

TO: CITY MANAGER

June 16, 1998

FROM: DIRECTOR PLANNING AND BUILDING

OUR FILE: RZ 67/97

SUBJECT: **Proposed Rezoning of Burnaby Business Park Ltd.'s Big Bend Area Lands for Comprehensive Industrial Development**

PURPOSE: To provide Council with information responding to the issues and concerns raised at the 1998 April 28 Public Hearing with respect to the subject rezoning application.

RECOMMENDATION:

1. **THAT** this report be received for the information of Council.

REPORT

1.0 BACKGROUND

Council, at the regular Council meeting held on 1998 May 04 tabled Second Reading of the subject bylaw and requested a staff report responding to the issues and concerns raised at the 1998 April 28 Public Hearing with respect to this rezoning application. The lands proposed for rezoning are referenced on Sketch #1 *attached* and have been designated for industrial use in the 1997 Revised Land Use Concept Plan for the Burnaby Business Park Ltd. Lands (Sketch #2 *attached*).

The City Clerk has provided staff with a list of the matters to be reported on. Included in the questions raised by Council are items which focus on the lands proposed for rezoning, items relating to the proposed adjacent cranberry farms which are not part of the lands proposed for rezoning; and items which can be characterized as relating to general agriculture in the Big Bend area. The following responds to these questions.

2.0 ISSUES RELATED TO PROPOSED COMPREHENSIVE INDUSTRIAL USE

2.1 What type of fill is on the land designated for industry and can it be reclaimed?

G.G. Runka Land Sense Ltd. has undertaken a detailed review of the land modification characteristics, including solid waste deposition and soil deposition, as they impact on land suitability for agriculture for the lands with specific reference to the 49.7 acre ALR exclusion area (of which approximately 44 acres is proposed for industrial use and approximately 5.7 acres is to be reserved for park/buffer use).

As referenced on Sketch #4 *attached*, the Land Suitability for Agriculture Summary designates approximately 23.6 acres as being low or unsuitable, with a further approximately 2.9 acres being of moderate suitability. Approximately 23.2 acres is noted as having high suitability.

The lands on the north side of Marshland Avenue between Wiggins Street and Prairie Street have also been identified in a 1977 Ministry of Environment report entitled "Soil Survey and Soil Capability for Agricultural Rating, Big Bend Area" as being the major area of solid waste deposits and soil disturbance. The soil map contained in this report describes this area containing Anthropogenic soils (primarily landfill which may be composed of hogfuel, and dredgings and/or mixed sand and cement debris). The report states that these areas are generally unsuitable for any type of agricultural crop production. In 1989 a staff Agrolgist from the Agricultural Land Commission confirmed the above findings, noting that the historical timing of surface and buried solid waste deposits of unknown sources and soil disturbances is highly variable and likely took place from 1950-1972. Information received from the Ministry of Environment, Lands and Parks notes that the Site Profiles for these properties confirm that Schedule 2 uses are found to have occurred on these properties and therefore, have identified these lands as requiring a Preliminary Site investigation to be submitted in accordance with the Contaminated Sites Regulations. Pipeline construction and infrastructure disturbance, hogfuel access for engineering geotechnical studies, and major drainage ditch disturbance took place during the 1970s and 1980s.

Based on the foregoing, it is staff's opinion that reclaiming these lands for agricultural use is neither practical or desirable.

2.2 Comment on remarks made by a speaker regarding alienated and non-viable lands.

The speaker questioned staff references to alienated and non-viable lands and asked why there were no options put forward to make these lands useable for farms, such as being used for farm buildings.

As outlined in the foregoing section, staff cannot recommend the use of non-viable or debilitated lands for farm use. The proposal to use these debilitated lands, which comprise some 23.6 acres for farm buildings is also not considered to be practical, given the fact that a total of only approximately 1 acre is required for building sites for the two consolidated farm units. As can be seen on Sketch #3, one area which is to be used for a farm residence and buildings is to be located north of the intersection of Mandeville Avenue and Tillicum Street in order to be adjacent to the computer controls for the water supply and irrigation system which will draw water from the Fraser River via a pipeline to be located on private lands adjacent to Tillicum Street.

3.0 ADJACENT CRANBERRY OPERATIONS

3.1 How are the chemicals applied and what is the life expectancy of the pesticides/insecticides?

Fertilizers are applied to cranberries at rates which are much lower than other crops. The maximum application in the first two years will be 8 applications of a combination of nitrogen, phosphate and potash fertilizer at 50 lbs. per acre. In subsequent years the maximum application would be 4 applications of 100 lbs. per acre in granular form and 2 applications of 5 lbs. per acre in liquid form. After fertilizer applications, the majority of the water from the cranberry farms would be pumped into a reservoir and reapplied to the bogs as irrigation water.

The services of an Integrated Pest Management Consultant will be used and pesticides will be applied only when a pest problem exceeds an acceptable limit and then only in an infested area. Non-chemical pest controls will be used whenever possible. For example, cranberry fields are flooded with water at the end of August to avoid one chemigation per growing season.

3.2 Have any tests been conducted of the river waters in Richmond with regard to the receiving waters from the cranberry farms?

Staff from the Richmond Health Department have advised that the City has not undertaken any tests as this has not been an issue.

