

PLANNING SCHEME POLICY No. 3
WARWICK SHIRE COUNCIL
WATER SUPPLY AND SEWERAGE HEADWORKS CONTRIBUTIONS
WATER SUPPLY AND SEWERAGE WORKS EXTERNAL CONTRIBUTIONS

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Drawing No. 4-121744-1A

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PLANNING SCHEME POLICY
WARWICK SHIRE COUNCIL
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1. INTRODUCTION

- 1.1 Section 6.1.20 of the Act defines the legal basis on which Local Authorities can require contributions from applicants towards the costs of providing a reticulated water supply and sewerage service.
- 1.2 The definition of the term 'Act' for this report means the Integrated Planning Act, and the term "Repealed Act" means the Local Government (Planning and Environment) Act 1990-1992.
- 1.3 The term Warwick City refers to the area of the former Warwick City Council.
- 1.4 The Repealed Act defines the different components of a water supply scheme and these components are 'water supply headworks', 'water supply works external' and 'water supply works internal'. The different components of a sewerage scheme are defined as 'sewerage headworks', 'sewerage works external' and 'sewerage works internal'.
- 1.5 For the purpose of this report 'Water Supply Headworks' shall comprise the following -
- (i) provision of the source of raw water supply including storage dams or underground boreholes and provision of intake structures, pumps, balance tanks and mains to deliver the raw water to the treatment plant;
 - (ii) construction of treatment plants and clear water storage reservoirs including mechanical equipment and chemical equipment;
 - (iii) construction of pumping stations and trunk mains to transport the treated water to distribution or storage reservoirs or elevated tanks;
 - (iv) construction of distribution or storage reservoirs and elevated tanks;
 - (v) construction of trunk delivery mains (generally 300 mm dia. and larger with some exceptions) to transport the water from distribution or storage reservoirs to each districts reticulation system, or for the general benefit of the water supply scheme.

- 1.6 For the purpose of this report Sewerage Headworks' shall comprise the following -
- (i) construction of water pollution control works and treated water disposal works and facilities including mechanical equipment and chemical equipment.
 - (ii) construction of pumping stations and pressure (rising) mains to transport the raw sewage to the water pollution control works.
 - (iii) construction of trunk sewers (generally 300 mm dia. and larger) to transport the raw sewage between pumping stations, or for the general benefit of the overall sewerage scheme.
- 1.7 For the purpose of this report 'Water Supply Works External' shall comprise the following:
- Those works, structures or equipment necessary for the purpose of connecting the works internal to a development to the existing water supply system at an appropriate location.
- 1.8 For the purpose of this report "Sewerage Works External" shall comprise the following:
- Those works, structures or equipment necessary for the purpose of connecting the works internal to a development to the existing sewerage system at an appropriate location.
- 1.9 The purpose of this report is to establish the current value of each section of the above defined headworks and to derive the current per equivalent tenement/population costs of these headworks necessary for the Warwick City water supply and sewerage areas. These areas have been identified on the Warwick City Plan and are shown on Drawing No. 4-121744-1A. The equivalent tenement cost is then the basis for fixing the water supply and sewerage headworks contributions as detailed in this report.
- 1.10 This report details a policy of calculating contributions for water supply headworks, water supply works external, sewerage headworks and sewerage works external with respect to applications for a material change of use or reconfiguring a lot.

2. ESTIMATES OF COST

- 2.1 For the purpose of calculating headworks, the replacement costs of water supply pipelines, sewers, manholes and pressure mains have been calculated. Account has been taken of 1993 contract prices in South-East Queensland for the relevant components of the water supply and sewerage systems. Where such prices are not available, costs have been derived from historical costs or by normal estimating procedures involving prices of

materials and unit rates for excavations, pipelaying, bedding, backfilling and restoration.

- 2.2 In the case of water and sewerage pumping stations, reservoirs, water treatment plants and other non-standard works, historical costs have been used with an escalation factor based on the Building Cost index (Building Economist, March 1992). This index allows for changes in labour and material costs (Commonwealth Wholesale Price index of Materials other than Housing Average for Six State Capitals) together with adjustments for change in productivity.
- 2.3 There were two cases where the historical costs could not be factored due to the age of the headworks component (i.e., an escalation factor could not be assessed). This applied to the Connolly Dam and the Warwick Water Pollution Control Works. The replacement costs for these non-standard works was calculated from the original schedule of quantities and/or drawings of the relevant works.

3. WATER SUPPLY

- 3.1 For a Council to be able to charge a water supply headworks contribution there must always be a capacity within the water supply system to accept the extra connections. Hence in order to determine a sensible headworks contribution rate it is necessary to analyse the costs of a future scheme needed to supply a defined future population, which will then allow future development of land within the City.
- 3.2 The water supply scheme used in the calculation of water supply headworks costs for Warwick City is the year 2010 Scheme as analysed in the report 'Review of Warwick Water Supply Volumes 1 and 2' by the Engineering and Technical Services division of the DLG, January 1986. This report applied an average growth rate of 1.63% to the number of equivalent tenements assessed in 1986, resulting in a Year 2010 demand of 7,300 equivalent tenements (4,732 dwellings plus industry and other uses). This represents a population of approximately 12,700 persons (refer also Section 4 and Schedule F). An equivalent tenement means a service demand on the average occupancy of a dwelling house in a residential land use area which for the purposes of this policy is taken as 2.6 persons per dwelling. The year 2010 Scheme consists of the existing system and minor upgradings of service reservoirs, pump stations and reticulation.

