



BETTER TRANSPORT FUTURES
MARK WAUGH



Morisset Contributions Catchment Development Contribution, Traffic and Transport Study

Volume 2: Appendix C

Intersection and Roads Templates

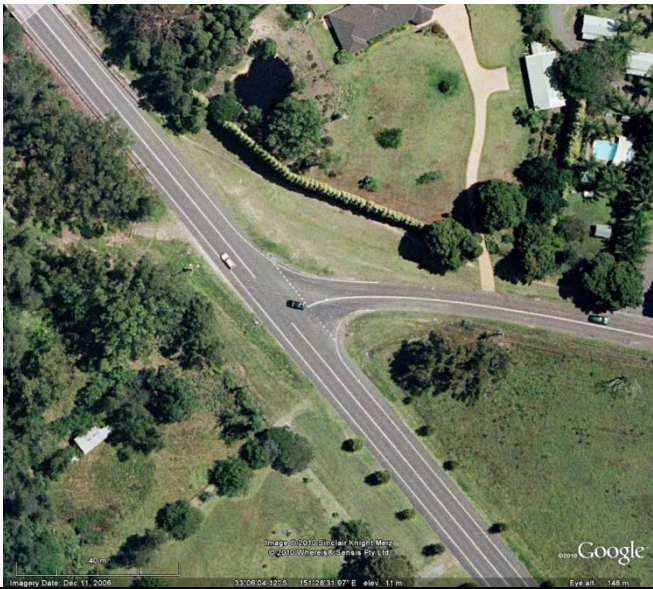
June 2012

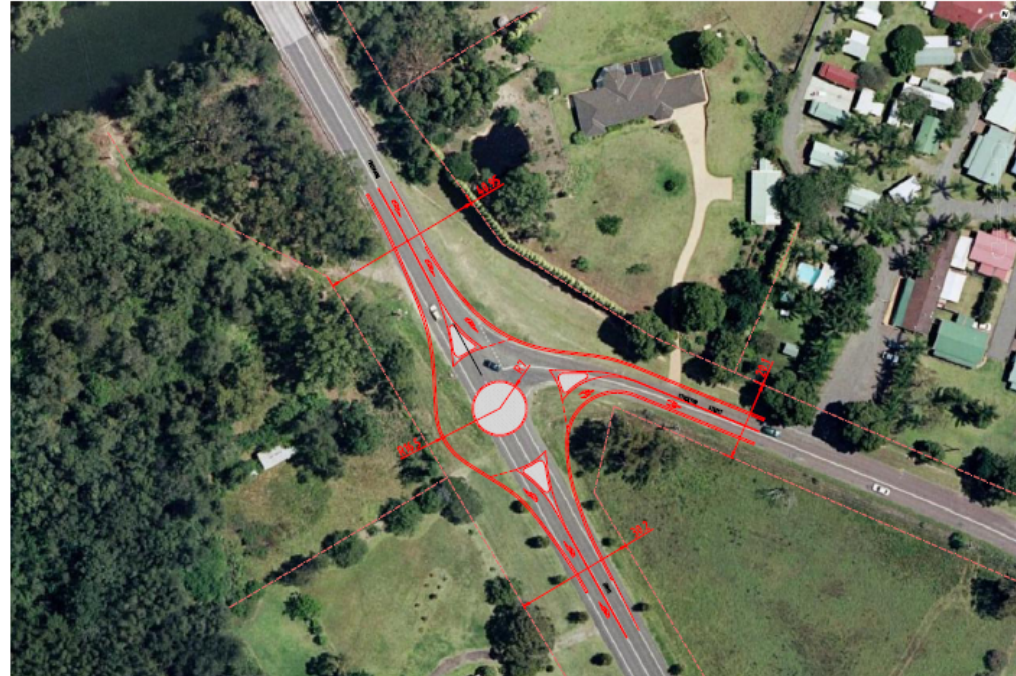


Mark Waugh Pty Ltd
ABN 67 106 169 180

Contents

Project M02, NCVPA19	1
Project M03	5
Project M04	13
Project M05	18
Project M06,	22
Project M07,	26
Project M08	30
Project M09	34
Project M10	38
Project M11	42
Project M13	46
Project M14	50
Project M15	54
Project M16,	58
Project M17	62
Project M18	66
Project M19	70
Project M20,	73
Project M22	77
Project M23	81
Project M24,	84
Project M25	89
Unit Costs for Identified Works	93
Cycle Facilities	94
Summary of Costing	95
Summary of Land Acquisitions	96

Plan	Morisset Contributions Catchment	CONCEPT ONLY
Project M02, NCVPA19	Upgrade of Intersection of Freemans Drive and Stockton Street to Roundabout Control	
Sub-Catchment	Cooranbong, Morisset	
Description	Construction of 1 lane roundabout to suit collector road standard. Required to accommodate Cooranbong and Morisset traffic flows.	
Site Layout		
Features	<ul style="list-style-type: none"> • Single Lane, three leg Roundabout • Off road cycle path Freemans Drive to Stockton Road (Cooranbong to Morisset TC Route) 	
Attachments	<ul style="list-style-type: none"> • Costing estimate • Concept Plan 	



INTERSECTION 02
1/24

NOTE:
1. ALL LANES 35m (TYP).