High organic content soils, such as exist on the subject farm property, do tend to tie up pesticides and hold them tightly, allowing appropriate time for degradation of any pesticides or herbicides. Any chemical insecticides would be applied through the irrigation system. After application, the environmental guidelines for berry producers prepared by the Ministry of Agriculture, Fisheries and Food in cooperation with the Berry Industry of B.C. provide for all surface water to be impounded within the farm boundaries for as long as practical, preferably until harvest time or for a time equivalent to the minimum days from treatment to harvest for a particular pesticide.

3.3 Will any of the native plants survive?

No, not in the area being developed for cranberry production, although some survival may take place on the dykes. As with any soil bound agriculture use, the native plant material is removed or incorporated with the soil through cultivation. Although almost all of the project area has been peat mined, native plants will be retained

within the protected areas of the 12 acre parkway/buffer, the 17.5 acre habitat restoration areas, as well as the adjacent relatively undisturbed bog forest on City property.

Wild cranberries grow naturally in an acid peat bog environment, including this one. The domestic cranberries (with much higher productivity of fruit) adapt very well to the natural acid peatland characteristics of the bog without significant soil additives (fertilizers, lime, etc.) The original domestic cranberries planted on the property have survived abandoned conditions with very poor drainage for 27 years.

3.4 How many dykes and roadways will exist within the farms?

The location of the dykes, farm roads and irrigation reservoirs were required by the Agricultural Land Commission in order to satisfy one of the conditions of the exclusion of lands from the Agricultural Land Reserve. All of the Commission's conditions have now been satisfied with the exception of the final approvals to the water licence application and the consolidation of the properties into two farm units. Both of these remaining items are nearing completion. Sketch # 3 shows the proposed location of these works which have been approved by the Commission.

It should be noted that, in a comparison of land use efficiencies (net plantable area) of the proposed cranberry operation with the adjacent existing vegetable producing area, the net area to gross area for cranberry production has been estimated at 89%. The net area planted to vegetables has been estimated to be 67% of the total area. Considering only those properties producing vegetables, the net planted area is approximately 81% of the gross area.

Based on the foregoing comparison, it is estimated that the 164 acre cranberry operation will result in a net planted area of approximately 147 acres (89%). If these lands were used for vegetable production, the net planted area would be approximately 133 acres (81%). It appears, therefore, that with the proposed cranberry operation, there will be about 14 acres more in production than would be the case with vegetable production.

3.5 What kind of wood waste is being referred to?

The farmers have advised that they do not intend to use offsite wood waste, including hogfuel, in the construction of farm dykes and road access.

It is, however, common for many cranberry growers to use wood waste for roads and yard areas due to the fact that peat soils are extremely soft and cannot be traveled on

by most vehicles. This is considered normal farming practice as, under the Provincial Code of Agricultural Practice for Waste Management, wood waste is an acceptable light material for dykes and farm roads.

3.6 How much noise is involved in fertilizer dusting?

The farmers have advised that they will be using, as is their normal practice, a muffled fixed wing aircraft to apply fertilizer rather than a helicopter. This is a particularly low noise aircraft.

Aircraft fertilizer application which would take place during quiet air time in the early morning would take 1 ½ hours to apply to the complete 164 acre area. This would take place three times per growing season.

3.7 What does it mean that a bog is stripped and replanted when it is "out of grade"?

A cranberry bog is stripped and replanted for three reasons:

- an old variety of cranberry is low yielding
- the variety of cranberry is susceptible to disease
- the bog, for a combination of reasons, may not be level or near level ("out of grade") which results in the requirement for excessive quantities of water to flood the containment area.

The preparation of a near level cranberry planting site is critical to future farm management efficiency (water, frost protection and cultural management). Soil resulting from the laser leveling process is graded into swales and depressions. No soil is removed from the farm site.

3.8 Is the topsoil agreement, which was some 20 years in length, relevant ?

This refers to a statement made by a speaker at the Public Hearing in which he advised that he is acquainted with a person who has been contracted to remove soils from properties in the Big Bend area down to the clay.

While, prior to the late 1960s, peat mining activities did occur over large portions of the lands, no such agreement is in force at this time for the subject properties. Moreover, the placement of fill and the removal of soil in the ALR is governed by the Soil Conservation Act which requires the City and the Provincial Agricultural Land Commission to approve the issuance of a permit.

4.0 GENERAL AGRICULTURE IN BIG BEND

4.1 What is the extent of the biodiversity in the bog?

A variety of habitat types occur collectively on BPP and City owned lands including bog, swamp forest, fen and open water areas. These areas and the edges between them provide habitat for relatively diverse communities of plant and animal species contributing to biodiversity at the local, municipal and regional levels. An environmental assessment of City owned lands and greenway buffer was completed by an environmental consultant in developing the land use concept and identified a diversity of vegetation and animal species as well as additional species which are expected to occur in these areas. No red or blue listed species were recorded by the Provincial Conservation Data Centre (CDC), although a Great Blue Heron (blue listed) was observed during the study and a number of red and blue listed species may occur in the area based on habitat suitability. A comprehensive plant list of the bog area which reported a number of species considered rare in B.C., was also compiled by a member of the Vancouver Natural History Society and submitted to Council. It is therefore evident that the subject site which includes City-owned and BPP lands, is relatively diverse from an ecological perspective.

While bogs are recognized as significant and relatively rare habitat areas regionally, the bog on the BPP Big Bend property has been characterized as a remnant of a once larger bog which has been significantly altered in the past due to peat harvesting and agricultural activities. These activities have had substantial hydrological impacts on the remnant bog. Non specialized plants have encroached within the bog area. The combination of soil, moisture and pH conditions on-site have made it appropriate for designation under the ALR and in particular, highly suitable for cranberry production.