3.3 Source of Supply

- 3.3.1 The source of supply for the Warwick City water supply is from two storage dams, the Leslie Dam and the Connolly Dam. The Connolly Dam was constructed circa 1929 from Council funds and has a total capacity of 2,592 megalitres (ML). The Leslie Dam was constructed by the Queensland Water Resources Commission (QWRC) in 1965 and was upgraded by the addition of radial gates and concrete piers in 1985. The Leslie Dam has a total capacity of 108,000 ML. Warwick Shire Council pays an annual charge for the allocation of a percentage of this dam's capacity.

3.3.2 The Queensland Government Gazette of August 1966 stated the quantities of water that may be taken from Sandy Creek (Leslie Dam) and Rosenthal Creek (Connolly Dam) in any single year. The total annual allocation from the two sources may not exceed 5,073 ML with a maximum allocation from Leslie Dam of 3,215 ML. The remaining annual safe yield of the Leslie Dam has been allocated to the Upper Condamine Irrigation Project with allocated values in any given year dependent on the water levels in the dam. The allocation of 3,215 ML to Warwick remains fixed. The estimated safe yield of the Leslie Dam is 25,210 ML per annum and the safe yield of the Connolly Dam is estimated at 1,725 ML per annum.

3.3.3 Two options have been considered in determining the water supply headworks costs for Warwick City. The first option includes a proportionate cost of construction of Leslie Dam even though it was a cost incurred by another authority. This proportionate cost was calculated by dividing the annual allocation of water to Warwick City by the annual safe yield of the dam and applying this figure to the total cost of construction. This calculation has been included in Schedule A of this report and also includes an allowance for irrigation users along the trunk main to Warwick City and an allocation of 72 ML/annum to the area of the former Rosenthal Shire Council taken just prior to the water treatment plant.

The second option excludes any costs of construction of Leslie Dam from the headworks costs. It should be noted, however, that the agreement between Warwick Shire and QWRC requires the Shire to pay a fixed amount per annum irrespective of the amount of water used (unless the allocation is exceeded), this agreement applying between the years 1966 and 2006. It is likely that this fixed amount includes a component for interest and redemption of the dam construction costs.

3.4 Capacity of System

3.4.1 The consumption flows for the Warwick City water supply scheme are based on the following (from January 1986 report).

Consumption per connection	=	620 kL per annum
(Average Day consumption)	=	1,700 litres per day
Mean Day Maximum Month demand (MDMM)	=	1,700 x 1.5
	=	2,550 litres per day
Maximum Day demand (MD)	=	3,250 litres per day

3.4.2 The year 2010 average day demand has been estimated to be 12.41 ML per day. Hence, the annual demand will be 4,530 ML which is less than the safe yield of the two storage dams (5,073 ML) and therefore the raw water supply is adequate for this design period. Any excess capacity will be utilised by irrigators along the trunk mains serving Warwick City.

The water treatment plant has a capacity (at the above consumption rates) of 7100 ET and will be adequate until about the year 2008. In this report, the headworks cost per equivalent tenement for the water treatment plant has been based on its design capacity rather than the year 2010 demand, ie. The augmentation of the treatment plant is beyond the scope of this report.

As the water treatment plant reaches its capacity, the ground reservoir storage should be able to satisfy three times the difference between MD and MDMM demands. Hence, a reservoir of minimum capacity of 2.8 ML would be required to satisfy this requirement. The timing of the construction of this reservoir would depend somewhat upon future augmentation of the treatment plant. In this report, a future 3.5 ML reservoir has been allowed for, at no specified location.

The trunk mains serving Warwick City from the storage dams are generally adequate for the design period chosen, although some augmentation of the booster pump station at Leslie Dam will be required sometime after the year 2000.

3.5 Headworks Cost

3.5.1 The headworks cost for any area within the water supply scheme will vary depending on the cost of the headworks components required to service that area. Further, headworks costs will vary for each location along a trunk main, but for acceptable administration management, a headworks contribution will be based on the average cost of headworks components to service the entire city. (This approach is logical as the four service reservoirs are located in the four corners of the city).

3.5.2 The following attached schedule details the estimates of cost for the existing and proposed future water supply headworks within the water supply system:-

Schedule B - Warwick City Water Supply

3.6 Summary of Contribution Rates

3.6.1 This section of the report has considered the various components of the water supply headworks necessary to provide a satisfactory water supply to Warwick City to serve the projected tenements in the year 2010.

3.6.2 The results of these considerations are summarised in Table 1 below, where the headworks cost per equivalent tenement/person is given.