CONCEPT APPROVAL

<table border="1"> <tr> <td>WATER</td> <td>HYDRANT</td> <td>STOP VALVE</td> <td>AMP VALVE</td> <td>WATER METER</td> <td>TAP</td> <td>SEWER</td> <td>LEACHING</td> </tr> <tr> <td>--- F ---</td> <td>HTD #</td> <td>VF @</td> <td>AV #</td> <td>VM @</td> <td>TF @</td> <td>--- F ---</td> <td>LM @</td> </tr> </table>		WATER	HYDRANT	STOP VALVE	AMP VALVE	WATER METER	TAP	SEWER	LEACHING	--- F ---	HTD #	VF @	AV #	VM @	TF @	--- F ---	LM @	<table border="1"> <tr> <td>MANHOLE</td> <td>LIGHT PILE</td> <td>STAY PILE</td> <td>TELETYPE</td> <td>TELETYPE FIT</td> <td>TELEPHONE</td> <td>TELEPHONE PILE</td> </tr> <tr> <td>--- M ---</td> <td>RP #</td> <td>FP #</td> <td>--- T ---</td> <td>TF #</td> <td>--- P ---</td> <td>TP #</td> </tr> </table>		MANHOLE	LIGHT PILE	STAY PILE	TELETYPE	TELETYPE FIT	TELEPHONE	TELEPHONE PILE	--- M ---	RP #	FP #	--- T ---	TF #	--- P ---	TP #	<p>DISCLAIMER This site contains the property of B&W Transport Futures Ltd. It may only be used for the purposes for which it is intended. It is intended to be used for the purposes of engineering design and construction only.</p> <p>OFFICE COMMUNICATION NUMBERS PHONE No. + 61 8 93 515 511 FAX No. + 61 8 93 515 510 MOBILE PHONE No. : 0488 350 370 EMAIL ADDRESS : info@bwhtransportfutures.com.au POSTAL ADDRESS : PO Box 101, New Lambton, NSW 2258</p>		<p>CLIENT LAKE MACQUARIE CITY COUNCIL</p> <p>PROJECT MORISSETT AREA STUDY ROAD NETWORK UPGRADE</p> <p>DESIGNED BY SEAN MORGAN</p> <p>APPROVED BY MARK WALKER</p>		<p>DRAWING TITLE ROAD NETWORK UPGRADE INTERSECTIONS 02 FREENANS DRIVE AND STOCKTON STREET, MORISSETT</p> <table border="1"> <tr> <td>SCALE</td> <td>AS SHOWN</td> <td>DO NOT SCALE</td> <td>PROVIDED BY</td> <td>CIVIL DESIGN P/L</td> </tr> <tr> <td>PRIORITY</td> <td>209176</td> <td>REV IN</td> <td>04</td> <td>DATE</td> </tr> <tr> <td></td> <td></td> <td></td> <td>10</td> <td></td> </tr> </table>				SCALE	AS SHOWN	DO NOT SCALE	PROVIDED BY	CIVIL DESIGN P/L	PRIORITY	209176	REV IN	04	DATE				10	
WATER	HYDRANT	STOP VALVE	AMP VALVE	WATER METER	TAP	SEWER	LEACHING																																																	
--- F ---	HTD #	VF @	AV #	VM @	TF @	--- F ---	LM @																																																	
MANHOLE	LIGHT PILE	STAY PILE	TELETYPE	TELETYPE FIT	TELEPHONE	TELEPHONE PILE																																																		
--- M ---	RP #	FP #	--- T ---	TF #	--- P ---	TP #																																																		
SCALE	AS SHOWN	DO NOT SCALE	PROVIDED BY	CIVIL DESIGN P/L																																																				
PRIORITY	209176	REV IN	04	DATE																																																				
			10																																																					

CONCEPT ESTIMATE OF PROPOSED WORKS

Total = \$863,723.08

Description	Unit	Rate	Amount
PROJECT: FREEMANS DRIVE/STOCKTON STREET,MORISSET			
SECTION 02:INTERSECTION OF FREEMANS DRIVE AND STOCKTON STREET			
	AREA =	2700m2	
	COST/m2 =	\$320	
Fees Consultants & Other			\$47,500
Establishment/Site Costs			\$26,387
Survey & Setout Costs			\$3,000
Clearing			\$13,290
Excavation			\$45,861
Trench Excavation & Backfill			\$26,341
Remove Spoil			\$55,301
Supply Rcp And Bends			\$20,799
Lay And Joint R.C.P. And Bends			\$28,554
Sub Soil Drains			\$21,537
Environmental Protection			\$9,698
Headwalls			\$1,625
Stormwater Pits			\$23,474
Kerb And Gutter			\$20,220
Footpaths			\$24,973
Medians			\$5,751
Roundabouts			\$21,076

Road Sub Bases	
	\$61,232
Road Bases	
	\$54,836
Bitumen Seal	
	\$4,710
Asphaltic Concrete Surfaces	
	\$117,750
Pedestrian Crossings And Refuges	
	\$9,000
Street Signage	
	\$3,600
Pavement/Line Marking	
	\$3,196
Landscaping	
	\$10,000
Public Utilities	
	\$40,000
Supervision	
	\$11,250
Wet Weather Delays	
	\$17,500
Acquisitions	
	\$20,000
Sub Total	
	\$748,460
Design Development Allowance	
	\$74,846
Construction Contingency	
	\$40,417

Plan	Morisset Contributions Catchment		CONCEPT ONLY
Project M03	Stockton Street – Kahibah Street – Awaba Street		
Sub-Catchment	Morisset		
Description	T intersection with Stockton Road the major road.		
Site Layout	 <p data-bbox="862 1082 1738 1114">View south along Stockton Street showing the intersection with Awaba Street</p>		



