

**MUSWELLBROOK SHIRE COUNCIL**

*SOUTH MUSWELLBROOK STRATEGIC STUDY  
DEVELOPMENT OF RESIDENTIAL LAND*

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# 1. INTRODUCTION

The Shire of Muswellbrook is centrally located in the Upper Hunter Valley. It is bounded by Merriwa, Scone, Singleton and Rylstone Shires. The township of Muswellbrook is the main residential and commercial settlement in the Shire. It lies approximately 130km north-west of Newcastle on the New England Highway and 50km north-west on Singleton.

The economy of the area is diverse ranging from agriculture to power generation and coal mining. The latter have had a cynical impact on the development of Muswellbrook since the early 1980's. The wide economical base to the region has insulated it to some degree from the past economic downturns.

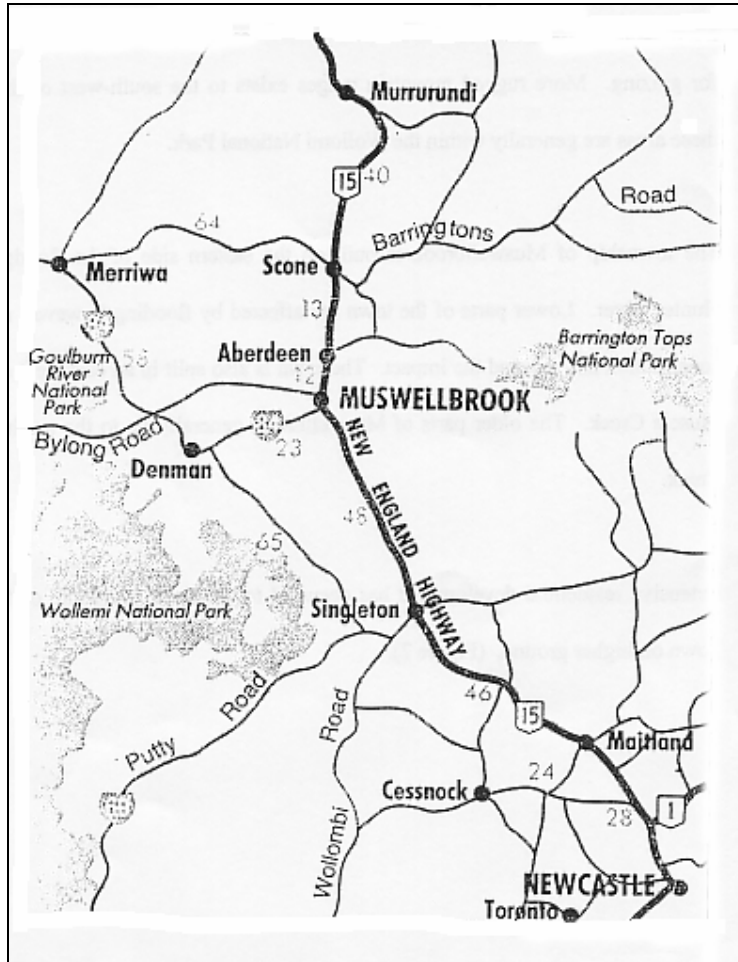
Muswellbrook Shire has an area of 3401 square kilometres with a population of approximately 16000. Most of the population live in the township of Muswellbrook situated adjacent to the Hunter River.

A major planning study was carried out in the 1980's to formulate the Muswellbrook Local Environmental Plan, introduced in 1985. Since this time expectations and requirements of the residents have altered. With the pending growth surge expected due to increase major development in the area, a review of Settlement Strategies is needed. This would enable infrastructure to be planned to permit quick response to this growth and provide the facilities required.

The growth of Muswellbrook is restricted to certain areas due to physical constraints further expanded upon in this Study. The purpose of the Study is to establish a blueprint to guide future urban growth in the township of Muswellbrook.

Muswellbrook Council is a major landowner in this area and is planning to develop a 190 lot subdivision at South Muswellbrook. The area proposed is zoned 2(a) and 2(c) under the present Local Environment Plan. Council's purpose in developing residential land is to reduce the potential of a monopoly in land sales occurring.

**FIGURE 1**



**Location Diagram**

## **2. LANDFORM**

The Muswellbrook Shire area is dominated by the major river systems of the Hunter and Goulburn Rivers. Extensive alluvial river flats rise to undulating hills, generally used for grazing. More rugged mountain ranges exist to the south-west of the Shire and these areas are generally within the Wollemi National Park.

The township of Muswellbrook is built on the eastern side of the floodplain of the Hunter River. Lower parts of the town are affected by flooding however, recent levee construction has reduced the impact. The town is also split in an east-west direction by Muscle Creek. The older parts of Muswellbrook generally lie to the North of Muscle Creek.

Extensive residential development has occurred to the north and south of the existing town on higher ground. (Figure 2).