OPTION	Cost ⁽¹⁾ per Equivalent Tenement ⁽²⁾ (\$)	Cost per Equivalent Person ⁽²⁾ [EP] (\$)
1. Includes proportion of Leslie Dam works	2960.10	1138.50
2. Excludes proportion of Leslie Dam works	2262.12	870.05

Table 1 - Summary of Headworks Contributions - Water

Notes:

- (1) The values given in Table 1 shall be adjusted n applicable as shown in Schedules D and E (Refer Clause 5 - Method of Calculating Contributions).
- (2) An equivalent tenement means a service demand on the average occupancy of a dwelling house in a residential land use area which for the purposes of this policy is taken as 2.6 persons per dwelling.

4. SEWERAGE

- 4.1 In this case, the basic unit for determining the infrastructure loading is the equivalent person (EP). The Warwick City sewerage scheme was analysed in the report 'Strategic Study on Warwick Sewerage' by the client Advisory Services division of QWRC, May 1991. This report again adopted a planning horizon up to the year 2010, assuming a total number of dwellings in the year 2010 equal to 4864 which included multi-residential dwellings (this compares favourably with the 4,732 dwellings used in the water supply analysis).

The report estimated a population in the year 2010 of 12,700 persons (refer also Schedule F). Hence an equivalent tenement was taken as 12,700 divided by 4,864 or 2.6 persons per dwelling. Therefore, to calculate the load on a particular element of infrastructure, the number of potential contributing allotments has been evaluated, together with the contribution from other land uses such as industry. This resulted in a total equivalent population of 15,650 persons in the year 2010.

- 4.2 The May 1991 report did not address the future augmentation of the Warwick Water Pollution Control Works (WPCW), as it was deemed to be outside the scope of that report. To determine a headworks cost per EP, the May 1977 report 'Development Strategy Report on the Augmentation of Water Supply and Sewerage Services' by John Wilson and Partners was referenced. The report detailed the works required to augment the WPCW to a capacity of 15,000 EP which corresponds quite well with the design period adopted herein. The costs of the augmentation have been calculated and added to the cost of construction of the existing works to give a total cost for a 15,000 EP plant.
- 4.3 This report has assumed that Option B of Clause 9.1.2 of the 1991 report (Combined Gravity and Pumped Bypass Main) will be adopted as the major augmentation work required to relieve some of the overloaded sewers in the City. This report has also included the cost of construction of the future sewer along Dragon Street as a headworks component, since this sewer has no lateral connections.
- 4.4 The following attached schedule details the estimates of cost for the existing and proposed future sewerage headworks within the sewerage system -

Schedule C - Warwick City Sewerage

4.5 Summary of Contribution Rates

- 4.5.1 This section of the report has considered the various components of the sewerage headworks necessary to provide a satisfactory service to Warwick City to serve the projected population/tenements in the year 2010.
- 4.5.2 The results of these considerations are summarised in Table 2 below, where the headworks cost per equivalent tenement/person is given.

	Cost ⁽¹⁾ per Equivalent Tenement ⁽²⁾ (\$)	Cost per Equivalent Person ⁽²⁾ [EP] (\$)
Warwick City	1429.38	549.76

Table 2 - Summary of Headworks Contributions - Sewerage

Notes:

- (1) The values given in Table 2 shall be adjusted if applicable as shown in Schedules D and E (Refer Clause 5 - Method of Calculating Contributions).
- (2) An equivalent tenement means a service supplied for the average occupancy of a dwelling house in a residential land use area which for the purposes of this policy is taken as 2.6 persons per dwelling.

5. METHOD OF CALCULATING CONTRIBUTIONS

- 5.1 It should be Council's requirement that a water supply and/or sewerage headworks contribution shall be paid by an applicant for any application for a material change of use or reconfiguring a lot where Council decides that water supply and/or sewerage should be made available to the land, and:-
 - (a) Council has constructed or is constructing a water supply scheme and/or sewerage scheme that is or will be capable of servicing, with or without augmentation, the subject land; and
 - (b) As part of such scheme, Council has provided or is prepared to provide headworks that are adequate to service such land.
- 5.2 Where a payment or contribution has been made towards water supply and/or sewerage headworks and water supply and/or sewerage works external in respect of the subject land, the Council should not, in relation to any subsequent application, require any further such payment or contribution unless, in the opinion of the Council, approval of the application would result in an increase in the number of equivalent tenements over the number for which payment or contribution had previously been made.

5.3 Calculation of Contributions

- 5.3.1 Applications for Material Change of Use (For applications for development of a general nature (similar to former rezonings) on land which is not served by existing water reticulation mains and/or sewers as applicable or for land which is shown in a Rural (or equivalent) Land Use Area under the Planning

Scheme, or for land that was not zoned for Residential, Industrial and Commercial purposes under the former planning schemes applicable to the land.)

(1) Water Supply and Sewerage Headworks

A contribution in dollars towards Water Supply Headworks and/or Sewerage Headworks respectively shall be made and be calculated as follows:-

$$H = (A \times P \times C) - H_{(1)}$$

where:

H = contribution in dollars towards Water Supply Headworks and/or Sewerage Headworks, respectively.