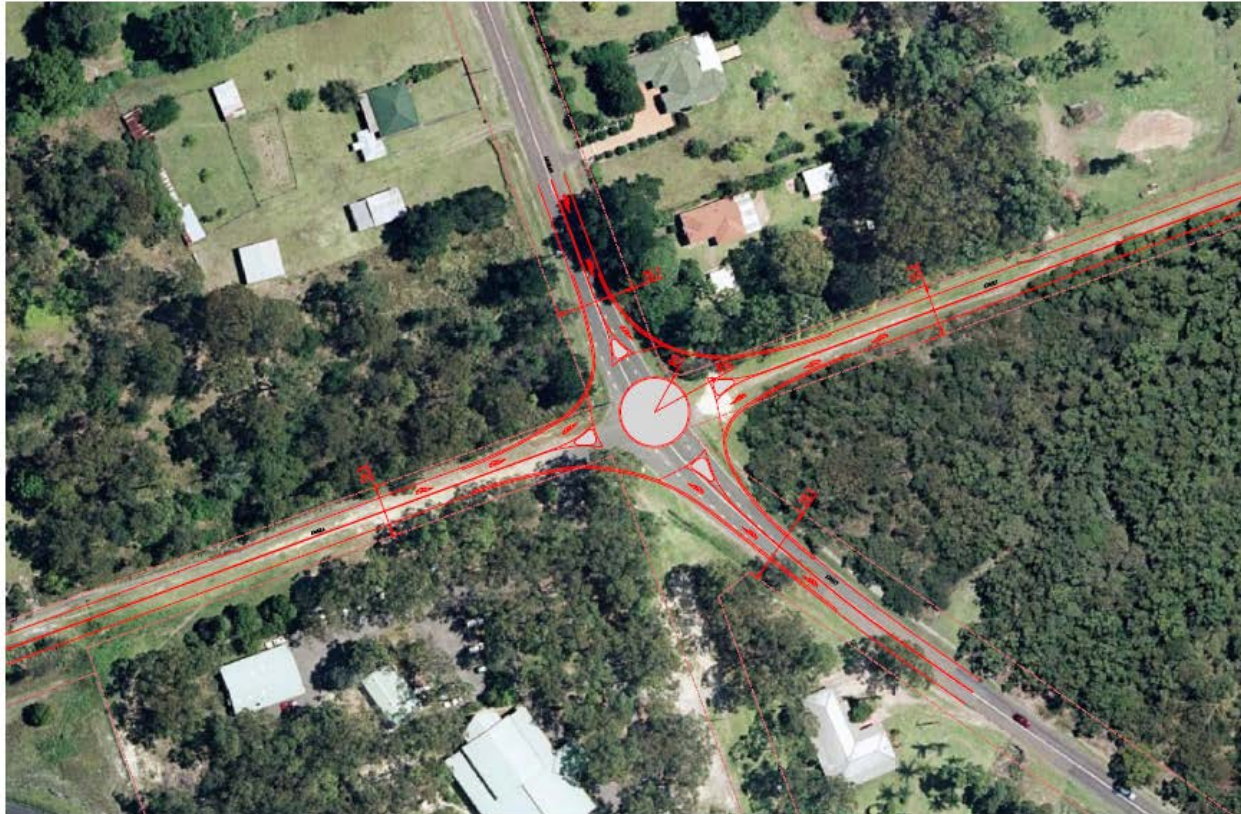
Arial view showing the general layout of the intersection of Stockton Street – Awaba Street

Features

- Awaba Street extension from Stockton Street to Freemans Drive and Stockton Street to Bridge Street
- Single lane, four leg roundabout at the intersection of Stockton Street and Awaba Street

Attachments

- Concept plan
- Costing estimate

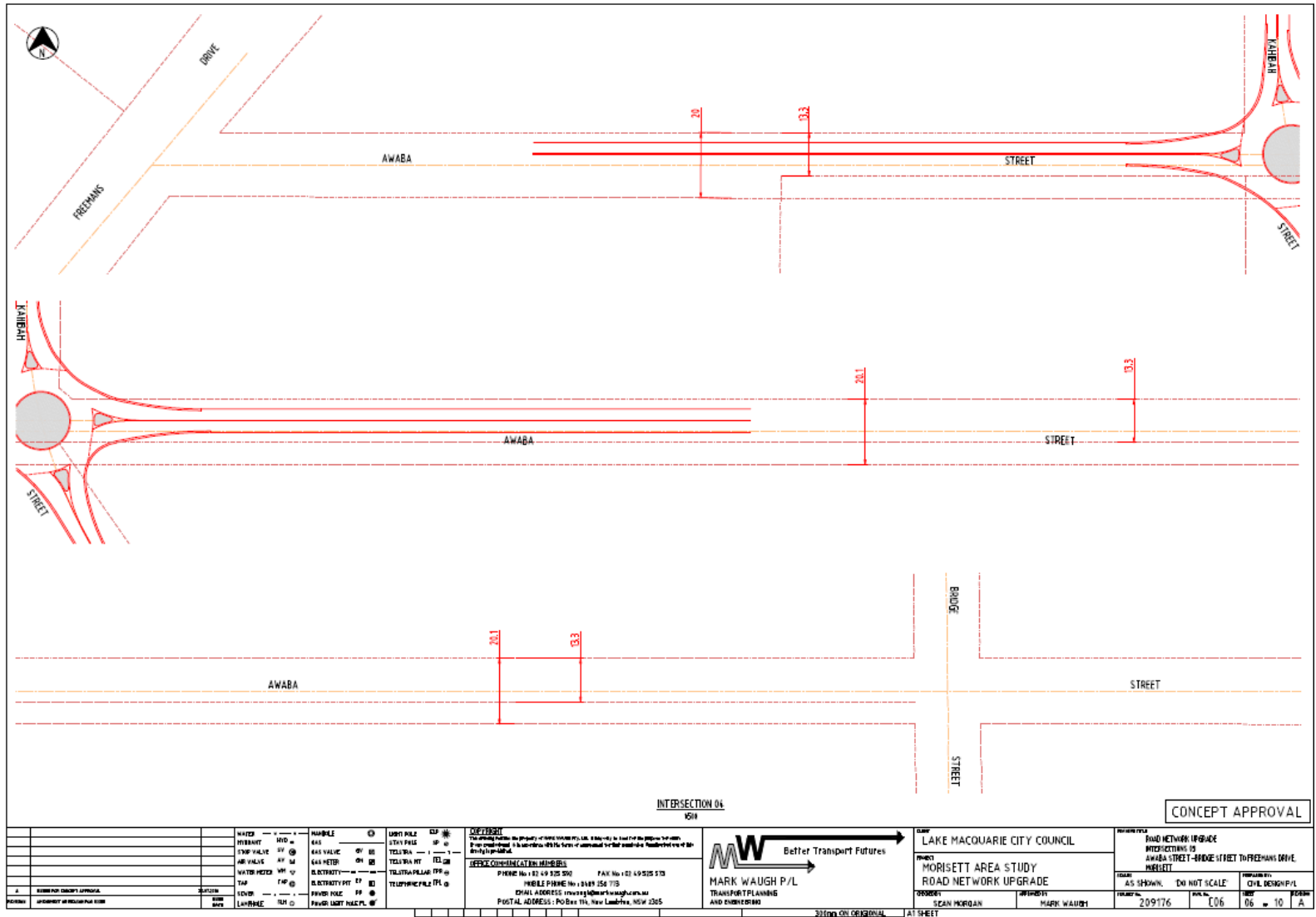


NOTE:
1. ALL LANES 3.5m (TYP).