In advising BPP regarding their land use concept, the City strived to retain and protect what was assessed to be a significant swamp forest area, restore an area of BPP's property for wildlife habitat and connect these areas through a green link or corridor. The swamp forest area on the adjacent City lands which is to be preserved, is an undisturbed remnant of a larger coniferous forest and has been identified as relatively unique in the Burnaby Big Bend area. Four distinct vegetation communities were noted in the environmental assessment of the swamp forest area. Large sitka spruce and numerous shore pine are found on-site, both of which are infrequent in Burnaby. Of particular note was the presence of a red-tailed hawk nest and numerous sign of large and small owl species. Mammals utilizing the site included coyote, beaver, black tailed deer and muskrat. In addition, numerous bird species, garter snakes and frogs were observed onsite. The marginal areas of the bog were recognized as potentially important feeding habitat for bats. The habitat restoration area on BPP lands will provide important open water habitat adjacent to farming

areas. The greenway/buffer area running along the north edge of the property will link the swamp forest to the habitat restoration area thereby providing an important ecological or green link which aids in maintaining and enhancing biodiversity.

Overall, this land use strategy is seen as a balanced approach to maintaining biodiversity to the greatest extent possible, while facilitating farming on ALR lands and incorporating a high technology industrial land-use component on a portion of BPP lands.

4.2 What is the viability of the bog, whether it be in cranberry farming or market gardens?

This question related to the pH factor of the existing soils and their suitability to crop types. Question 4.3 following is of a similar nature, and therefore, a combined response has been given therein.

4.3 Which type of agriculture has least effect on the bog area, market gardens or cranberry farms?

A chemical analysis of the subject property undertaken in 1996 by Dr. Herman of Pacific Soils Analysis, indicates pH ranging from 3.4 to 3.8 in the top 20 inches of the soil profile, which is normal for a coastal peat bog. Dr. Herman further notes that "the property is best suited for crops which prefer highly acidic soils and offer slow annual growth increment." Cranberries are a crop suited to these acidic conditions.

Dr. Herman continues by stating, "I would not encourage attempts to change the soil pH via addition of lime. The heavy rates of lime required to cause a minor change (± 1.0 pH unit) to the current pH would cause a substantial increase in the level of water soluble salts and the levels of available calcium and magnesium when utilizing dolomite lime. A major change in the levels of any single nutrient makes management of all other nutrient levels more difficult." This suggests a significant period of intensive soil management time is needed to raise the pH to an acceptable level (through lime application) with associated peat decomposition prior to production of the wide range of vegetable crops these soils are also suitable for.

In summary, although the land is suitable for a wide range of berry fruits and vegetables, from a pH perspective, the bog would be maintained at a near natural pH in cranberry production, but would have to be modified significantly to produce a wide range of vegetables.

4.4 What is the percentage of vegetables actually grown in the Big Bend area?

It has been reported that the Big Bend area farms produce practically all of the bunch vegetables for the Province and that the produce grown represents 10% of the total vegetable production for the Lower Mainland farming area. These figures are extracts from the 1987 Official Community Plan and reflect statistics obtained from a 1981 Agricultural Land Commission study. With regard to the current situation, consultations with the Provincial Potato and Fresh Vegetable specialist indicate that little up-to-date statistical information on comparisons is available.

However, it is fair to say that conditions have changed since 1981. For example, two Cloverdale area growers now produce more bunch vegetables than all of the Big Bend area (150-200 acres of bunch vegetables). There are also 100-125 fresh bunch vegetable growers on the Ministry's Fraser Valley mailing list, with approximately 20-25 located in Burnaby.

4.5 Clarification on the amount of land gained for agricultural use as a result of the consolidation of lands and the reduction of potential building sites.

Council was advised that the area of the ALR exclusion was 49.7 acres, of which approximately 23.6 acres was not suitable for agriculture due to prior solid waste and soil deposition. As noted on Sketch #4 *attached*, additional area lost to configuration constraints was identified as being approximately 6.0 acres. This equates to a loss of high suitability agricultural lands of approximately 20.0 acres. The lands gained for agriculture through the consolidation of legal road allowances is approximately 8.5 acres as referenced on Sketch #5 *attached*. Additional lands gained by way of reducing potential building sites with the consolidation of 27 original parcels into 2 farm units is approximately 5.75 acres as shown on Sketch #6 *attached*. This equates to a gain of high suitability agricultural land of approximately 14.25 acres.

The net loss of high suitability agricultural land is, therefore, approximately 5.75 acres. (20.0 minus 14.25)

5.0 SUMMARY

The preparation, advancement and endorsement of the Land Use Concept Plan (Sketch #2) for the Burnaby Business Park lands, which includes the redesignation of a portion of the BBP lands for comprehensive industrial use, has been the subject of extensive review and discussion. There are a number of factors associated with the implementation of this plan which relates to portions of the BBP lands which are not part of the subject rezoning as noted

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herein. They involve the transfer of ownership of 164 acres of vacant unused ALR lands from a major international development company to well established members of the Lower Mainland farming community. These lands are being consolidated into two farm units for cranberry production, which is a crop suited to the existing acidic characteristics of the peat bog.

Council, on 1997 June 02 adopted a recommendation to advance BBP's exclusion application to the Provincial Agricultural Land Commission which subsequently conditionally approved the exclusion of approximately 49.7 acres from the ALR. It has also conditionally approved the use of approximately 17.5 acres as a habitat restoration/protection area and approximately 6.3 acres as a City parkway/buffer area. These approvals are separate from the subject rezoning application.