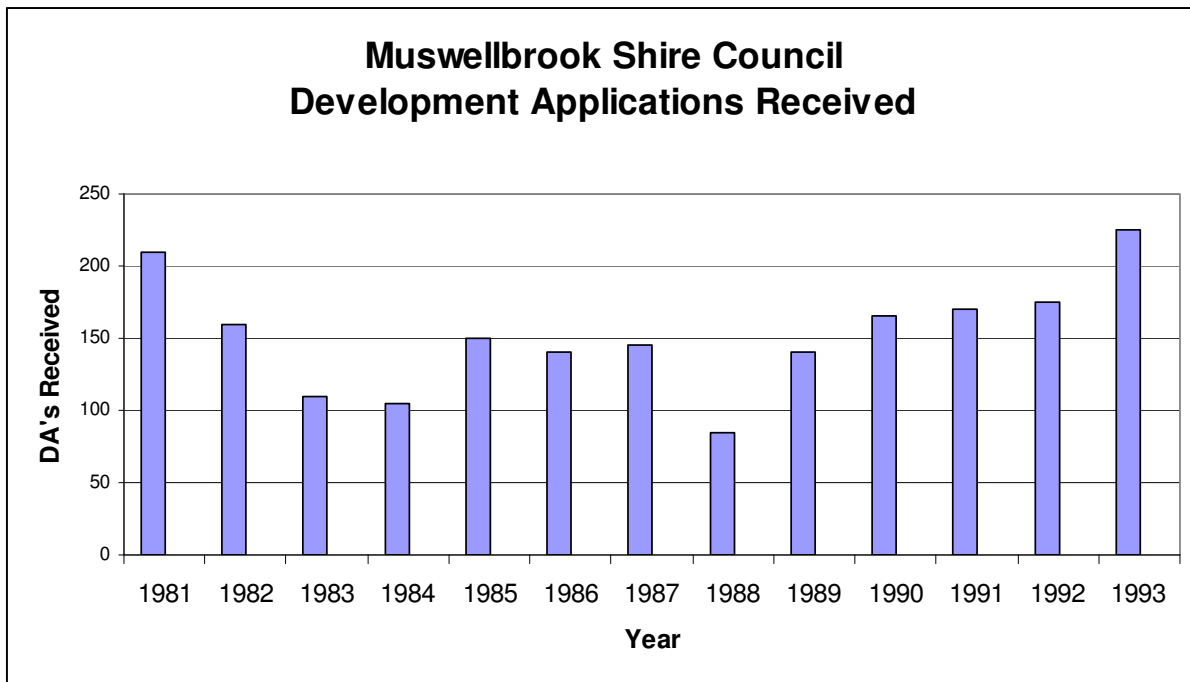


### 3. EXISTING DEMOGRAPHICS

The Muswellbrook Local Government area has a population on 16000. This is split between Muswellbrook 12000 and Denman 1500, and rural areas 2500. The average annual growth rate from 1986 to 1991 was 0.3%. This is below the Hunter average of 1.46% and the NSW average of 1.20%.

In comparison Development Applications as an indicator of failure growth have grown significantly since 1988 (Figure 3). The construction of new dwellings in the Muswellbrook area have also increased in this period. The assumption formed from reduced population growth and expanded development is that the population per household must be dropping.

FIGURE 3



## 4. AGE PROFILES

Muswellbrook has a young population compared to the Hunter Region average in the less than 30 age group. 51.1% of the population in Muswellbrook Shire is below 30 years of age compared to 44.5% as a Hunter average. In comparison, Muswellbrook has a significantly lower proportion of older residents, 10.7% over 60 compared to 18.1% in the Hunter generally.

This young population will create demand for housing as families develop and grow. This is reinforced by the higher than average percentage of children 0-9 year 18.7% of the population compared to 15.2% for the Hunter Region.

### AGE PROFILES AT THE 1991 CENSUS (%)

	MUSWELLBROOK	HUNTER REGION
0-9	18.7	15.2
10-19	16.1	14.8
20-29	16.3	14.5
30-39	16.5	15.4
40-49	13.5	13.0
50-59	8.3	9.2
60+	10.7	18.1
Births 1992	285	
Deaths 1992	84	
Natural Increase 1992-93	201	
Net Migration 1992-93	61	

## 5. EMPLOYMENT BASE

Muswellbrook has an active labour force of some 7303 people of which 4689 are male and 2614 are female. 640 of these were unemployed in 1992. In line with the age distribution the major percentage of the work force is below 55 years of age.

The main employers are Mining 15.1%, Retail 14.6%, Electricity 10.7% and Community Services 10.7%. When compared to the Hunter average Mining, Electricity and Agriculture are well above the Hunter average for that Industry. Retail, Manufacturing and Community Services are well below the Hunter Average.

### **EMPLOYMENT BY INDUSTRIES 1001 (u)**

	Person %	Muswellbrook	Hunter Region
Agriculture Forestry Hunting Fishing	616	9.2	3.4
Mining	1017	15.1	5.0
Manufacturing	507	7.5	13.7
Construction	307	4.6	7.2
Retail/Wholesale	979	14.6	18.6
Electricity Water & Gas	720	10.7	2.4
Transport & Communication	272	4.0	5.4
Business Services	444	6.6	8.6
Public Administration	209	3.1	4.9
Community Services	717	10.7	17.5
Recreational & Personal	430	6.4	6.9
Non-Classifiable	498	7.4	6.3
Total	6716	100.0	100.0

u = count at place of usual residence

### **ANNUAL HOUSEHOLD INCOME**

The Shire of Muswellbrook is a very affluent area when compared to the Hunter Average. A significantly high proportion (20.1%) of the households earn between \$50000 and \$100000 per annum compared to 15.5% Hunter wide.

### **ANNUAL HOUSEHOLD INCOME \* 1991 (u)**

	Households	Muswellbrook (%)	Hunter Region (%)
\$0 - \$3000	39	0.8	0.6
\$3001 - \$12000	483	9.8	14.1
\$12001 - \$20000	648	13.1	17.7
\$20001 - \$30000	618	12.6	13.7
\$30001 - \$40000	550	11.1	10.7
\$40001 - \$50000	449	9.1	9.3
\$50001 - \$100000	992	20.1	15.5
\$100001 - \$150000	210	4.3	1.8
\$150001 and over	22	0.4	0.3
Not Stated	928	18.8	16.2
Total	4939	100.0	100.0

\* includes individuals 15 or over not in the labour force

u = count at place of usual residence.