INTERSECTION 03
15/4

CONCEPT APPROVAL

WATER --- 1 PRESSURE --- 2 STOP VALVE --- 3 AIR VALVE --- 4 WATER METER --- 5 TAP --- 6 LEVER --- 7 LAMP --- 8		FIRE ALARM --- 9 GAS VALVE --- 10 GAS METER --- 11 ELECTRICITY --- 12 TELEPHONE --- 13 FIBRE OPTIC --- 14 POWER LIGHT --- 15		LIGHT POLE --- 16 STREET LIGHT --- 17 TELEPHONE --- 18 TELEPHONE PILLAR --- 19 TELEPHONE POLE --- 20 POWER LIGHT --- 21		DISCLAIMER This drawing is the property of MARK WAUGH P/L. It is to be used for the purpose for which it is prepared. It is to be returned to the Surveyor General's Office upon completion of the project. OFFICE CONSULTANTS (AT THE INTERSECTION) PHONE No: 02 49 925 090 FAX No: 02 49 925 070 MOBILE PHONE No: 0818 556 773 EMAIL ADDRESS: mark@markwaugh.com.au POSTAL ADDRESS: PO Box 114, New Lambton, NSW 2305		CLIENT LAKE MACQUARIE CITY COUNCIL PROJECT MORISSETT AREA STUDY ROAD NETWORK UPGRADE DESIGNED BY SCAM MORGAN DATE 20/11/16		PROJECT ROAD NETWORK UPGRADE INTERSECTIONS 03 STODDIN, AWABA AND HAWKESBURY STREET, MORISSETT SCALE AS SHOWN DATE 20/11/16 SCALE C05 DATE 05/10/16 SCALE A	
---	--	--	--	--	--	--	--	--	--	---	--



CONCEPT ESTIMATE OF PROPOSED WORKS

Total = \$818,867.46

PROJECT: AWABA STREET, MORISSET
SECTION 03: INTERSECTION OF AWABA STREET
AND KAHIBAH STREET.

AREA = 2281m²
 COST/m² = \$359

Description	Unit	Rate	Amount
Fees Consultants & Other			
			\$47,500
Establishment/Site Costs			
			\$24,538
Survey & Setout Costs			
			\$3,000
Clearing			
			\$26,800
Excavation			
			\$42,104
Trench Excavation & Backfill			
			\$26,341
Remove Spoil			
			\$51,615
Supply Rcp And Bends			
			\$19,808
Lay And Joint R.C.P. And Bends			
			\$26,206
Sub Soil Drains			
			\$18,282
Environmental Protection			
			\$9,698
Headwalls			
			\$3,250
Stormwater Pits			
			\$20,609
Kerb And Gutter			
			\$21,900
Footpaths			
			\$26,734
Medians			
			\$4,095
Roundabouts			
			\$11,286
Road Sub Bases			
			\$51,729
Road Bases			
			\$44,707
Bitumen Seal			
			\$3,840


Asphaltic Concrete Surfaces	\$96,000
Pedestrian Crossings And Refuges	\$12,000
Street Signage	\$4,800
Pavement/Line Marking	\$4,253
Landscaping	\$15,000
Public Utilities	\$50,000
Supervision	\$9,375
Wet Weather Delays	\$14,000
Acquisitions	\$20,000
Sub Total	\$709,470
Design Development Allowance	\$70,947
Construction Contingency	\$38,451

CONCEPT ESTIMATE OF PROPOSED WORKS

Total = \$663,411.28

Description	Unit	Rate	Amount								
<table style="width: 100%; border: none;"> <tr> <td style="width: 55%; border: 1px solid black; background-color: #fce4d6;">PROJECT: AWABA STREET, MORISSET</td> <td style="width: 10%; border: none;"></td> <td style="width: 15%; border: none;">LENGTH = 227</td> <td style="width: 20%; border: none;"></td> </tr> <tr> <td style="border: 1px solid black; background-color: #fce4d6;">SECTION 04:AWABA STREET, FREEMANS DRIVE TO KAHIBAH STREET.</td> <td style="border: none;"></td> <td style="border: none;">COST/m = \$2,923</td> <td style="border: none;"></td> </tr> </table>				PROJECT: AWABA STREET, MORISSET		LENGTH = 227		SECTION 04:AWABA STREET, FREEMANS DRIVE TO KAHIBAH STREET.		COST/m = \$2,923	
PROJECT: AWABA STREET, MORISSET		LENGTH = 227									
SECTION 04:AWABA STREET, FREEMANS DRIVE TO KAHIBAH STREET.		COST/m = \$2,923									
Fees Consultants & Other			\$29,000								
Establishment/Site Costs			\$18,992								
Survey & Setout Costs			\$3,000								
Clearing			\$28,500								
Excavation			\$49,500								
Trench Excavation & Backfill			\$17,951								
Remove Spoil			\$52,633								
Supply Rcp And Bends			\$14,517								
Lay And Joint R.C.P. And Bends			\$19,672								
Sub Soil Drains			\$11,370								
Environmental Protection			\$9,498								
Stormwater Pits			\$26,338								
Kerb And Gutter			\$27,600								
Footpaths			\$15,041								
Road Sub Bases			\$61,799								
Road Bases			\$52,833								
Bitumen Seal			\$4,538								
Asphaltic Concrete Surfaces			\$56,725								
Street Signage			\$2,400								
Pavement/Line Marking			\$2,728								
Landscaping			\$15,000								
Public Utilities			\$35,000								
Supervision			\$9,375								
Wet Weather Delays											

	\$10,500
Sub Total	\$574,509
Design Development Allowance	\$57,451
Construction Contingency	\$31,451

Plan	Morisset Contributions Catchment		CONCEPT ONLY
Project M04	Bridge Street – Awaba Street		
Sub-Catchment	Morisset		
Description	A cross road intersection with Bridge Street the major road.		
Site Layout	 <p data-bbox="667 1129 1570 1166">View west along Awaba Street showing the cross intersection with Bridge Street</p>		