A = Area in hectares of the subject land (to 2 decimal places)

P = Increase in Equivalent Demand which would result from the approval.

Such increase shall be calculated by subtracting the number of Equivalent Tenements per hectare, shown in Schedule D, for the Land Use Area (or similar) currently applicable for the subject land, from the number of Equivalent Tenements per hectare, shown in Schedule D, for the Land Use Area (or similar) or use that will apply to the land (with negative results taken to be zero).

C = Applicable amount of contribution in dollars per equivalent tenement as specified in Tables 1 and 2 respectively

H₁ = The amount recorded in the 'Register of Developer Contributions' as being the contribution previously made towards Water Supply and/or Sewerage Headworks in respect of the subject land.

(2) *Water Supply and Sewerage Works External*

Council in Its discretion may require a contribution towards Water Supply and/or Sewerage Works External to be made in either one of the following forms:-

(a) The Council may require the applicant to construct or pay for construction of Water Supply and/or Sewerage Works External of a size and to the extent necessary to service the subject land only.

(b) (i) The Council may decide to provide or have provided Water Supply and/or Sewerage Works External of a larger capacity or to an extent greater than that required to service the subject land.

(ii) In such a case, the applicant will be required to contribute towards the cost of Water Supply and/or Sewerage Works External, calculated on the following formula:-

$$W = \left[\frac{E \times D_{w1}}{D_{w2}} \right] - W_1$$

Where:

W = Contribution in dollars towards Water Supply and/or Sewerage Works External.

E = Council's estimate of cost in dollars of the Water Supply and/or Sewerage Works External. Such works shall be specified in the Council's approval.

D_{w1} = Design capacity of Water Supply and/or Sewerage Works External applicable to the subject land (expressed in equivalent tenements).

D_{w2} = Design capacity of the Water Supply and/or Sewerage Works External (expressed in equivalent tenements).

W₁ = The amount recorded in the 'Register of Developer Contributions' as being the contribution previously made towards Water Supply and/or Sewerage Works External in respect of the subject land.

5.3.2 Applications for Material Change of Use (For applications for specific types of development that increase the density or intensity of development above the existing use of the land).

(1) *Water Supply and Sewerage Headworks*

A contribution towards Water Supply and/or Sewerage Headworks respectively shall be made and be calculated as follows:-

$$H = (N \times C) - H_1$$

Where:

H = Contribution in dollars towards Water Supply and/or Sewerage Headworks, respectively.

N = Net increase in the number of equivalent tenements which would result from the approval. Such increase shall be calculated by subtracting the number of Equivalent Tenements assessed for the subject land, (by reference to Schedule D or Schedule E as appropriate) having regard to the Land Use Area or use of such land immediately prior to the date of application from the number of Equivalent tenements, shown in Schedule D or Schedule E for the proposed use of the land (with negative results taken to be zero).

C = Amount of contribution in dollars per equivalent tenement as specified in Tables 1 and 2, respectively.

H₁ = The amount recorded in the 'Register of Developer Contributions' as being the contribution previously made towards Water Supply and/or Sewerage Headworks in respect of the subject land.

(2) *Water Supply and Sewerage Works External*

Council in its discretion may require a contribution towards Water Supply and/or Sewerage Works External to be made in either one of the following forms:-

(a) The Council may require the applicant to construct or pay for construction of Water Supply and/or Sewerage Works External of a size and to the extent necessary to service the subject land only.

(b) (i) The Council may decide to provide or have provided Water Supply and/or Sewerage Works External of a larger capacity or to an extent greater than that required to service the subject land.

(ii) In such a case, the applicant will be required to contribute towards the cost of Water Supply and/or Sewerage Works External, calculated on the following formula:-

$$W = \left[\frac{E \times D_{w1}}{D_{w2}} \right] - W_1$$

Where:

W = Contribution in dollars towards Water Supply and/or Sewerage Works External.

E = Council's estimate of cost in dollars of the Water Supply and/or Sewerage Works External. Such works shall be specified in the Council's approval.

D_{w1} = Design capacity of Water Supply and/or Sewerage Works External applicable to the subject land (expressed in equivalent tenements).

D_{w2} = Design capacity of the Water Supply and/or Sewerage Works External (expressed in equivalent tenements).

W₁ = The amount recorded in the 'Register of Developer Contributions' as being the contribution previously made towards Water Supply and/or Sewerage Works External in respect of the subject land.

5.3.3 Applications for Reconfiguring a Lot

(1) *Water Supply and Sewerage Headworks*

A contribution towards Water Supply and/or Sewerage Headworks shall be made and be calculated as follows:-

$$H = (N \times C) - H_1$$

Where:

H = Contribution in dollars towards Water Supply and/or Sewerage Headworks.

N = Net increase in Equivalent Demand which would result from subdivision approval (refer to Schedules D and E). For residential and rural-residential subdivision such increase shall be calculated by subtracting the number of lots making up the subject land immediately prior to the date of application from the number of lots to be made of the land following subdivisions (With negative results taken to be zero).

C = Amount of contribution in dollars per equivalent tenement as specified in Tables 1 and 2, respectively.