The subject rezoning bylaw amendment is in accord with the Land Use Concept Plan for the subject lands and is intended to provide industrial zoning regulations together with design guidelines and a concept plan for the development of a high quality light and general industrial business park in Burnaby's Big Bend area respecting the surrounding industrial, agricultural and public land uses.

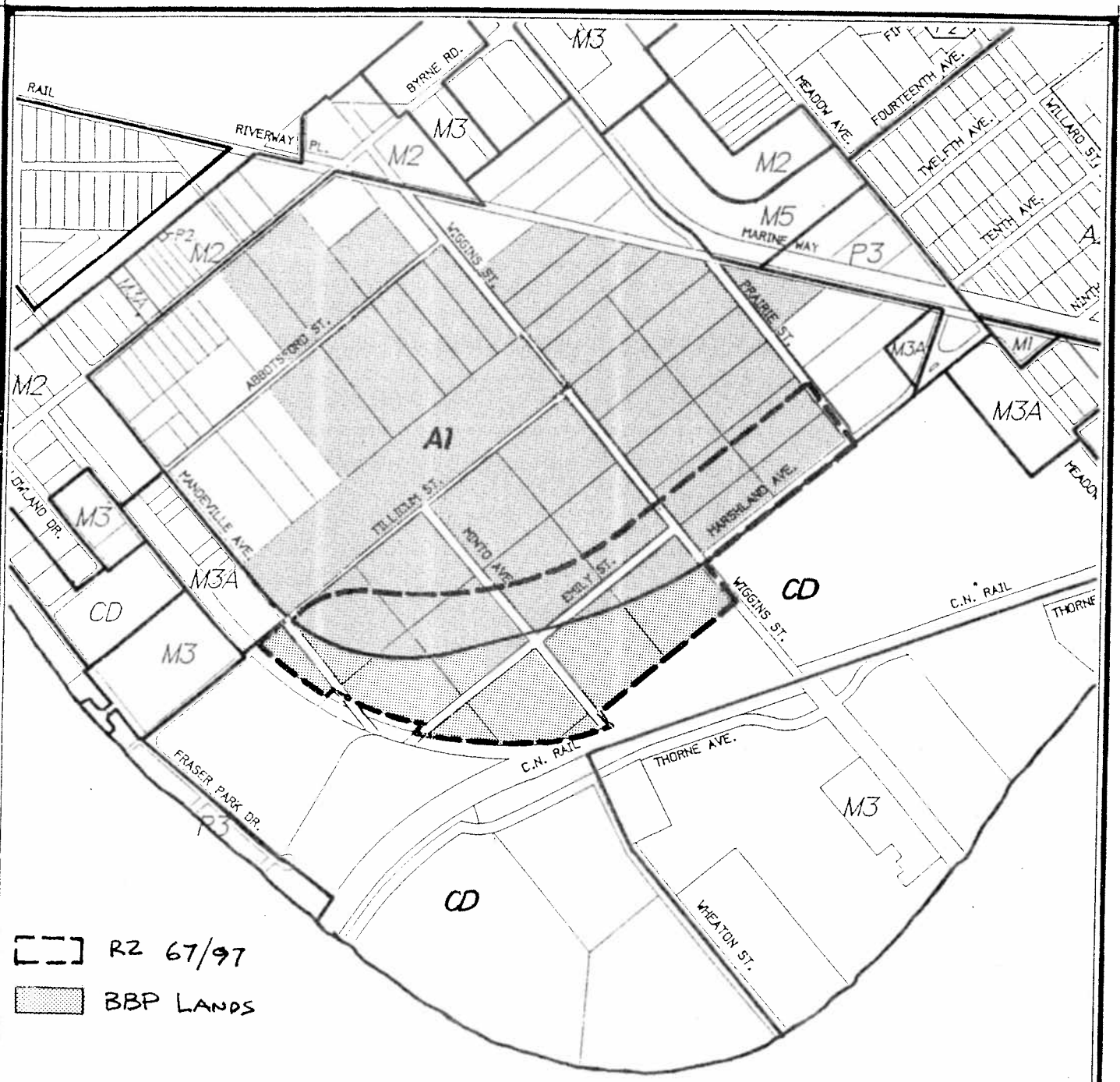
The Bylaw pertaining to the subject rezoning appears elsewhere on this Agenda for Council's consideration of Second and Third Reading.



D.G. Stenson, Director
PLANNING AND BUILDING

Attachments
PB\sk

cc: City Clerk
Director Engineering
Director Parks, Recreation and Cultural Services