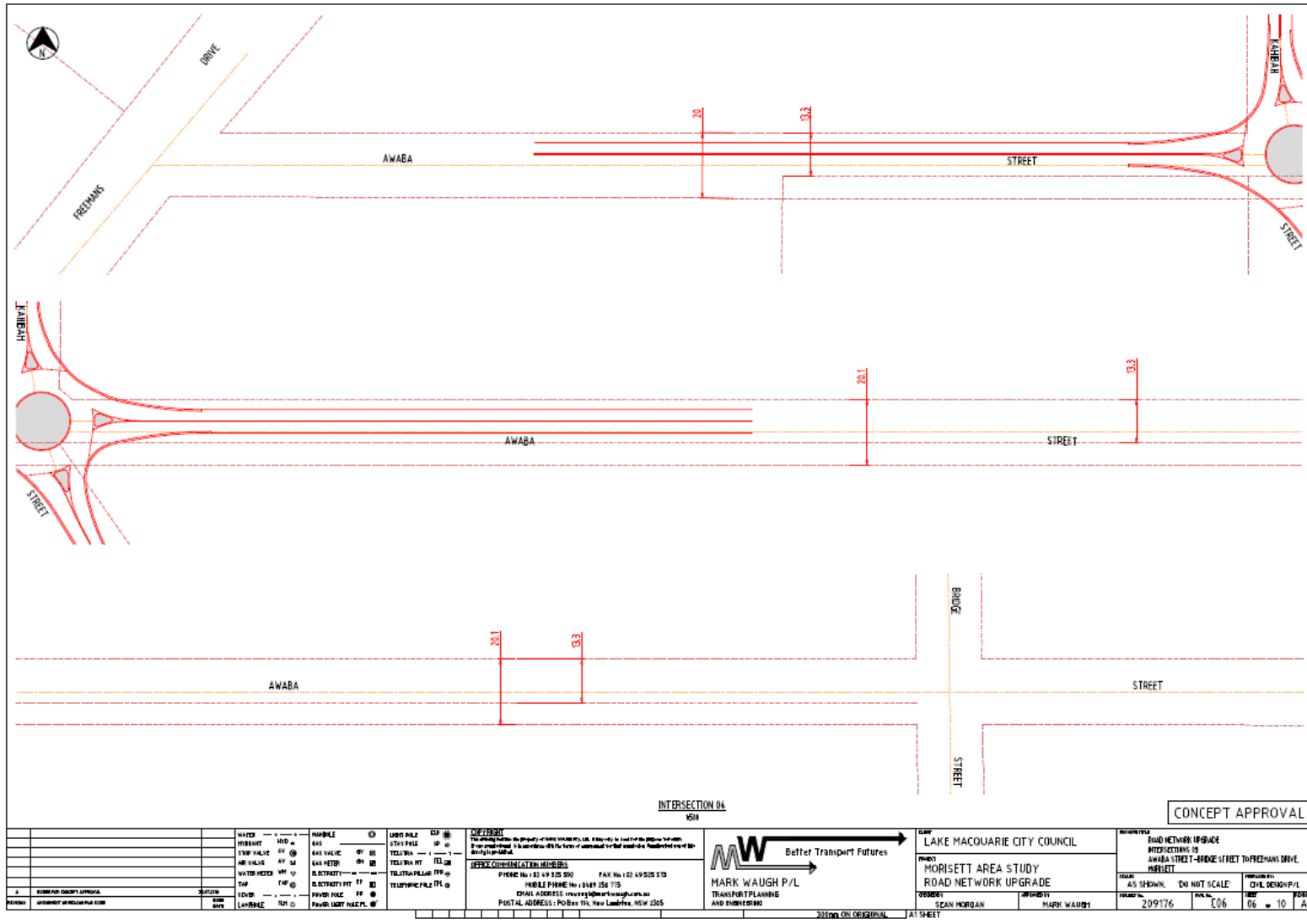
Aerial view showing the general layout of the intersection of Bridge Street and Awaba Street

Features

- Extension of Awaba Street from Bridge Street to Stockton Street
- Awaba Street will remain under a signed give way control at its intersection with Bridge Street

Attachments

- Concept plan
- Costing estimate



<p>INTERSECTION 04 1018</p>		<p>CONCEPT APPROVAL</p>	
<p>WATER</p> <p>HYDRANT</p> <p>STOP VALVE</p> <p>AIR VALVE</p> <p>WATER METER</p> <p>TAP</p> <p>CONDUIT</p> <p>LANE</p> <p>LANE</p>	<p>WATER</p> <p>HYDRANT</p> <p>STOP VALVE</p> <p>AIR VALVE</p> <p>WATER METER</p> <p>TAP</p> <p>CONDUIT</p> <p>LANE</p> <p>LANE</p>	<p>WATER</p> <p>HYDRANT</p> <p>STOP VALVE</p> <p>AIR VALVE</p> <p>WATER METER</p> <p>TAP</p> <p>CONDUIT</p> <p>LANE</p> <p>LANE</p>	<p>WATER</p> <p>HYDRANT</p> <p>STOP VALVE</p> <p>AIR VALVE</p> <p>WATER METER</p> <p>TAP</p> <p>CONDUIT</p> <p>LANE</p> <p>LANE</p>
<p>MARK WAUGH P/L TRANSPORT PLANNING AND ENGINEERING</p>		<p>LAKE MACQUARIE CITY COUNCIL</p> <p>MORISSET AREA STUDY ROAD NETWORK UPGRADE</p>	
<p>3310010101 ORIGINAL</p>		<p>209176 06 of 10 A</p>	