H₁ = The amount recorded in the 'Register of Developer Contributions' as being the contribution previously made towards Water Supply and/or Sewerage Headworks in respect of the subject land.

(2) *Water Supply and Sewerage Works External*

Council in its discretion may require a contribution towards Water Supply and/or Sewerage Works External to be made in either one of the following forms:-

- (a) The Council may require the applicant to construct or pay for construction of Water Supply and/or Sewerage Works External of a size and to the extent necessary to service the subject land only.
- (b) (i) The Council may decide to provide or have provided Water Supply and/or Sewerage Works External of a larger capacity or to an extent greater than that required to service the subject land.
- (ii) In such a case. the applicant will be required to contribute towards the cost of Water Supply and/or Sewerage Works External, calculated on the following formula:-

$$W = \left[\frac{E \times D_{w1}}{D_{w2}} \right] - W_1$$

Where:

W = Contribution in dollars towards Water Supply and/or Sewerage Works External.

E = Council's estimate of cost in dollars of the Water Supply and/or Sewerage Works External. Such works shall be specified in the Council's approval.

D_{w1} = Design capacity of Water Supply and/or Sewerage Works External applicable to the subject land (expressed in equivalent tenements).

D_{w2} = Design capacity of the Water Supply and/or Sewerage Works External (expressed in equivalent tenements).

W₁ = The amount recorded in the 'Register of Developer Contributions' as being the contribution previously made towards Water Supply and/or Sewerage Works External in respect of the subject land.

6. PAYMENT OF CONTRIBUTIONS

6.1 In cases where Council, pursuant to this Policy, requires payment of, or contribution towards, the cost of Water Supply Headworks, Sewerage Headworks, Water Supply Works External and Sewerage Works External, as applicable, security in the form of a cash bond (which shall be held in Council's Trust Fund) or irrevocable bank guarantees of the amount of the payment or contribution shall be lodged with Council.

Unless otherwise required by Council in a particular case, then Security shall be lodged with Council as follows:

- (a) In the case of an approval for reconfiguring a lot, before the plan of survey is approved by the Council.
- (b) In the case of a material change of use approval:
 - (i) Before approval of an application for building work, where building work is proposed; or
 - (ii) Forthwith upon the approval being granted and before commencement of the approved use, where no building work is proposed.

- 6.2 In cases where Council, pursuant to this Policy, requires payment of, or contribution towards, the cost of Water Supply or Sewerage Headworks and/or Water Supply or Sewerage Works External, the amount so required shall be payable to Council at the time prescribed by the Repealed Act for the type of application and circumstances applicable.
- 6.3 Council may allow payment either at a later date or by way of instalments if it considers that the amount involved or the circumstances prevailing so warrant.
- 6.4 Where Council proposes to construct water supply or sewerage headworks and/or water supply or sewerage works external to service a particular development within a specified time period, it may, subject to the agreement of the Applicant or Developer as the case may be, call up amounts from the securities held before the time prescribed in clause 6.2 hereof and apply the amounts to the proposed works.
- 6.5 Council will require that an agreement pursuant to the Repealed Act be entered into with any applicant where payment of or contribution towards Water Supply and/or Sewerage Works External is required in accordance with this policy.
- 6.6 Details of all payments made to the Council in respect of Water Supply and/or Sewerage Headworks and Water Supply and/or Sewerage Works External shall be recorded in the 'Register of Developer Contributions'.

7. APPLICABLE PERIOD

- 7.1 The relative water supply and sewerage contribution rates as detailed in Table 1 and Table 2 respectively are fixed for the 1993/94 financial year but shall be subject to annual review as a part of the Council's budget considerations to make allowance for the effects of inflation, altered headworks components and any other variances.

8. CONSIDERATION OF SUBSIDY

- 8.1 The applicable water supply and sewerage headworks contribution rates given in Tables 1 and 2 are based on the actual costs to the community of providing the existing headworks components plus the estimated cost of the necessary future headworks components.