R2 67/97
 BBP LANDS

Date:
 1998 JUNE 15

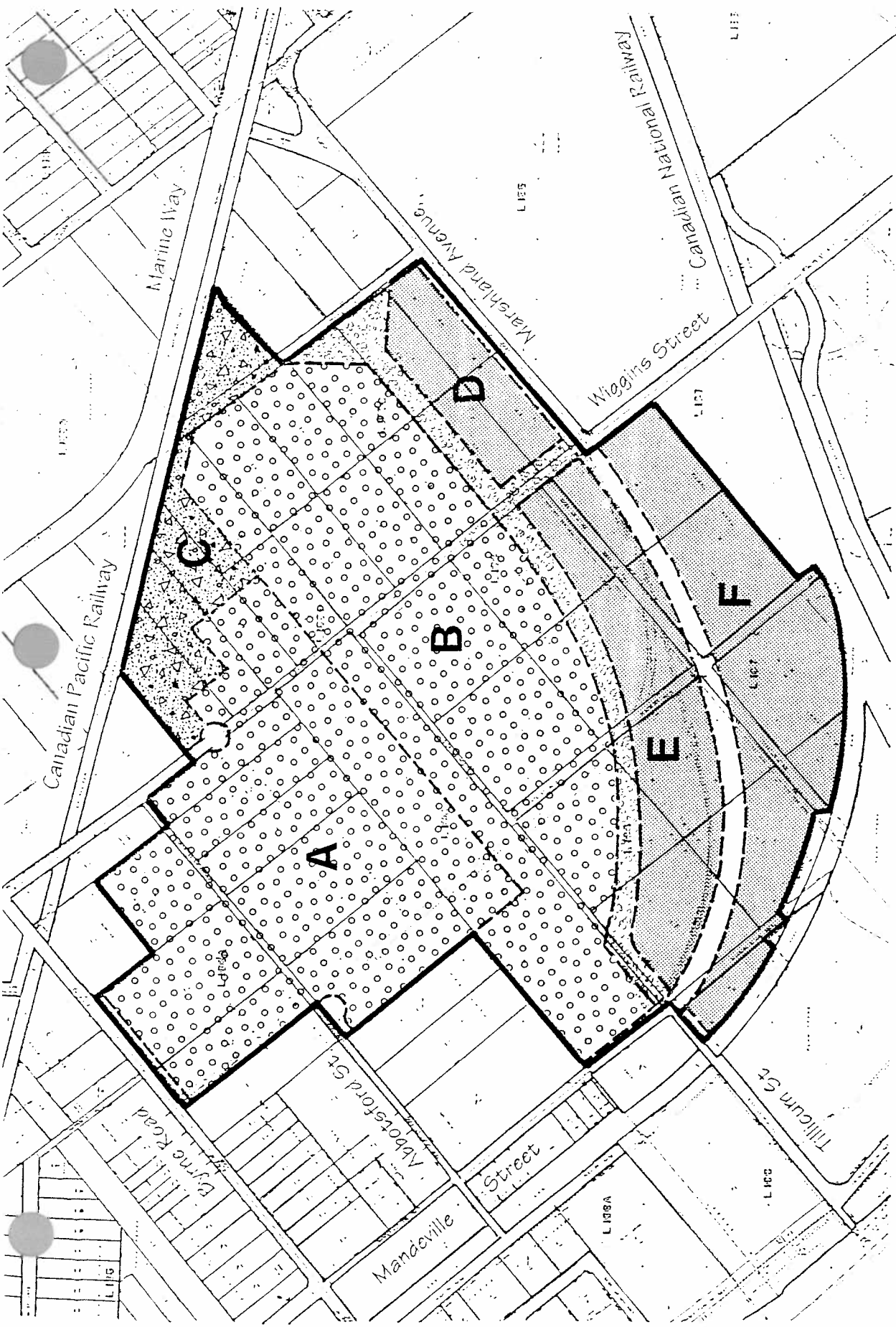
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 City of Burnaby
 Planning & Building Dept.