## 6. EXISTING GROWTH TRENDS

The population growth of Muswellbrook between the last 2 censuses periods as been relatively flat (0.3%). This is well below the State average and not reflection of the activity in the area through the demand for land. The development industry has grown steadily as shown by the increased number of development applicants as shown in Figure 3. The consolidation of the Mining Industry and reduced labour force in the rural section may account for this flatter growth trend.

## 7. FUTURE GROWTH TRENDS

The Department of Planning have predicted the following growth options for the Muswellbrook area:

### POPULATION PROJECTIONS

	1993	2001	2006	2011
LOW	16000	17000	17400	17600
MEDIUM		17500	18100	18600
HIGH		18200	19200	19900

Mining is the major employer in this Shire with 15.1% of the total workforce of 6716 (1017). Muswellbrook has the last major unallocated open cut coal reserves left in the State. As older more costly operations in the Lower Hunter close, the emphasis in Coal production will shift to the Muswellbrook area. The following Mines have either started construction or are planning to start production before the year 2000.

### PROPOSED MINES BEFORE 2000

Bayswater No. 3	<b>Employees</b> 200 additional employees
Dartbrook	350 Employees
Bengalla	400 Employees
Mount Pleasant	400 Employees
<b>TOTAL</b>	<b>1350 Employees</b>

This table does not include the proposed or newly opened Mines in the area outside of the Shire. A proportion of the labour force for these mines will reside in Muswellbrook eg. Mt Owen, 300 employees and Cumnock Colliery and Howick.

The Mine workforce has in the past travelled long distances to work and this would affect the number of employees residing in Muswellbrook. The assumption in the early 1980's that all miners would migrate to the area led in part to oversupplies of land in the Upper Hunter.

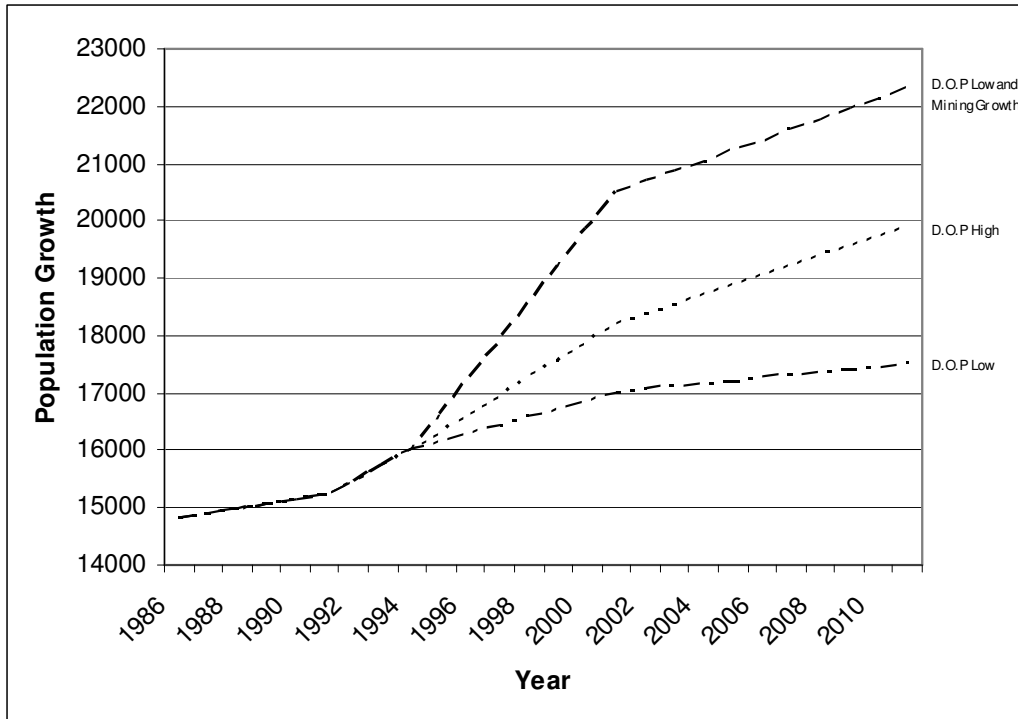
Eventually, over a period of time commuting to work becomes less desirable. Muswellbrook grows and Facilities and Services offered in the town grow, it becomes more desirable. This there is an eventual migration of employees to Muswellbrook over a period of time. Using a Conservative figure of say 60% of the Mine workforce moving to the area, this would expand to 810 employees from the mines listed in the above table only.

Given the present population of 16000 in 4939 households, an average population per household of 3.24 can be calculated. Applying this to the 810 workforce a total population increase of 2624 could be expected.

Averaged out this would equal 525 people per year up to the year 2000 or 3.3% of the current population per year. This does not include the significant multiplier affect in the mining industry. In general, up to 2-3 times the workforce can be employed outside of the immediate industry. If this is taken into account, growth rates well above 3% PA can be achieved.

Rather than rely on the Department of Planning Prediction a higher growth rate has been calculated as shown in Figure 4. The expected growth rate will lie between 2.2% and 3% PA.

**FIGURE 4**



## 8. EXISTING LAND STOCKS

Before developing a future strategy for expansion of urban land there is a need to consider the existing undeveloped reserves. The future land stocks are made up of future residential land (zoned 2c) and existing developed vacant land.