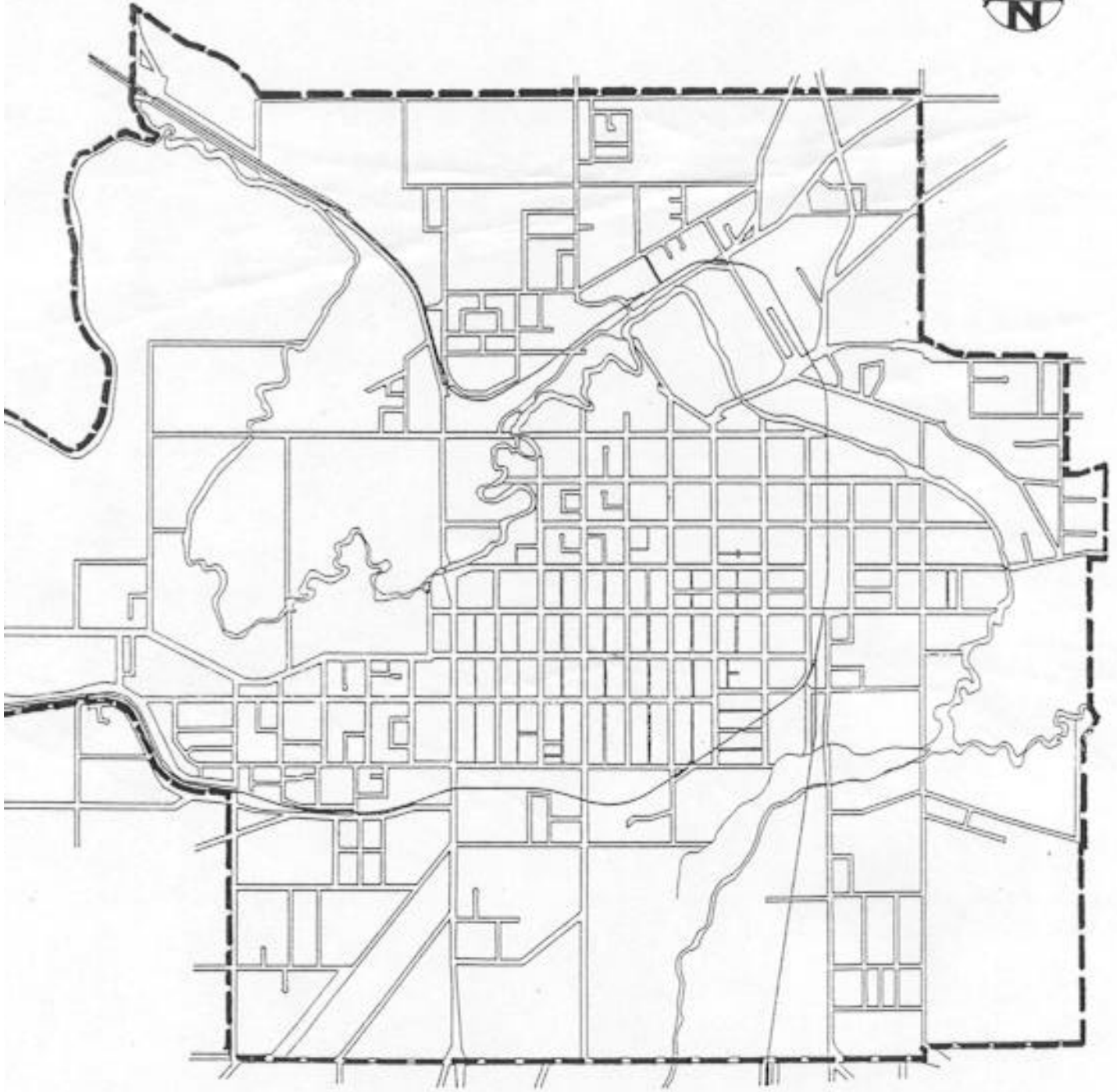
- 8.2 Subsidy has not been included in the calculations carried out in this report.

Subsidy is a redistribution of taxes which have been paid by the people already residing in the Shire, and by whom no further contribution is payable.

- 8.3 If previous subsidies were deducted, any new development proposals to which water and sewerage services are supplied, would attract a lower headworks contribution. This is in contradiction to the requirements of the Act, therefore, the developer should in effect be contributing the full cost of the unused capacity that the developer requires.

9. CONCLUSIONS

- 9.1 The applicable water supply and sewerage headworks contribution rates given in Tables 1 and 2 are based on the actual costs to the community of providing the existing headworks components plus the estimated cost of the necessary future headworks components, to the year 2010.



Warwick Shire Council

Warwick Headworks

Water Supply and Sewerage

Boundaries

Drg. 4-121744-1A

**SCHEDULE B
 WATER HEADWORKS CONTRIBUTION**

Headworks Item	Quantity	Unit	Rate (\$)	Total Cost (\$)	Cost per Tenement Served ⁽¹⁾
<u>Storage Dams</u>					
Leslie Dam		Item		5,020,000	687.67
Connolly Dam		Item		2,157,600	295.56
<u>Supply to Warwick</u>					
525 mm dia. main from Leslie Dam	9450	m	300.00	2,835,000	388.36
375 mm dia. main from Connolly Dam	14700	m	190.00	2,793,000	382.60
Pump Station at Leslie Dam		Item		350,000	47.95
Chlorinator House and Chlorinator		Item		105,000	14.38
136.5 kL Balance Reservoir		Item		115,000	15.75
Meter House and Flowmeter		Item		45,000	6.16
Pump Station at Connolly Dam		Item		90,000	12.33
<u>Treatment</u>					
Treatment Plant		Item		1,900,000	267.61 ⁽²⁾
<u>Service Reservoirs including Improvements</u>					
Kenilworth Road (3.4 ML)		Item		312,000	42.74
Freestone Road (2.3 ML)		Item		248,000	33.97
Bacon's Hill (3.4 ML)		Item		410,000	56.16
Golf Links (3.4 ML)		Item		375,000	51.37
Slade Park (2.9 ML)				(3)	-
Rowland Street (0.2 ML)				-	(3)