SKETCH # 1




REZONING REFERENCE # 67/97

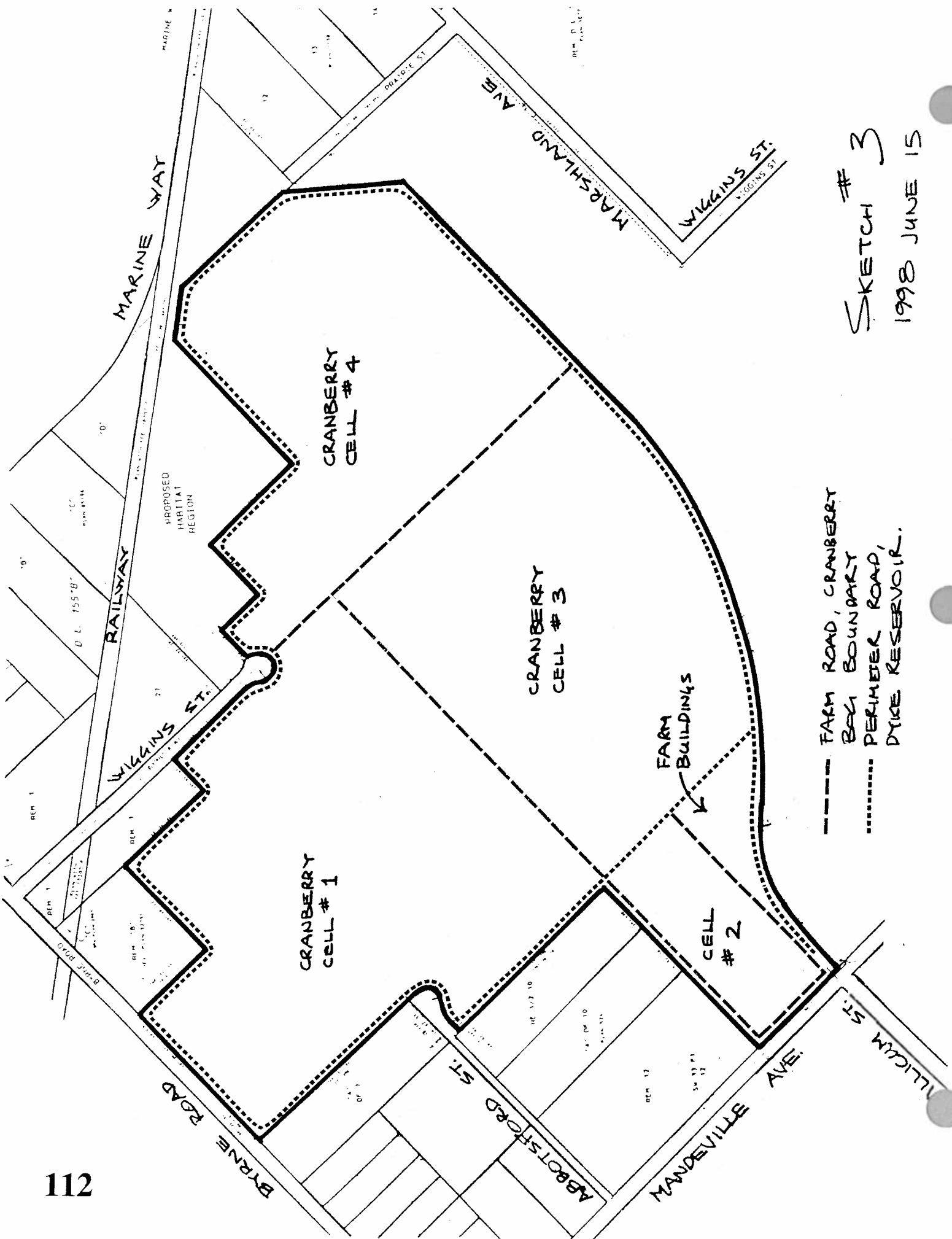


1997 Revised Land Use Concept Plan, Burnaby Business Park Lands



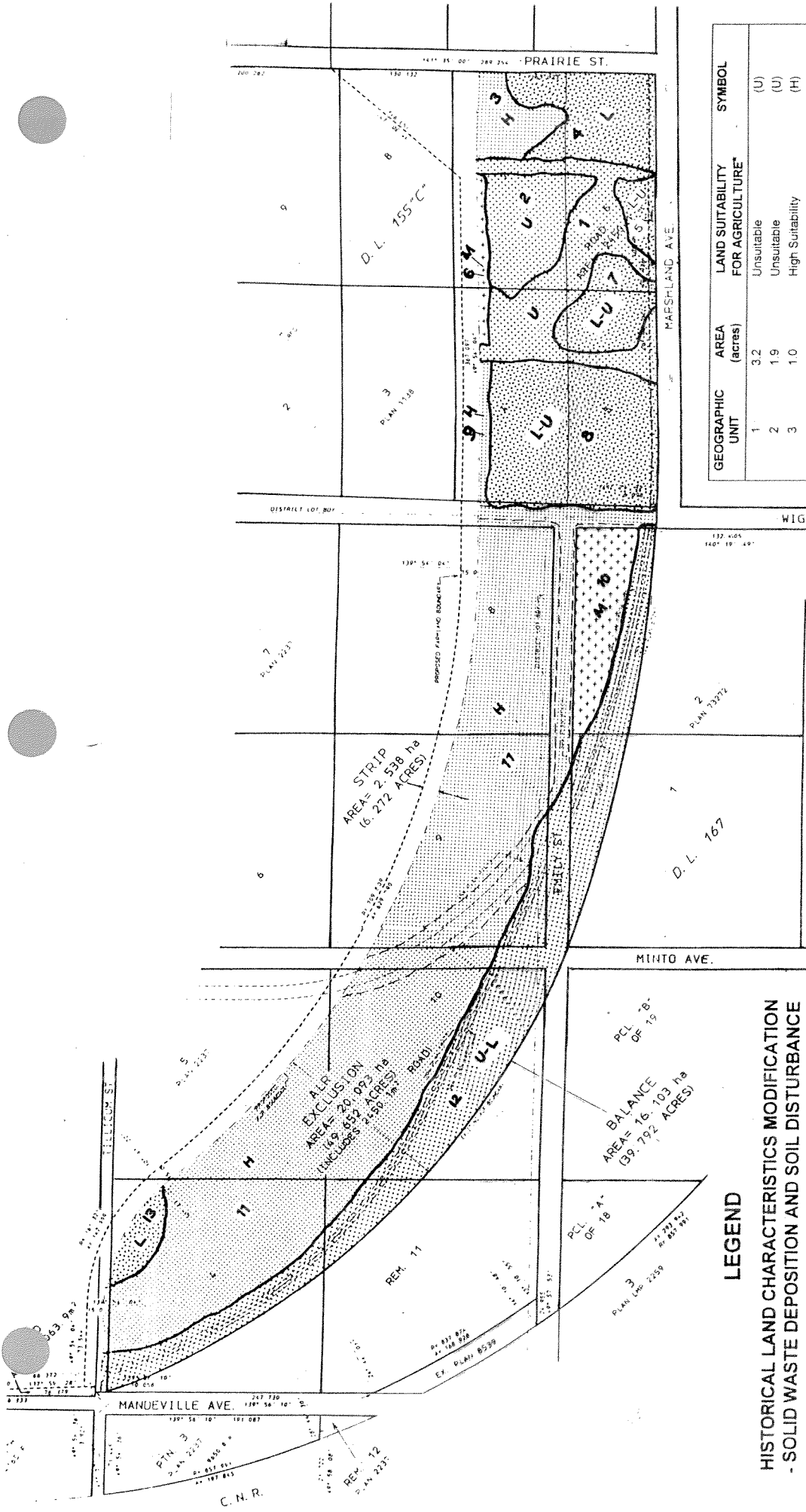
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SKETCH # 2
 1998 JUNE 15

-  Boundary of Burnaby Business Park Lands **A & B** - Cranberry Farms
-  Consolidated Lot Boundaries **C** - Habitat Restoration, Bog Forest Buffer & Access Corridor
-  Dedicated Park / Buffer **D - F** - Comprehensive Industrial



SKETCH # 3
 1998 JUNE 15

--- FARM ROAD, CRANBERRY BOA BOUNDARY
 PERIMETER ROAD, DYKE RESERVOIR.