CONCEPT ESTIMATE OF PROPOSED WORKS

Total = \$1,682,388.48

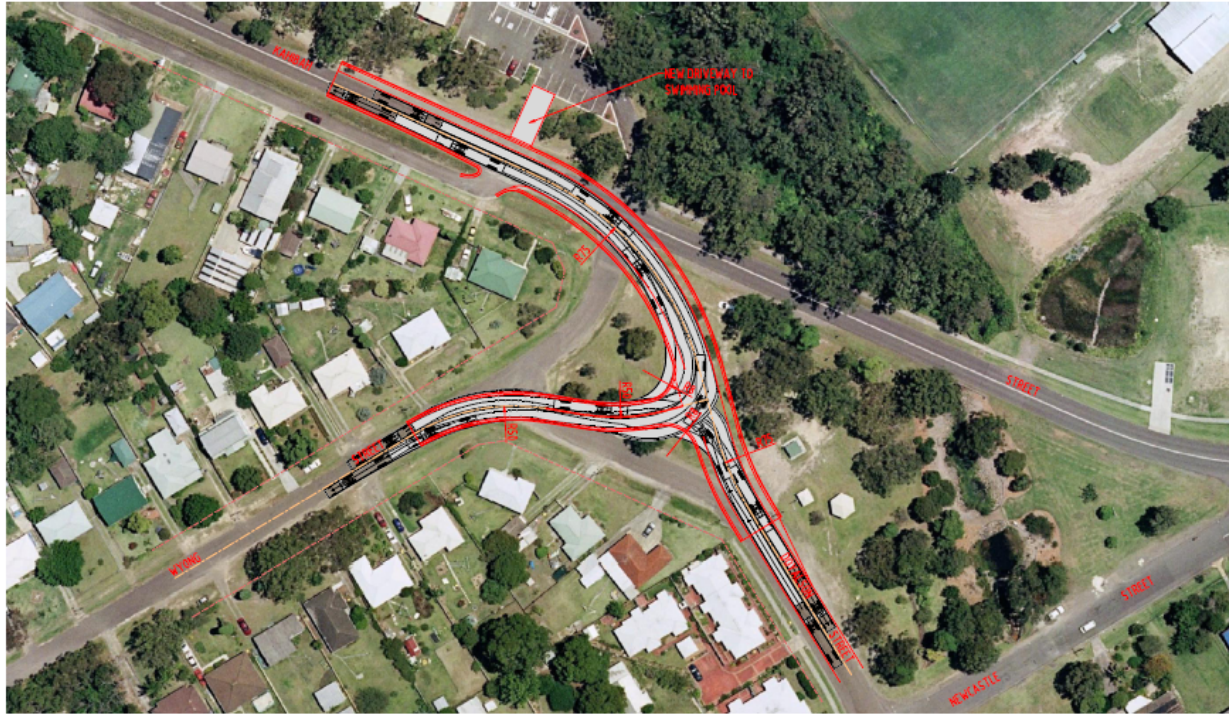
PROJECT: AWABA STREET, MORISSET
SECTION 04:AWABA STREET, KAHIBAH STREET TO
BRIDGE STREET.

LENGTH = 596
 COST/m = \$2,823

Description	Unit	Rate	Amount
Fees Consultants & Other			\$48,000
Establishment/Site Costs			\$26,387
Survey & Setout Costs			\$6,000
Clearing			\$64,250
Excavation			\$139,920
Trench Excavation & Backfill			\$43,604
Remove Spoil			\$174,199
Supply Rcp And Bends			\$34,963
Lay And Joint R.C.P. And Bends			\$47,113
Sub Soil Drains			\$30,052
Environmental Protection			\$25,994
Stormwater Pits			\$63,800
Kerb And Gutter			\$72,000
Footpaths			\$40,714
Road Sub Bases			\$164,736
Road Bases			\$141,409
Bitumen Seal			\$12,146
Asphaltic Concrete Surfaces			\$151,825
Street Signage			\$2,400

Pavement/Line Marking	
	\$7,204
Landscaping	
	\$45,000
Public Utilities	
	\$75,000
Supervision	
	\$18,750
Wet Weather Delays	
	\$21,000
Sub Total	
	\$1,456,468
Design Development Allowance	
	\$145,647
Construction Contingency	
	\$80,274

Plan	Morisset Contributions Catchment	CONCEPT ONLY
Project M05	Kahibah Street – Doyalson Street – Wyong Street	
Sub-Catchment	Morisset	
Description	Currently a staggered intersection with Kahibah Street and Wyong Street producing a T intersection with Kahibah Street being the main road. Wyong and Doyalson Street producing a T intersection with Wyong Street the major road	
Site Layout	 <p>Aerial view showing the general layout of the intersections of Kahibah Street and Wyong Street and Wyong Street and Doyalson Street</p>	
Features	<ul style="list-style-type: none"> • Realignment of Wyong Street to form a Stem of a T intersection with Doyalson Street and Kahibah Street. • Realignment of Kahibah Street to form a Stem of a T intersection with Wyong Street and Doyalson Street • Closure of Kahibah Street between Wyong Street and Newcastle Street 	
Attachments	<ul style="list-style-type: none"> • Concept plan • Costing Estimate 	



INTERSECTION 05
1518

NOTE
1 ALL LANES 3.5m (TYPI)