SCHEDULE B

Headworks Item	Quantity	Unit	Rate (\$)	Total Cost (\$)	Cost per Tenement Served ⁽¹⁾
<u>Pump Stations</u>					
Rowland Street		Item		25,000	3.42
Freestone Road		Item		27,500	3.77
Churchill and Glen Roads		Item		245,000	33.56
<u>Reticulation</u>					
375 mm diameter	1960	m	190.00	372,400	51.01
300 mm diameter	15280	m	160.00	2,444,800	334.90
225/200 mm diameter in Victoria Street	1360	m	100.00	136,000	18.63
225/200 mm diameter in Warwick-Killarney Road	1580	m	100.00	158,000	21.64
<u>Telemetry</u>					
Telemetry		Item		110,000	15.07
Future Works					
Upgrading of Leslie Dam Raw Water Pumps		Item		150,000	20.55
Additions to Treatment Plant		Item		120,000 ⁽²⁾	16.90
New 3.5 ML Reservoir		Item		450,000	61.64
Stage 2 Pump Station Slade and Freestone Roads		Item		33,000	4.52
Stage 2 Pump Station at Treatment Plant		Item		17,000	2.33
375 mm diameter main in Locke Street	600	m	190.00	114,000	15.62
300 mm diameter main in Locke Street	470	m	160.00	75,200	10.30

SCHEDULE B

Headworks Item	Quantity	Unit	Rate (\$)	Total Cost (\$)	Cost per Tenement Served ⁽¹⁾
Sub-Total					
Option 1 (includes Leslie Dam)				21,233,500	2,916.47
Administration (1.5% total cost)				318,502	43.63
Total					
<u>Option 1</u> (includes Leslie Dam)					<u>2960.10</u>
Warwick City Water Supply					
Sub Total					
<u>Option 2</u> (excludes Leslie Dam)				16,213,500	2228.80
Administration (1.5% total cost)				243,203	33.32
Total					
<u>Option 2</u> (excludes Leslie Dam)					<u>2262.12</u>
Warwick City Water Supply					

Notes:

- (1) Year 2010 system - 7300 equivalent tenements in Warwick City.
- (2) Capacity of treatment plant is 7100 equivalent tenements.
- (3) The Slade Park and Rowland Street Reservoirs have not been included as their top water levels are substantially lower than the hydraulic grade line of the system.

**SCHEDULE C
 SEWERAGE HEADWORKS CONTRIBUTIONS**

WARWICK CITY SEWERAGE

Headworks Item	Quantity	Unit	Rate (\$)	Total Cost (\$)	Cost per Equivalent Population (EP) ⁽¹⁾ (\$)	Cost per Equivalent Tenement ⁽²⁾ Served ⁽¹⁾ (\$)
<u>Treatment Works</u>						
Existing Water Pollution						
Control Works		Item		4,100,000	273.33 ⁽³⁾	710.66
Discharge Works -						
500 mm dia. to Lyndhurst	170	m			-(4)	-
300 mm dia. to Lyndhurst	170	m			-(4)	-
375 mm dia. to river	40	m	190.00	7,600	0.49	1.27
<u>Pump Stations (P/S)</u>						
No. 1 Market Square		Item		600,000	38.34	99.68
No. 2 East Warwick		Item		80,000	5.11	13.29
No. 3 West Warwick		Item		75,000	4.79	12.45
No. 4 Mill Hill		Item		70,000	4.47	11.62
No. 5 Scots College		Item		70,000	4.47	11.62
No. 6 McEvoy Street		Item		75,000	4.79	12.45
No. 7 Churchill Drive		Item		60,000	3.83	9.96
No. 8 Dragon Street		Item		80,000	5.11	13.29
No. 9 St Mark Oval		Item		70,000	4.47	11.62
No. 10 Golf Links Estate		Item		70,000	4.47	11.62
<u>Pressure/Rising Mains</u>						
Ex P/S No. 1 (2/300 mm)	2400	m	135.00	324,000	20.70	53.82
Ex P/S No. 2 (150 mm)	240	m	65.00	15,600	1.00	2.60
Ex P/S No. 3 (225 mm)	1400	m	100.00	140,000	8.95	23.27
Ex P/S No. 4 (225 mm)	200	m	100.00	20,000	1.28	3.33
Ex P/S No. 5 (150 mm)	1050	m	65.00	68,250	4.36	11.34
Ex P/S No. 6 (150 mm)	650	m	65.00	42,250	2.70	7.02
Ex P/S No. 7					-(5)	-
Ex P/S No. 8 (1 50 mm)	400	m	65.00	26,000	1.66	4.32
Ex P/S No. 9 (100 mm)	450	m	50.00	22,500	1.44	3.74
Ex P/S No. 10 (100 mm)	450	m	50.00	22,500	1.44	3.74