LEGEND

HISTORICAL LAND CHARACTERISTICS MODIFICATION - SOLID WASTE DEPOSITION AND SOIL DISTURBANCE

- U Suitability for soil bound agriculture impacted very significantly due to presence of solid waste including wood waste (all kinds), appliances, metal, furniture, plastic, gyproc, cement, asphalt, cinders, tires, etc., off site soil and soil disturbance.
- L Suitability for soil-bound agriculture reduced due to significant, but sometimes scattered solid waste including wood waste (all kinds), appliances, metal, furniture, plastic, gyproc, cement, asphalt, cinders, tires, etc., off site soil and soil disturbance.
- M Moderate suitability for soil-bound agriculture with some soil disturbance.
- H High general suitability for soil-bound agriculture.

LAND SUITABILITY FOR AGRICULTURE SUMMARY

LAND SUITABILITY	AREA (acres)
Low and Unsuitable	±23.6
Moderate Suitability	± 2.9
High Suitability	±23.2*
Total Area (acres):	±49.7

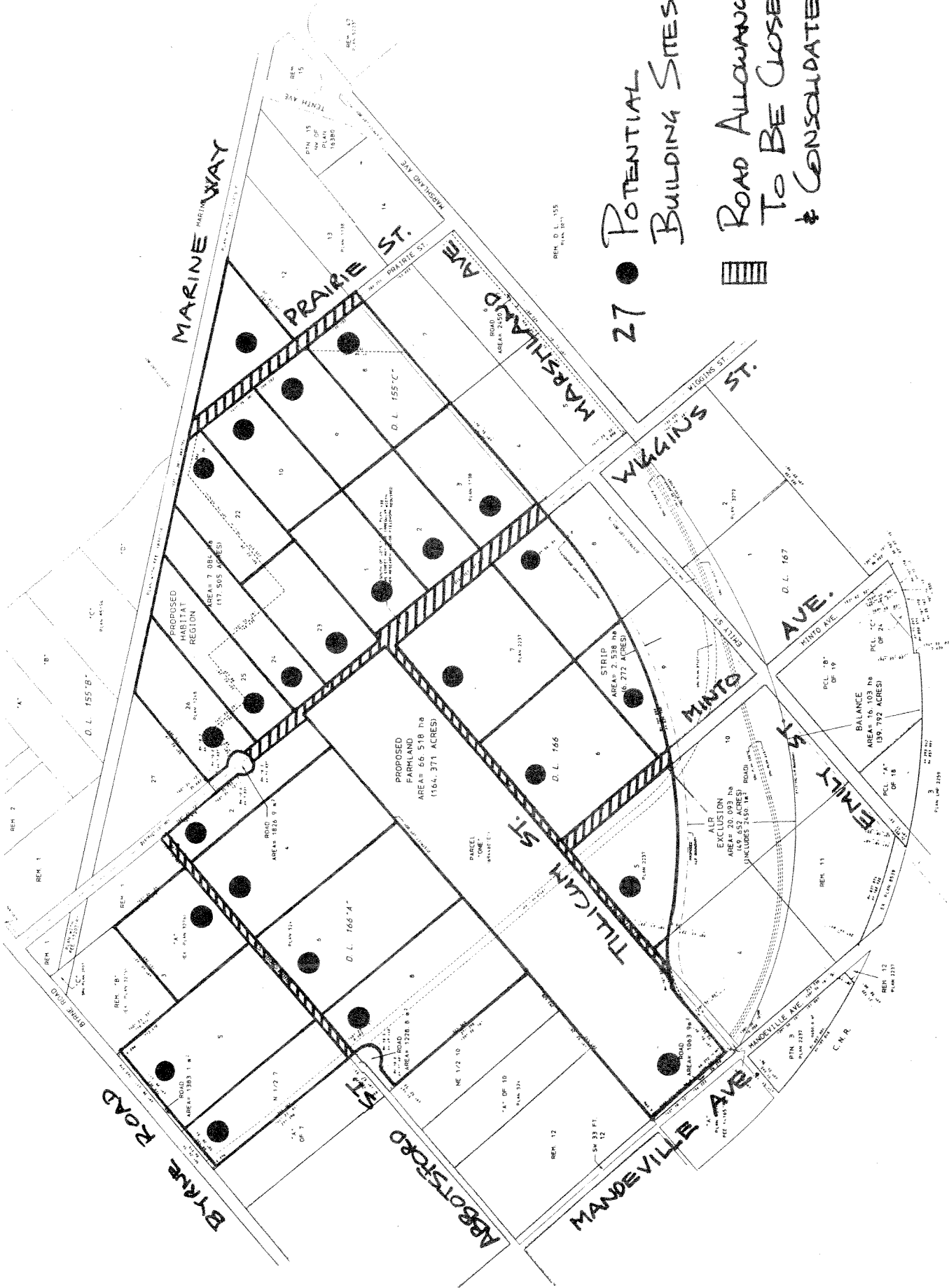
* 2.7 ac drainage ditch and sidecasting