- a. Existing undeveloped vacant land. The study by RF Wright & Associates (Appendix A) established that some 49 blocks are available for immediate sale in Muswellbrook
- b. Future land zoned 2c (future residential). There is approximately 362 ha of land zoned 2c in Muswellbrook. This could yield up to 3000 lots based on the following:

Assume 900 square metre lots + 1/2 road = (200ms) = 1000m<sup>2</sup>

$$\frac{A \ 326ha \times 10000}{1000} = 3620 \text{ lots}$$

Reduced by 20% for Drains/Open Space etc.

$$3620 \times 0.8 = 2896 \text{ Lots say } 3000$$

There is a capacity to develop 3050 lots in the existing zoned residential supply. The appropriateness of these lots has not been taken into account. Based on population projections in Section 7, the available land stocks will cater for a population of 9880 (3050 x 3.24)

Even at the highest expected growth rate, this population would not be reached for some 30 years. Therefore, there is an estimated current supply of land to cater for the next 30 years.

At this time there is no immediate pressure to rezone land for residential purposes as sufficient land exists to meet out immediate needs. The proposed extension of the residential boundary is to alien that boundary with the limit of constraints imposed by the physical environment.

There is however a need for rural residential close to Muswellbrook. This demand was first raised in the Rural Lands Study carried out in 1991-92. In this study an area of land at Muscle Creek was identified as being suitable for rural residential. This area has recently started to be developed however it depends on the willingness of the owners to develop their land. Other equally suitable sites exist in close proximity to the town that are also capable of being developed. These should not be overlooked if they can meet Councils desired objectives and each case should be examined.

This would not be the case with rural retreat subdivision where services are not available and where they have the potential to impact on agriculture.

## **9. DEFINITION OF STUDY AREA**

Muswellbrook has a number of physical constraints that limit its expansion. It is unable to expand westward due to flooding from the Hunter River. The northward expansion is restricted by the impact of Mine Subsidence. Expansion to the north-east is not possible due to the proximity to the existing Muswellbrook Coal Mine. The south-western expansion is prevented by flooding and incompatible land uses such as heavy industry and the Sewerage Treatment Works.

The only available area for growth is therefore to the south-east. This is where the major proportion of 2c zoned land is located.

For this reason this study concentrated on the Natural Catchments to the south of the New England Highway Figure 5.

As Muswellbrook has well over 25 years reserve of residential land available, the identification of more residential land is not presently required. The existing boundary for growth to the south is an arbitrary property line and bears no reference to the natural features. It should therefore be altered to reflect the constraints of this location.

Rural residential is a type of land stock that is not readily available in the area and should be provided for. The development of this rural residential land will depend on market forces and provision should be made to introduce variety into the land market.

## **10. CONSTRAINTS**

### *10.1 Slope*

The study area has been examined in regard to the impact of slope on development. Areas above 15 degrees have been shown in Figure 6. These areas are generally unsuitable for urban development, however, they may in part be included in rural residential blocks provided intensive agriculture is not carried out on them and the construction of dwellings are not constructed on them. Much of the land would be affected by the Soil Conservation Act.

### *10.2 Drainage*

The study area drains to the north and south from a major ridgeline. The northern areas drain through a number of established drainage reserves through the residential precincts and ultimately to Muscle Creek. The southern areas drain to a well defined creek system which extends from the New England Highway to Ramrod Creek. This creek system would be subject to flooding and development should be excluded from the flood prone areas.

In addition to this, a number of gully lines run to the south feeding this drainage channel.

Gullies are generally well defined and there would be few problems in dealing with stormwater flows. Existing gullies should be retained for natural drainage paths and may also provide adequate open spaces.

The area to the north of the ridgeline may require stormwater retention devices to ensure that the flooding does not occur to the low lying areas further down the catchment. This would have to be examined when more detailed plans are prepared.

### *10.3 Flora and Fauna*

A detailed study of flora and fauna has not been undertaken as this area has been extensively grazed for some time. A study will however be required prior to Council considering specific planning approvals. This study shall include SEPP 34 requirements and other statutory requirements to ensure environmental protection.

### *10.4 Sewerage Services*

The limit of development that can be serviced by reticulated service facilities is shown on Figure 7. All the area to the north of the ridgeline can be fed by gravity into existing sewerage systems or proposed sewerage systems. Rural residential development will not require connection to the sewer if it can be demonstrated that the site is capable of accepting on site disposal of effluent. This will require geotechnical assessment of infiltration rates.

### *10.5 Water Services*

Figure 8 shows the area above RL220 which is the limit that future proposed reservoirs can service. Development should not occur above this RL with the planned system. If the developer wishes to develop above this point, a high lift reservoir will be needed at the developers cost.

At present, Council's system can only service RL180 and development above this point will require further infrastructure works to be provided by Council.

### *10.6 Property Ownership*

Figure 9 shows the property ownership for this area. The majority of the area is within the holding owned by Mr Webber.

### *10.7 Open Space*

Figure 10 shows areas that are proposed for open space networks. It is Council's requirement that the ridgelines be maintained free of any development and dwellings and in their natural treed state. This is required to ensure that the skyline is protected and remains as a tree lined horizon adequate provision is made for open space links.

In addition, drainage reserves are required within the gully line and those areas suitable for urban development which lie to the north of the ridgeline.

### *10.8 Road Networks*

The main thrust of the proposed road network is to facilitate the orderly and progressive development outwards from the existing road network. The network should also provide adequate and logical north-south and east-west links to join nodal points. The road system should provide adequate provisions for the future development of adjoining properties. A longer term benefit is the establishment of a link to the New England Highway from Skellatar Stock Route.

From this, a series of connector roads run between the New England Highway and this main access road. Further to this, cross links are provided in an east-west direction to move traffic from residential areas to the main nodes such as the existing shopping centres, schools and major playgrounds.

The construction standard for these roads will be investigated at each stage, however, prior to any development taking place, Council would require an area traffic report to evaluate the expected volumes of traffic thus enabling Council to properly size all roads within the area.

## 11. KEY FINDINGS

The following is a list of findings which should be implemented in the final development control plan.