CONCEPT APPROVAL


<table border="0"> <tr> <td>WATER</td><td>W</td><td>SEWER</td><td>S</td></tr> <tr> <td>STORM WATER</td><td>SW</td><td>TELEPHONE</td><td>T</td></tr> <tr> <td>AD VALVES</td><td>AV</td><td>TELEPHONE PILLAR</td><td>TP</td></tr> <tr> <td>WATER METER</td><td>WM</td><td>TELEPHONE PILE</td><td>TP</td></tr> <tr> <td>TRIP</td><td>TR</td><td>POWER POLE</td><td>P</td></tr> <tr> <td>CONCRETE</td><td>C</td><td>POWER LIGHT PILE</td><td>PL</td></tr> <tr> <td>LANDFILL</td><td>L</td><td></td><td></td></tr> </table>		WATER	W	SEWER	S	STORM WATER	SW	TELEPHONE	T	AD VALVES	AV	TELEPHONE PILLAR	TP	WATER METER	WM	TELEPHONE PILE	TP	TRIP	TR	POWER POLE	P	CONCRETE	C	POWER LIGHT PILE	PL	LANDFILL	L			<table border="0"> <tr> <td>ROAD MARKING</td><td>R</td><td>ROAD SIGN</td><td>RS</td></tr> <tr> <td>ROAD LIGHTING</td><td>RL</td><td>ROAD SIGN</td><td>RS</td></tr> <tr> <td>ROAD LIGHT PILE</td><td>RLP</td><td>ROAD SIGN</td><td>RS</td></tr> </table>	ROAD MARKING	R	ROAD SIGN	RS	ROAD LIGHTING	RL	ROAD SIGN	RS	ROAD LIGHT PILE	RLP	ROAD SIGN	RS	<table border="0"> <tr> <td>ROAD SIGN</td><td>RS</td><td>ROAD SIGN</td><td>RS</td></tr> <tr> <td>ROAD SIGN</td><td>RS</td><td>ROAD SIGN</td><td>RS</td></tr> <tr> <td>ROAD SIGN</td><td>RS</td><td>ROAD SIGN</td><td>RS</td></tr> </table>	ROAD SIGN	RS	ROAD SIGN	RS	ROAD SIGN	RS	ROAD SIGN	RS	ROAD SIGN	RS	ROAD SIGN	RS	<p>DEFINITION This drawing is the property of MARK WAUGH P/L. It may only be used for the purposes for which it was prepared. It is submitted on the basis of information provided and does not constitute a guarantee of accuracy or liability.</p> <p>SEEK COMMUNICATION NUMBERS PHONE No 1 82 49 525 500 FAX No 1 82 49 525 510 MOBILE PHONE No 1 848 256 775 EMAIL ADDRESS: mark@markwaugh.com.au POSTAL ADDRESS: PO Box 19, New Lambton, NSW 2305</p>	<p>MARK WAUGH P/L TRANSPORT PLANNING AND ENGINEERING</p>	<table border="0"> <tr> <td>CLIENT</td><td>LAKE MACQUARIE CITY COUNCIL</td></tr> <tr> <td>PROJECT</td><td>MORISSET AREA STUDY ROAD NETWORK UPGRADE</td></tr> <tr> <td>DESIGNED BY</td><td>SEAN MORGAN</td></tr> <tr> <td>DRAWN BY</td><td>MARK WAUGH</td></tr> </table>	CLIENT	LAKE MACQUARIE CITY COUNCIL	PROJECT	MORISSET AREA STUDY ROAD NETWORK UPGRADE	DESIGNED BY	SEAN MORGAN	DRAWN BY	MARK WAUGH	<table border="0"> <tr> <td>DATE</td><td>2009176</td></tr> <tr> <td>SCALE</td><td>AS SHOWN</td></tr> <tr> <td>DO NOT SCALE</td><td></td></tr> <tr> <td>PROJECT NO</td><td>209176</td></tr> <tr> <td>DATE</td><td>07</td></tr> <tr> <td>BY</td><td>24</td></tr> <tr> <td>APP'D BY</td><td>A</td></tr> </table>	DATE	2009176	SCALE	AS SHOWN	DO NOT SCALE		PROJECT NO	209176	DATE	07	BY	24	APP'D BY	A
WATER	W	SEWER	S																																																																														
STORM WATER	SW	TELEPHONE	T																																																																														
AD VALVES	AV	TELEPHONE PILLAR	TP																																																																														
WATER METER	WM	TELEPHONE PILE	TP																																																																														
TRIP	TR	POWER POLE	P																																																																														
CONCRETE	C	POWER LIGHT PILE	PL																																																																														
LANDFILL	L																																																																																
ROAD MARKING	R	ROAD SIGN	RS																																																																														
ROAD LIGHTING	RL	ROAD SIGN	RS																																																																														
ROAD LIGHT PILE	RLP	ROAD SIGN	RS																																																																														
ROAD SIGN	RS	ROAD SIGN	RS																																																																														
ROAD SIGN	RS	ROAD SIGN	RS																																																																														
ROAD SIGN	RS	ROAD SIGN	RS																																																																														
CLIENT	LAKE MACQUARIE CITY COUNCIL																																																																																
PROJECT	MORISSET AREA STUDY ROAD NETWORK UPGRADE																																																																																
DESIGNED BY	SEAN MORGAN																																																																																
DRAWN BY	MARK WAUGH																																																																																
DATE	2009176																																																																																
SCALE	AS SHOWN																																																																																
DO NOT SCALE																																																																																	
PROJECT NO	209176																																																																																
DATE	07																																																																																
BY	24																																																																																
APP'D BY	A																																																																																

CONCEPT ESTIMATE OF PROPOSED WORKS

Total = \$913,137.19

PROJECT: Kahibah Street/Doyalson/Wyong, MORISSET				
SECTION 05:INTERSECTION OF KAHIBAH STREET - WYONG STREET AND DOYALSON STREET		AREA =	2500	
		COST/m2 =	\$365	
Description	Unit	Rate	Amount	
Fees Consultants & Other				
			\$47,500	
Establishment/Site Costs				
			\$26,387	
Survey & Setout Costs				
			\$3,000	
Clearing				
			\$15,650	
Excavation				
			\$45,261	
Trench Excavation & Backfill				
			\$26,341	
Remove Spoil				
			\$55,301	
Supply Rcp And Bends				
			\$32,277	
Lay And Joint R.C.P. And Bends				
			\$44,581	
Sub Soil Drains				
			\$21,537	
Environmental Protection				
			\$9,698	
Headwalls				
			\$1,625	
Stormwater Pits				
			\$23,474	
Kerb And Gutter				
			\$34,800	
Footpaths				
			\$24,306	
Driveway				
			\$4,087	
Roundabouts				
			\$0	

Road Sub Bases	
	\$56,696
Road Bases	
	\$58,212
Bitumen Seal	
	\$5,000
Asphaltic Concrete Surfaces	
	\$125,000
Pedestrian Crossings And Refuges	
	\$0
Street Signage	
	\$3,600
Pavement/Line Marking	
	\$3,196
Landscaping	
	\$15,000
Public Utilities	
	\$40,000
Supervision	
	\$11,250
Wet Weather Delays	
	\$17,500
Acquisitions	
	\$40,000
	\$791,280
Design Development Allowance	
	\$79,128
Construction Contingency	
	\$42,729


Plan	Morisset Contributions Catchment	CONCEPT ONLY
Project M06, NCVPA18	Upgrade of Intersection of Freemans Drive and Deaves Road to include a dedicated right hand turn bay	
Sub-Catchment	Cooranbong	
Description	Construction of a right hand turn bay for the south bound direction on Freemans Drive. Required to accommodate Cooranbong traffic flows.	
Site Layout	 <p data-bbox="891 1110 1839 1137">Aerial view showing the layout of the intersection of Freemans Drive and Deaves Road</p>	
Features	<ul style="list-style-type: none"> • New signalised intersection. • Off road cycle path Freemans Drive (Cooranbong to Morisset TC Route) 	
Attachments	<ul style="list-style-type: none"> • Concept Estimate • Concept Plan 	

