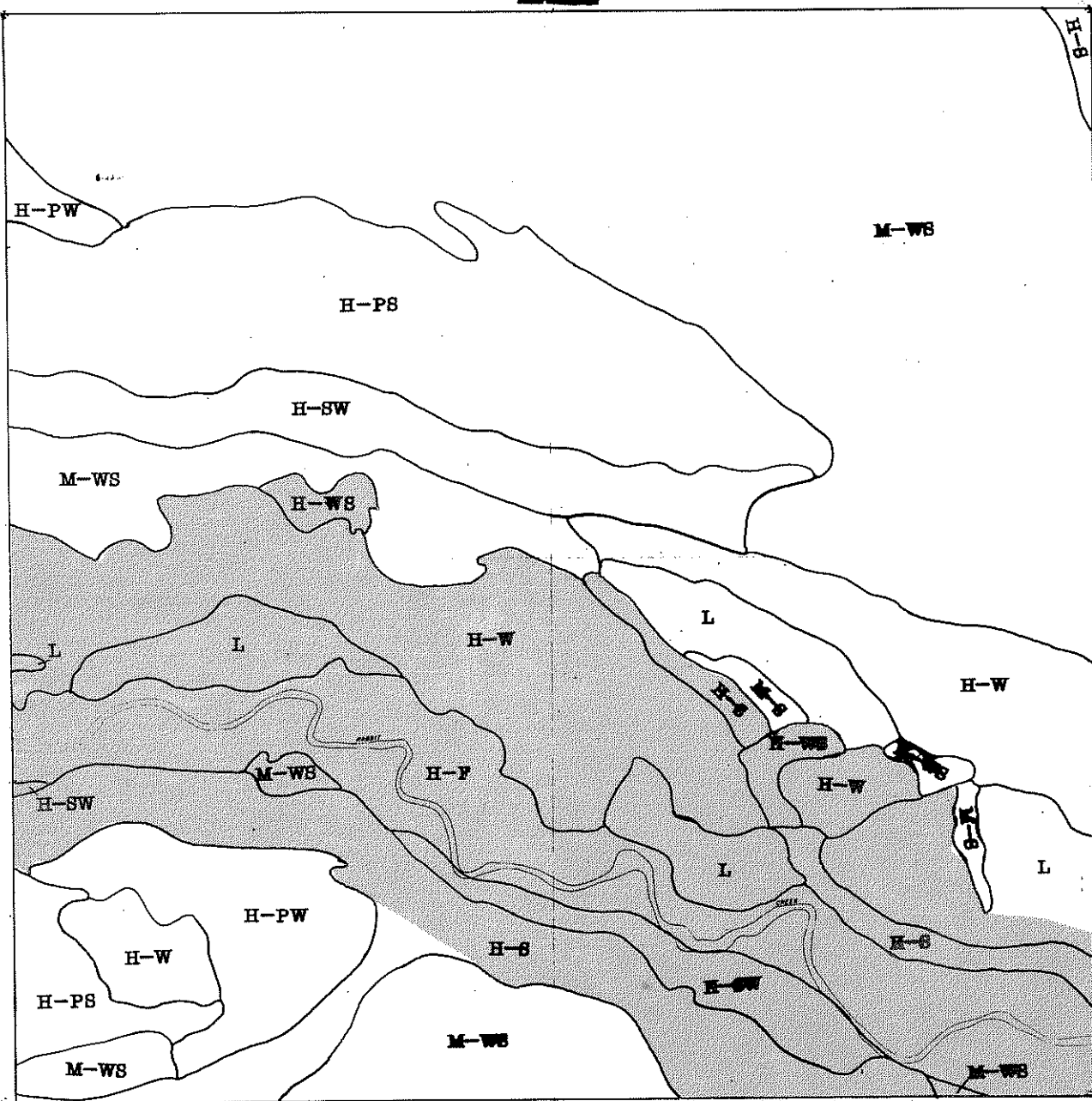


This screened pattern is used in the following maps to delineate the recommended greenbelt area.