GEOGRAPHIC UNIT	AREA (acres)	LAND SUITABILITY FOR AGRICULTURE*	SYMBOL
1	3.2	Unsuitable	(U)
2	1.9	Unsuitable	(U)
3	1.0	High Suitability	(H)
4	2.1	Low Suitability	(L)
5	0.5	Low to Unsuitable	(L-U)
6	1.0	Moderate Suitability	(M)
7	1.4	Low to Unsuitable	(L-U)
8	4.9	Low to Unsuitable	(L-U)
9	0.3	High Suitability	(H)
10	1.9	Moderate Suitability	(M)
11	21.9	High Suitability	(H)
12	9.0	Unsuitable to Low Suitability	(U-L)
13	0.6	Low Suitability	(L)
Total Acres:	49.7		

* Land Suitability for Agriculture opinion in this report is based on degradation impact due to deposition of solid waste and associated soil disturbance for soil-bound agricultural use

SKETCH # 4
1998 JUNE 15

LAND SUITABILITY FOR AGRICULTURE

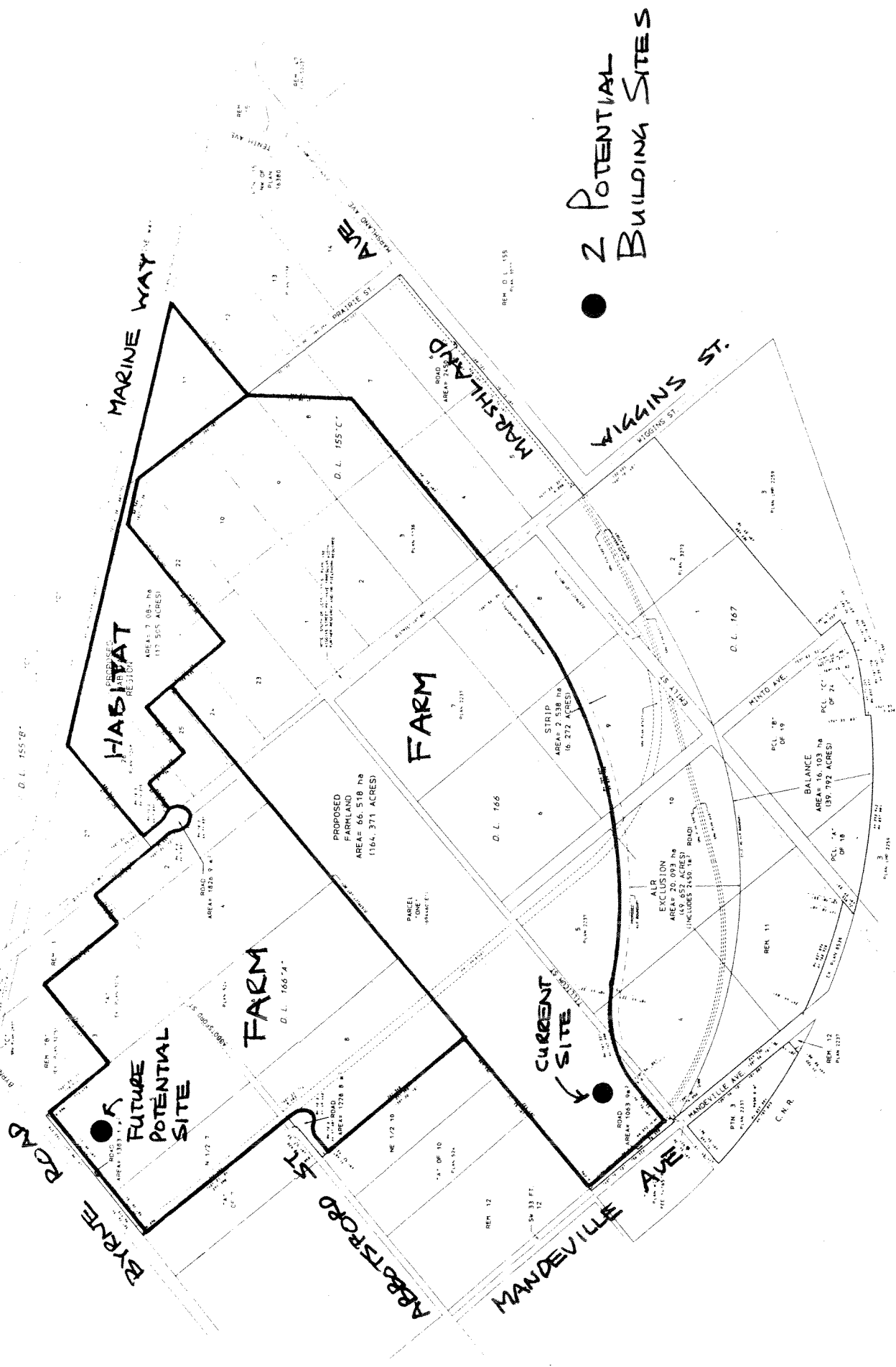


27 ● POTENTIAL BUILDING SITES

▨ ROAD ALLOWANCES TO BE CLOSED & CONSOLIDATED

SKETCH 5
1998 JUNE 15

ORIGINAL SUBDIVISION CONFIGURATION



● 2 POTENTIAL BUILDING SITES

SKETCH # 6
1998 JUNE 15

RESULTANT SUBDIVISION CONFIGURATION
OF 2 FARM UNITS & HABITAT AREA