- a) Rural residential development to be confined to the areas shown on the attached plan being south of the main ridge and north of the ridge running east-west between Muswellbrook and the industrial area.
- b) Rural residential lots to have town water supply connected.
- c) Ample land shall be provided to enable acceptable onsite disposal of effluent.
- d) The road hierarchy will generally follow that proposed by Council.
- e) Urban development will be confined generally to the northern side of the main ridge.
- f) All ridge tops should be dedicated as public open space at no cost to Council or other suitable treatment used to ensure buildings are not placed on the horizon as may be determined by Council.
- g) Development will not be permitted on areas that are environmentally sensitive eg. Soil investigations and stabilisation work is required where lots are proposed on land steeper than 15 degrees slope. Rural residential lots may be enlarged to include these steeper slopes provided adequate area is provided for development on less sensitive areas of the block.
- h) Development shall generally expand from the existing development area and not in isolated pockets.
- i) Rural residential and urban areas shall be linked by regular open spaced networks which may take the form of ridge top reserves or drainage swales.
- j) Each application shall be accompanied by sufficient information to allow Council to investigate the impact of the proposed development. This may take the form of a study in regard to the following:
  - Flora/Fauna
  - Aboriginal Heritage
  - Siltation Control Plan
  - Traffic Study
  - Drainage including the limits of the 1 in 100 year storm
  - Noise
  - Agricultural potential of the area
  - Soil classification for building suitability

- Contaminated sites study
- k) The applicant shall comply with all other codes and policies of Council including Section 94 contributions.
  - l) The applicant should be aware that a contribution is required under the Water Supply Authorities Act in regard to sewer and water headworks.
  - m) The applicant is advised that Council will generally consider rezoning of small pockets of up to 100 urban blocks or 500 rural residential lots. Council will consider rezoning the next section when 80% of the previous stage has been constructed.
  - n) All work shall be in accordance with Council's subdivision standards or as amended by Council.
  - o) All intersections in the rural areas shall have street lighting provided.

## **12. CONCLUSION**

The study has identified that Council has ample supply of residential land appropriately zoned to meet its needs for the next 25 to 30 years. The southern boundary of the residential land follows a non representative property line. This should be adjusted so that the southern expansion of urban land should coincide with the existing ridgeline. This ridgeline will provide ample protection for any future development to the south of Muswellbrook and will enable existing residential areas to gravity feed into the existing service systems.

The logical boundary therefore for urban expansion to the south is the ridgeline and any areas north of the ridgeline that are appropriate for urban development should be expanded as 2a or 2c residential land.

To cater for the expanding need for rural residential alternatives, the area to the south of the ridgeline to the major gully line would be acceptable for this purpose. This will however be subject to further detailed submissions on behalf of the applicant specifically in regard to road layout, traffic generation, servicing and open space system. It is imperative that development in this area is carried out in such a way that it complements the existing services available in Muswellbrook and is able to be connected to a town reticulated water supply. Figure 12 is an overlay of the constraints maps previously investigated and from this, Figure 13 which shows areas suitable for rural residential and urban development outside of the existing zoned area has been prepared. This is a conceptual plan proposed to guide future developers in the submission of a detailed proposal to Council.