RABBIT CREEK GRID INDEX



PREPARED FOR THE
MUNICIPALITY OF ANCHORAGE
 BY
ARCTIC GEO RESOURCE ASSOC.
 DECEMBER 1984



SOIL LIMITATIONS

Land Use Rating

- M - Severe
- N - Moderate
- L - Slight

Limiting Factor

- W - Wetness
- S - Slope
- F - Flooding
- P - Permeability

Physical Hazard

- SF - Slope Failure

Notes:

* The legend for the Soil Limitations Overlay is a multi-level Alpha coding system. The first symbol represents the physical rating for the mapping unit based on the physical characteristics of the soils within the unit. The second symbol represents the primary limiting factor. The third symbol represents the secondary limiting factor.

Example:

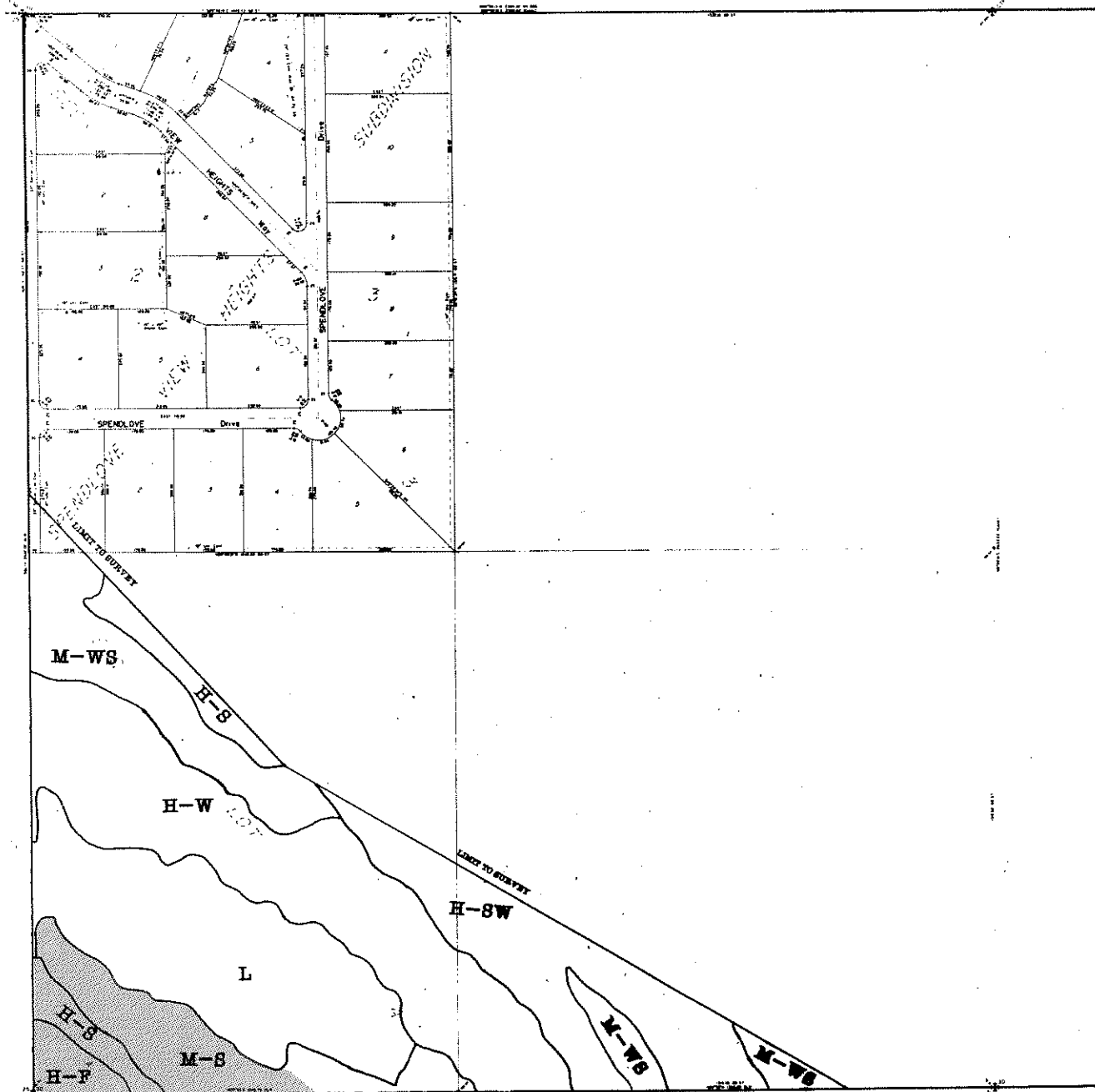
Severe ——— | ——— Wetness
 Slope

* Complete descriptions for each category listed above and a discussion on land use planning applications can be found in the accompanying User's Guide.