SCHEDULE C

Headworks Item	Quantity	Unit	Rate (\$)	Total Cost (\$)	Cost per Equivalent Population (EP) ⁽¹⁾ (\$)	Cost per Equivalent Tenement ⁽²⁾ Served ⁽¹⁾ (\$)
<u>Reticulation</u>						
Line 2/Mill Street (300 mm)	463	m	165.00	76,395	4.88	12.69
Line No.4/.Albert St(375mm)	322	m	190.00	61,180	3.91	10.17
Line No.6/Victoria St(375mm)	181	m	190.00	34,390	2.20	5.72
Line No.7/Alice Street to Victoria Street (375 mm)	47	m	190.00	8,930	0.57	1.48
(300 mm)	1470	m	165.00	242,550	15.50	40.30
Wood St/O'Leary St(300mm)	850	m	165.00	140,250	8.96	23.30
From rising main No. 1 to Treatment Plant (450 mm)	320	m	220.00	70,400	4.50	11.70
<u>FUTURE WORKS</u>						
Augmentation of Treatment Works to provide 15,000 EP capacity		Item		740,000	49.33 ⁽³⁾	128.26
Augmentation P/S No. 3		Item		35,000	2.24	5.82
Augmentation P/S No. 5		Item		35,000	2.24	5.82
Augmentation P/S No. 8		Item		80,000	5.11	13.29
Augmentation PIS No. 9		Item		25,000	1.60	4.16
Option B P/s (70-75 L/s)		Item		125,000	7.99	20.77
Future Pressure Main from Option B P/s (250 mm)		Item		172,000	10.99	28.58
Future gravity bypass sewer Option B (375 mm and 600 mm)		Item		152,000	9.71	25.25
Augmentation of Sewer in Dragon Street (225mm & 300mm)		Item		192,000	12.27	31.90
Replacement existing 225 mm steel main across Condamine River with 300 mm, (250m)		Item		40,000	2.56	6.66
Sub Total				8,268,795	541.76	1408.58
Administration (1.5% total cost)				125,157	8.00	20.80
TOTAL WARWICK CITY SEWERAGE					549.76	1429.38

SCHEDULE C

Notes:

- (1) Year 2010 system 15,650 EP in Warwick City.
- (2) The assumption has been made that there are 2.6 equivalent persons (EP) per equivalent tenement
- (3) Treatment plant (including augmentation) sized for 15,000 EP
- (4) Discharge sewers to Lyndhurst Stud privately funded.
- (5) Pump Station No. 7 pressure main assumed nominal.

**SCHEDULE D
 WATER AND SEWERAGE HEADWORKS CONTRIBUTIONS
 TABLE OF EQUIVALENT TENEMENTS
 FOR PLANNING SCHEME LAND USE AREAS**

Land Use Area	As of Right Equivalent Tenements (ET)
Rural(or equivalent) or not serviced by existing water reticulation mains and/or sewers, or not zoned Residential, Industrial or Commercial under the former planning scheme	0 ET/hectare
Residential	10 ET/hectare
Land Use Area with a Commercial or Industrial/Residential Mix*	15 ET/hectare
Industry*	25 ET/hectare

* To be assessed at the time of application as the rate given is indicative only.

NOTES:

1. The above are applicable only where the subject land can be served by water reticulation mains and/or sewers as applicable. Where the land cannot be served by the above services, the equivalent tenement figure becomes 0.
2. The above equivalent tenement figures represent usual maximum densities but the developer/applicant may negotiate lower densities (if the development proposal warrants such action) at the time of application.

SCHEDULE E
WATER AND SEWERAGE HEADWORKS CONTRIBUTIONS
TABLE OF EQUIVALENT TENEMENTS
FOR DEVELOPMENTS

Development Form	Equivalent Tenements (ET)
Residential Dwelling	1.00/allotment
Accommodation unit/multiple dwelling	0.75/unit
Relocatable home park	0.80/site
Caravan parks	0.50/site
Motel Unit	0.50/unit
Service Station	15/hectare*
Fast Food Outlet, Restaurant or similar hotel and indoor entertainment	1/100 m ² of gross floor area:*
Business premises, general store, health centre, professional office, shop and veterinary clinic	1/200 m ² of gross floor area*

- * The applicable area for each use will be that determined by Council as required for the use including building area and area used for the activity including access and parking areas but excluding landscaped areas.

SCHEDULE F
POPULATION PROJECTIONS

The year 2010 population assumed by QWRC in both the Water Supply and Sewerage reviews amounted to approximately 12,700 persons. The paper 'Population Projections for the Local Government Areas of Queensland 1986-2001' by the Applied Population Research Unit, University of Queensland predicts the population growth in Warwick to be as follows:-

ESTIMATED RESIDENTIAL POPULATION

CITY	ACTUAL			PROJECTED		
	1976	1981	1986	1991	1996	2001
WARWICK	9600	9486	10133	10393*	11134	11750

The above populations represent a medium series growth rate which is deemed appropriate for the Darling Downs Region. This growth rate is at an average of 1%, which if extrapolated to the year 2010, will result in a population of 12,850 persons. Recent building statistics indicate that the population growth rate in the City is in excess of the assumed 1%. This will simply reduce the design horizon for both the water supply and sewerage infrastructures from the year 2010 to say the year 2007 or 2008. It should be noted that this will have no effect on the headworks contribution rates calculated in this report

* Warwick City Population 1991 Census - 10,393 persons