FIGURE 6

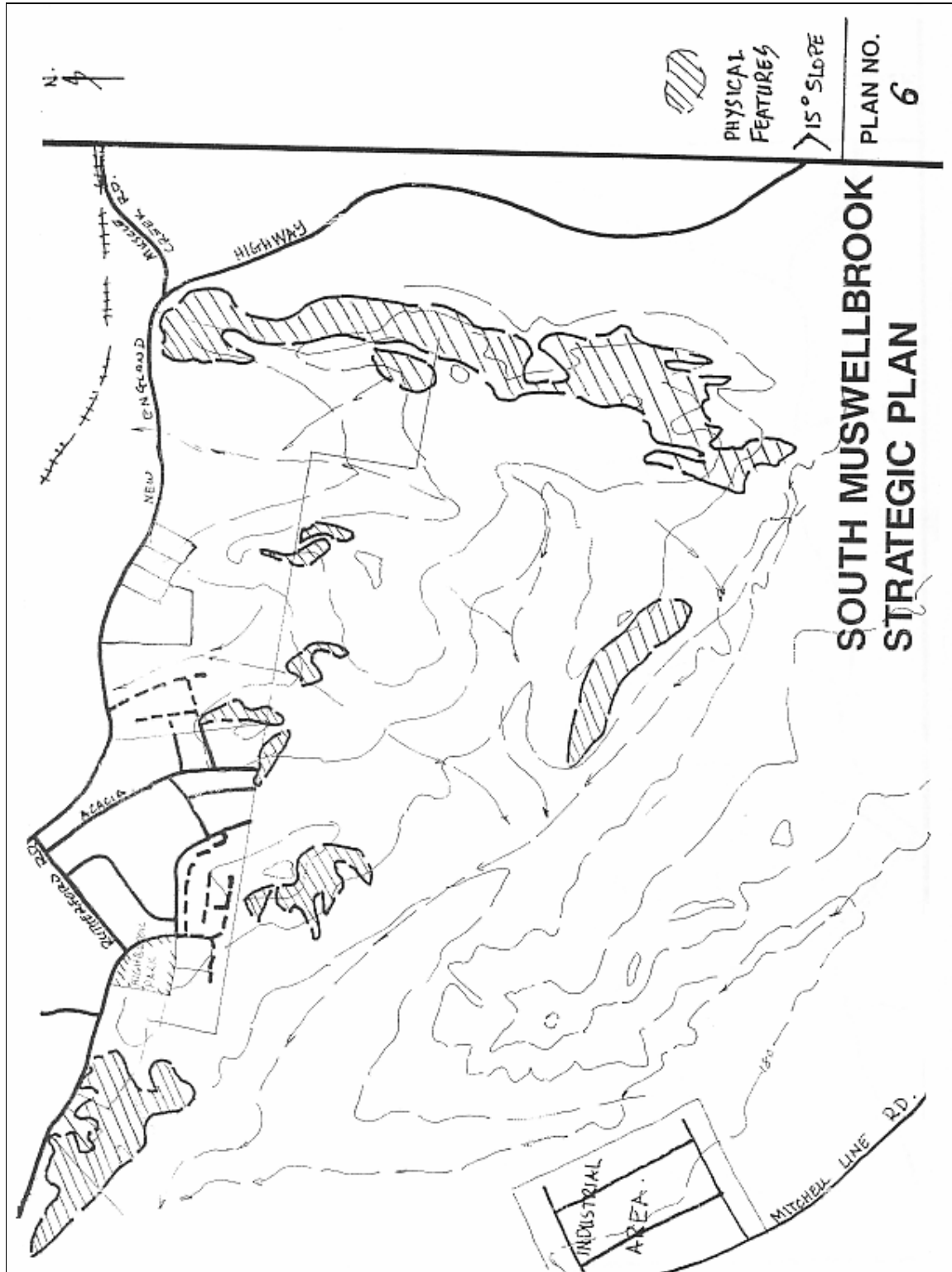


FIGURE 7

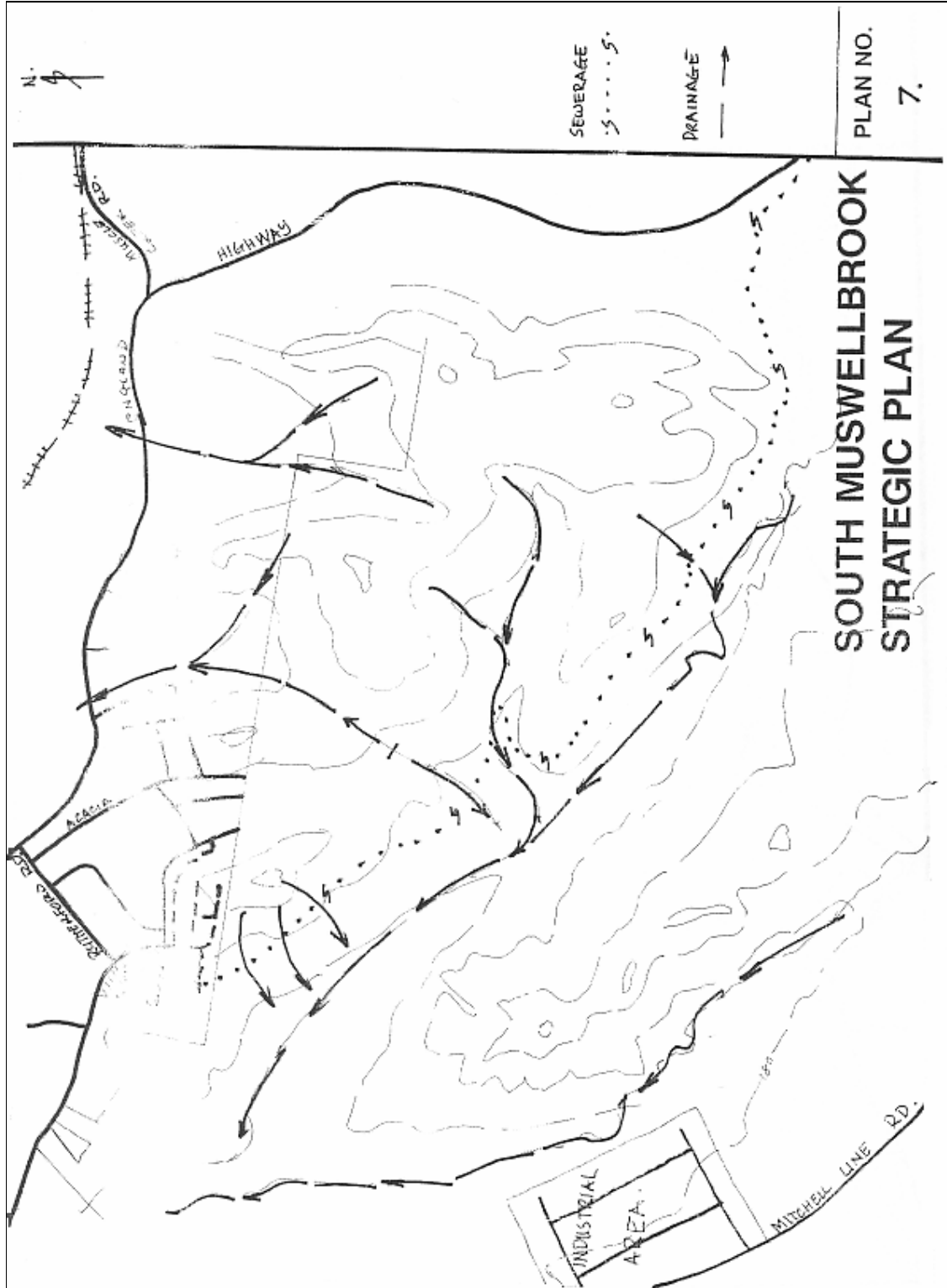