RABBIT CREEK

SOIL LIMITATIONS	GRID 2941
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PREPARED FOR THE
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 DECEMBER 1984



SOIL LIMITATIONS

Land Use Rating

H - Severe
 M - Moderate
 L - Slight

Limiting Factor

W - Wetness
 S - Slope
 F - Flooding
 P - Permeability

Physical Hazard

SP - Slope Failure

Notes:

The legend for the Soil Limitations overlay is a multi-level Alpha coding system. The first symbol represents the overall rating for the mapping unit based on the physical characteristics of the soils within the unit. The second symbol represents the primary limiting factor. The third symbol represents the secondary limiting factor.

Example:

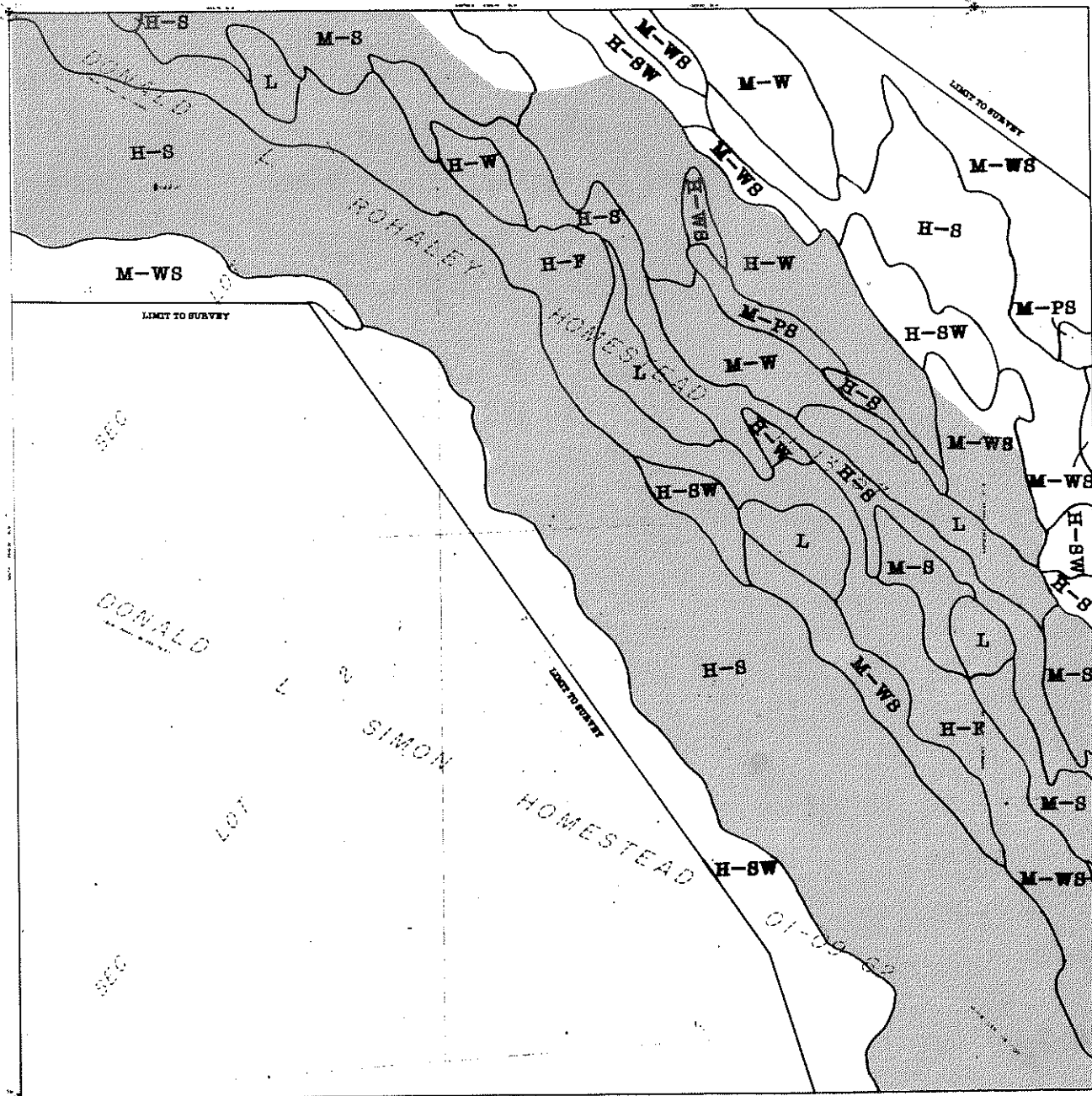
H - S W
 Severe Slope Wetness

Complete descriptions for each category listed above and a discussion on land use planning applications can be found in the accompanying User's Guide.

RABBIT CREEK

SOIL LIMITATIONS **GRID 2942**

PREPARED FOR THE
MUNICIPALITY OF ANCHORAGE
 BY
ARCTIC GEO RESOURCE ASSOC.
 DECEMBER 1984



SOIL LIMITATIONS

Land Use Rating

H - Severe
 M - Moderate
 L - Slight

Limiting Factor

M - Moisture
 S - Slope
 F - Flooding
 P - Permeability

Physical Hazard

SF - Slope Failure

Notes:

The legend for the Soil Limitations overlay is a multi-level Alpha coding system. The first symbol represents the overall rating for the mapping unit based on the physical characteristics of the soils within the unit. The second symbol represents the primary limiting factor. The third symbol represents the secondary limiting factor.

Example:

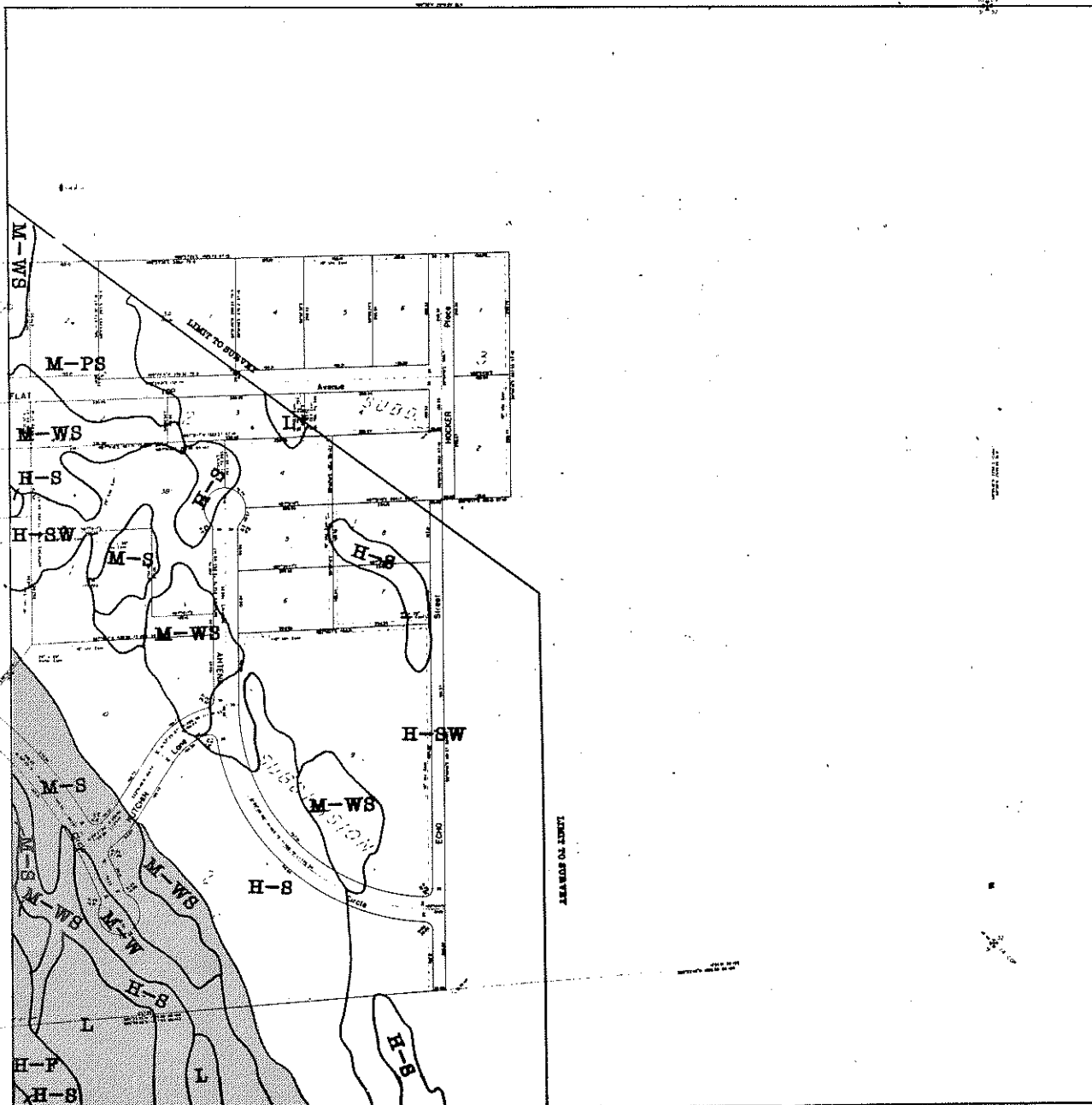
H - S M
 Severe Slope Moisture
 Slope

Complete descriptions for each category listed above and a discussion on land use planning applications can be found in the accompanying User's Guide.

RABBIT CREEK

SOIL LIMITATIONS **GRID 3042**

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 BY
ARCTIC GEO RESOURCE ASSOC.
 DECEMBER 1984



SOIL LIMITATIONS

Land Use Rating
 H - Severe
 M - Moderate
 L - Slight

Limiting Factor

M - Wetness
 S - Slope
 F - Flooding
 P - Permeability

Physical Hazard

BF - Slope Failure

Notes:

The legend for the Soil Limitations Overlay is a Multi-level Alpha coding system. The first symbol represents the overall rating for the mapping unit based on the physical characteristics of the soils within the unit. The second symbol represents the primary limiting factor. The third symbol represents the secondary limiting factor.