FIGURE 8

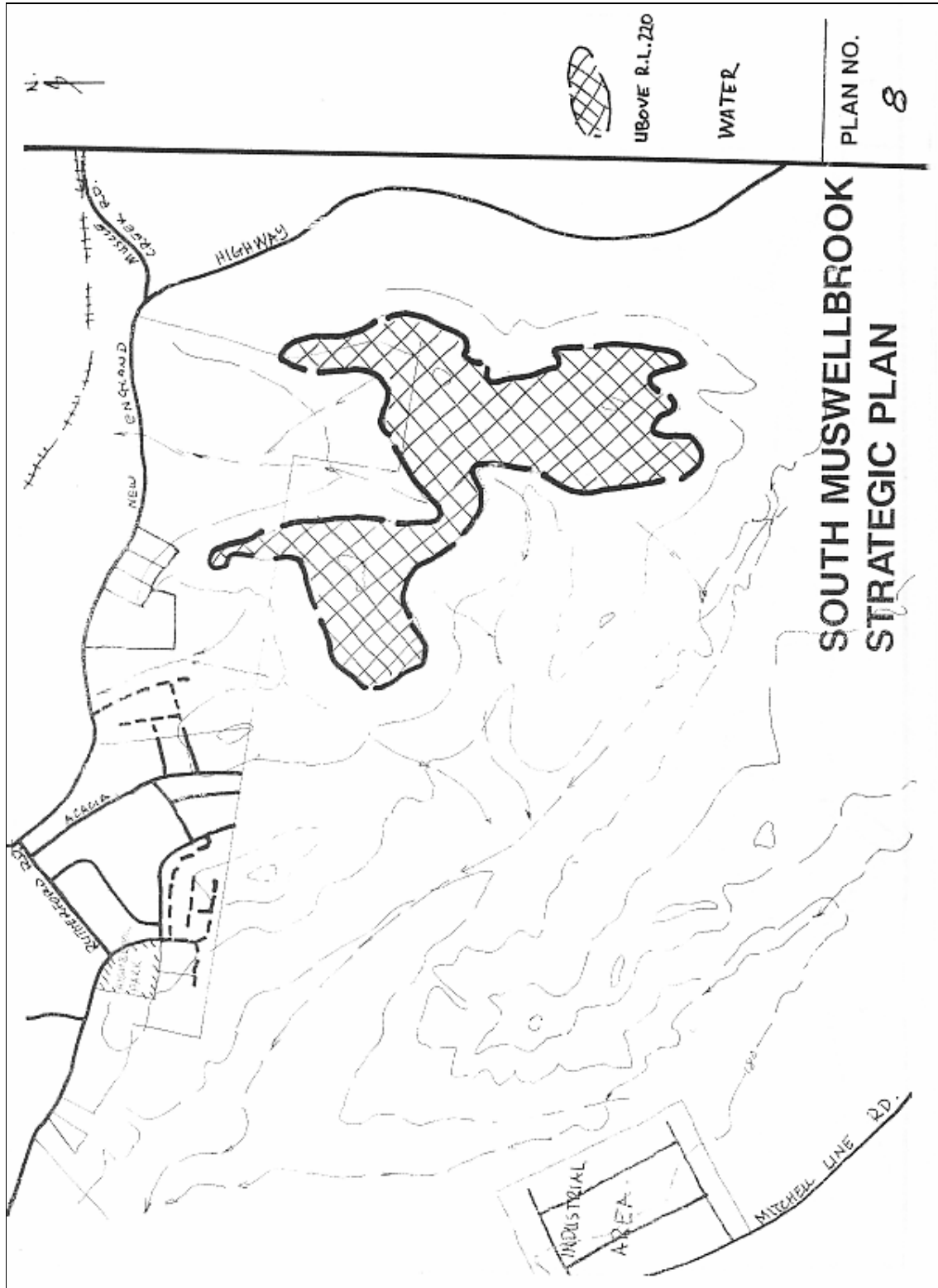




FIGURE 10