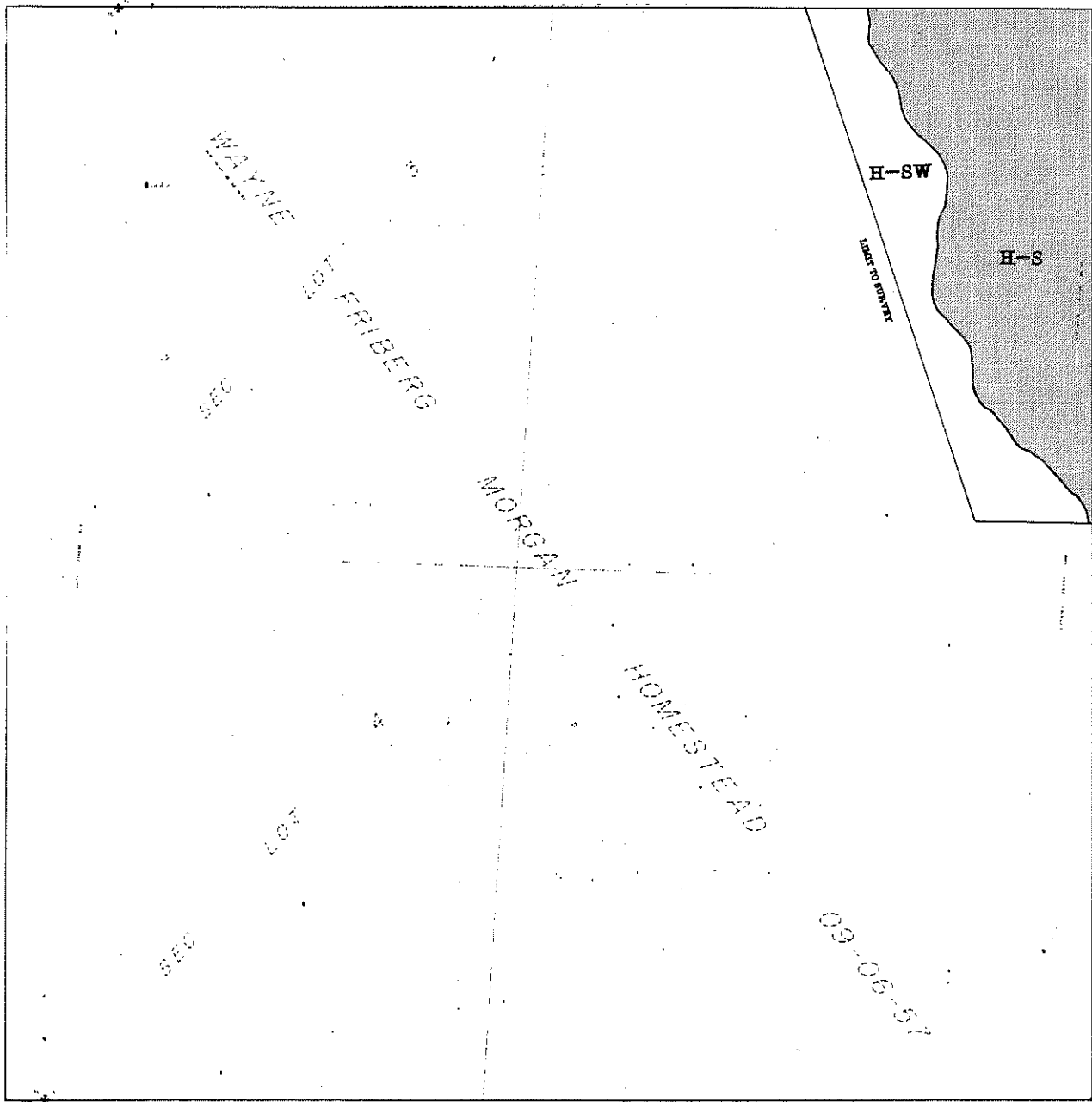
Example:

Severe $\frac{H}{S}$ Wetness
 Slope

Complete descriptions for each category listed above and a discussion on land use planning applications can be found in the accompanying user's guide.

RABBIT CREEK

SOIL LIMITATIONS GRID 3043



PREPARED FOR THE
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 BY
ARCTIC GEO RESOURCE ASSOC.
 DECEMBER 1984

SOIL LIMITATIONS

Land Use Rating

H - Severe
 M - Moderate
 L - Slight

Limiting Factor

W - Wetness
 S - Slope
 F - Flooding
 P - Permeability

Physical Hazard

SF - Slope Failure

Notes:

* The legend for the soil limitations overlay is a multi-level alpha coding system. The first symbol represents the overall rating for the mapping unit based on the physical characteristics of the soils within the unit. The second symbol represents the primary limiting factor. The third symbol represents the secondary limiting factor.

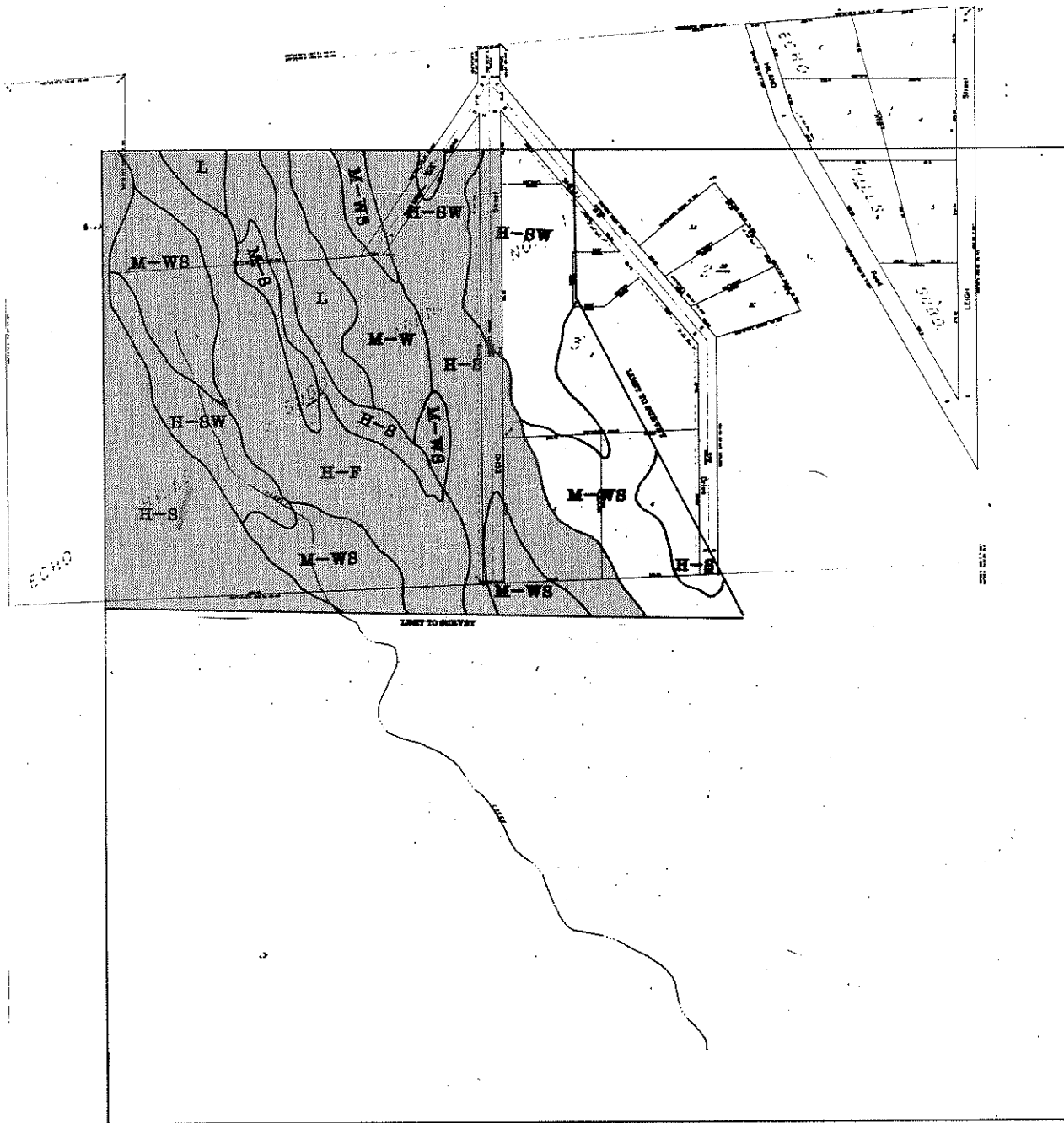
Example:

H - S W
 Severe | Slope | Wetness

* Complete descriptions for each category listed above and a discussion of their use in planning applications can be found in the accompanying User's Guide.

RABBIT CREEK

SOIL LIMITATIONS	GRID 3142
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PREPARED FOR THE
MUNICIPALITY OF ANCHORAGE
 BY
ARCTIC GEO RESOURCE ASSOC.
 DECEMBER, 1984

SOIL LIMITATIONS

Limit Use Rating
 M - Severe
 N - Moderate
 L - Slight

Limiting Factor
 W - Wetness
 S - Slope
 F - Flooding
 P - Permeability

Physical Hazard
 SF - Slope Failure

Notes:

The legend for the Soil Limitations overlay is a multi-level Alpha coding system. The first symbol represents the overall rating for the mapping unit based on the physical characteristics of the soils within the unit. The second symbol represents the primary limiting factor. The third symbol represents the secondary limiting factor.

Example:

M - S W
 Severe Slope Wetness

Complete descriptions for each category listed above and a discussion on land use planning applications can be found in the accompanying User's Guide.

RABBIT CREEK

SOIL LIMITATIONS GRID 3143