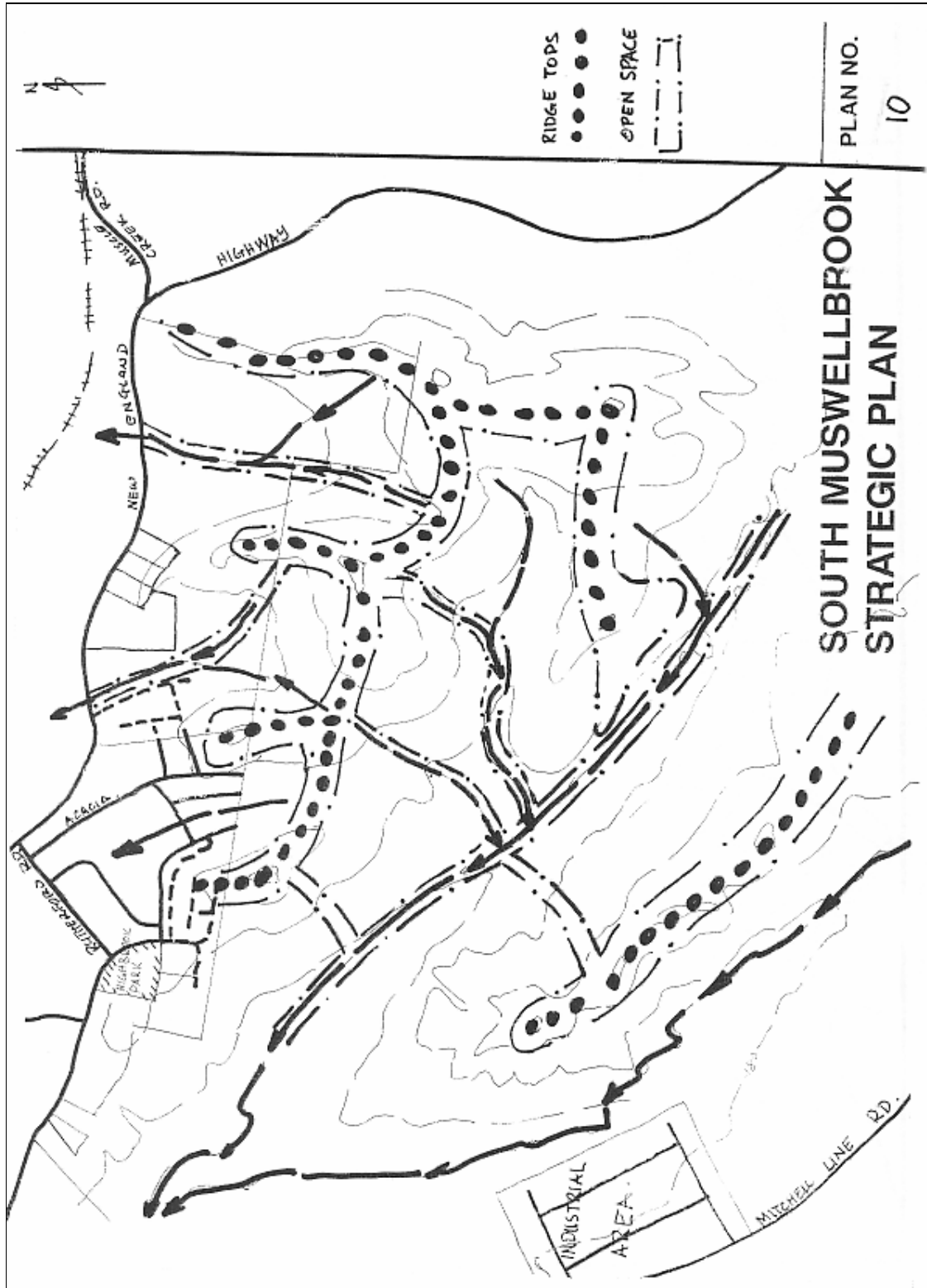


FIGURE 11

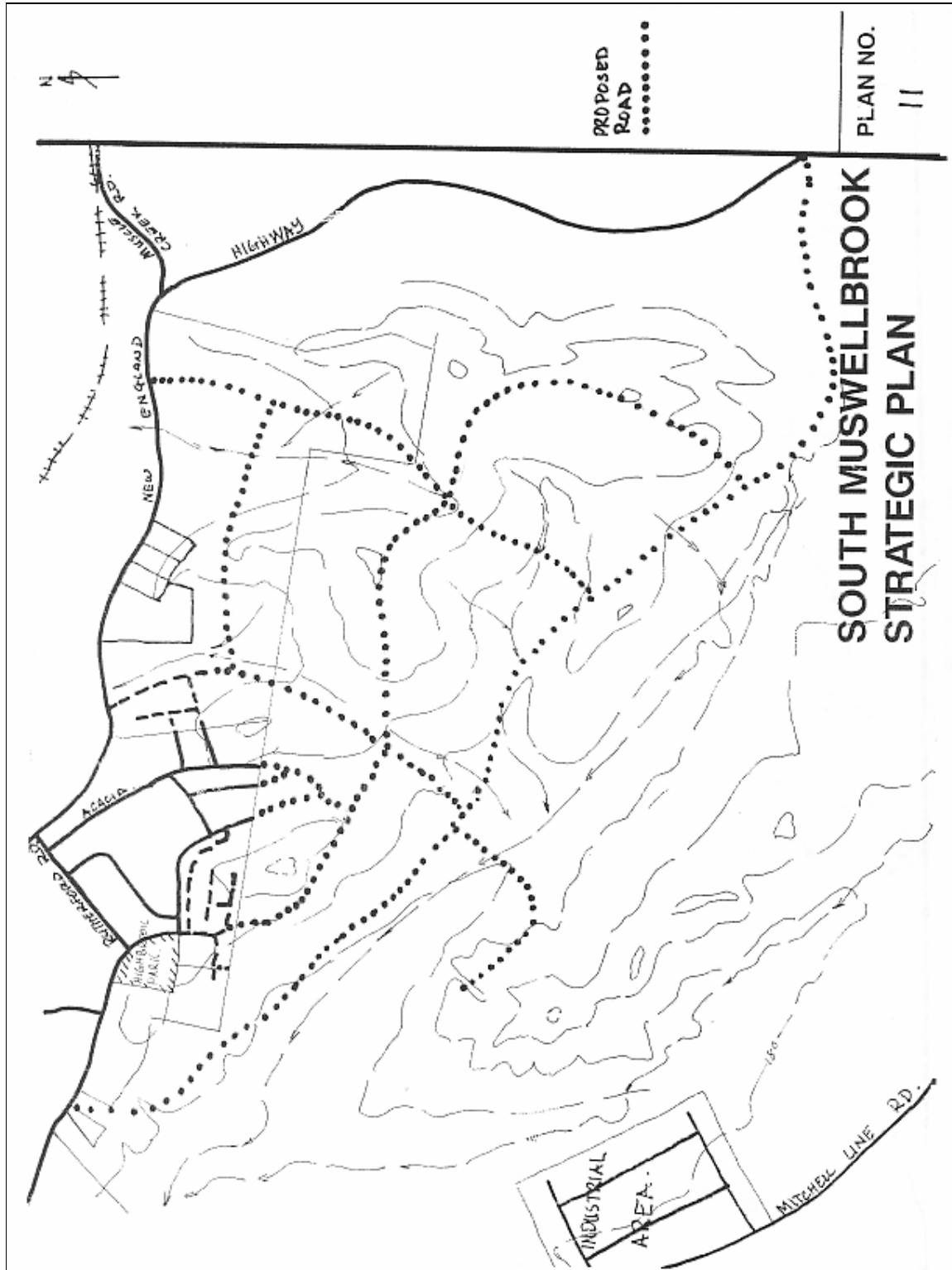


FIGURE 12