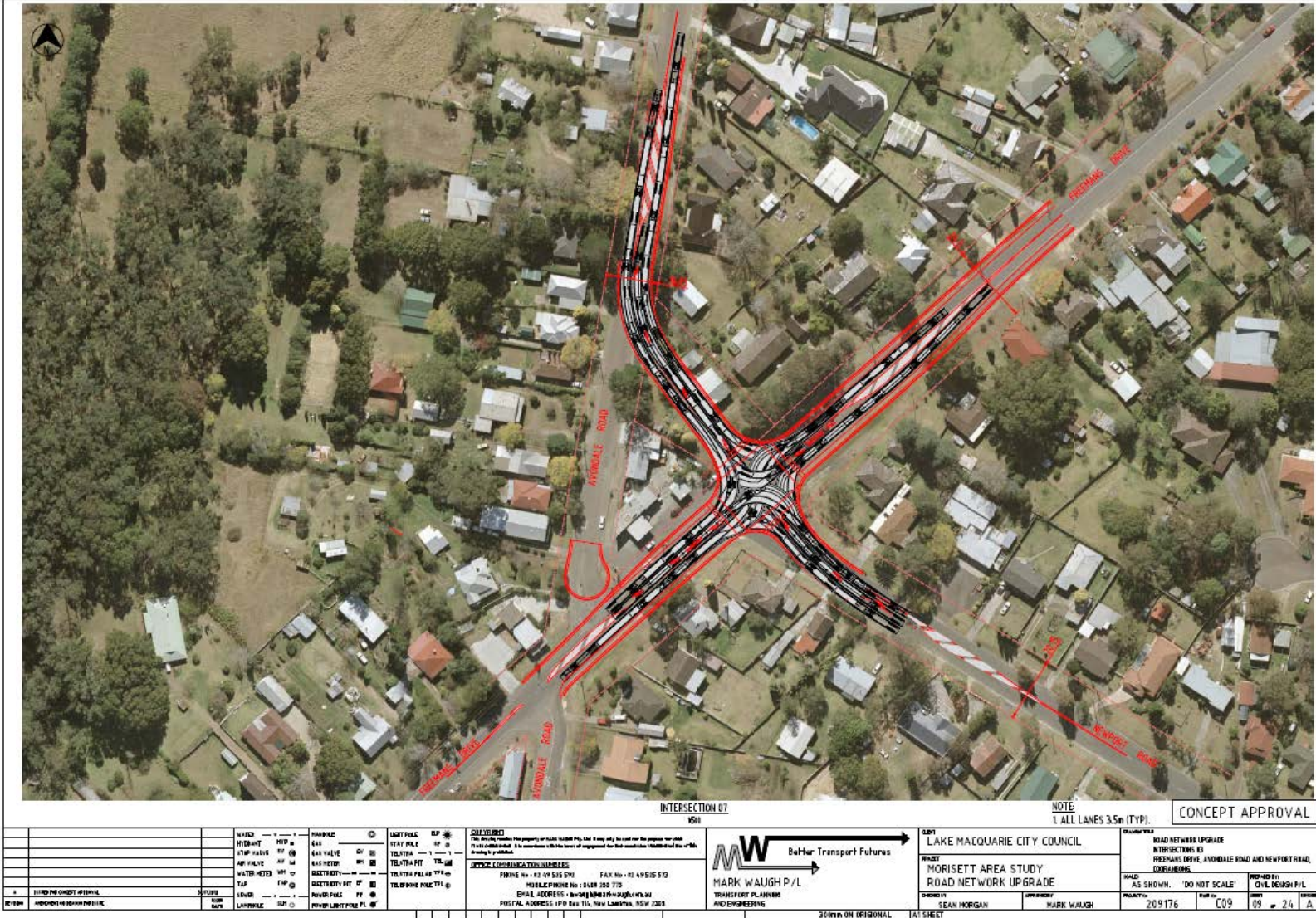
CONCEPT ESTIMATE OF PROPOSED WORKS

Total = \$311,748.30

Description	Unit	Rate	Amount
PROJECT: Freeman Drive - Deaves Road , MORISSET			
SECTION 06:INTERSECTION OF Freemans Drive AND Deaves Road			
		AREA (m^2) = 350	
		COST/m2 = 890.709	
Fees Consultants & Other			\$10,000
Establishment/Site Costs			\$1,600
Survey & Setout Costs			\$3,000
Clearing			\$0
Excavation			\$0
Trench Excavation & Backfill			\$0
Remove Spoil			\$0
Supply Rcp And Bends			\$0
Lay And Joint R.C.P. And Bends			\$0
Sub Soil Drains			\$0
Environmental Protection			\$0
Headwalls			\$0
Stormwater Pits			\$0
Kerb And Gutter			\$12,000
Footpaths			\$0
Medians			\$0
Roundabouts			\$0

Road Sub Bases	
	\$0
Road Bases	
	\$0
Bitumen Seal	
	\$0
Asphaltic Concrete Surfaces	
	\$0
Pedestrian Crossings And Refuges	
	\$0
Street Signage	
	\$1,800
Pavement/Line Marking	
	\$2,496
Landscaping	
	\$0
Public Utilities	
	\$0
Supervision	
	\$2,250
Wet Weather Delays	
	\$7,000
Acquisitions	
	\$0
Installation	
	\$230,000
Sub Total	
	\$270,146
Design Development Allowance	
	\$27,015
Construction Contingency	
	\$14,588

Plan	Morisset Contributions Catchment	CONCEPT ONLY
Project M07, NCVPA14	Proposed re-alignment and new signalised Intersection of Freemans Drive Avondale Road and Newport Road	
Sub-Catchment	Cooranbong	
Description	Construction of a signalised four way intersection, with dedicated right hand turning lanes on all of the approach roads. Re-alignment of Avondale Road to make a four way intersection.	
Site Layout	 <p>Aerial view showing the layout of the intersection of Freemans Drive with Avondale Road and Newport Road</p>	
Features	<ul style="list-style-type: none"> • Signalised four way intersection • Re-alignment of Avondale Road • Off road cycle path Freemans Drive and Newport Road (Cooranbong to Morisset TC Route) 	
Attachments	<ul style="list-style-type: none"> • Concept Estimate • Concept Plan 	



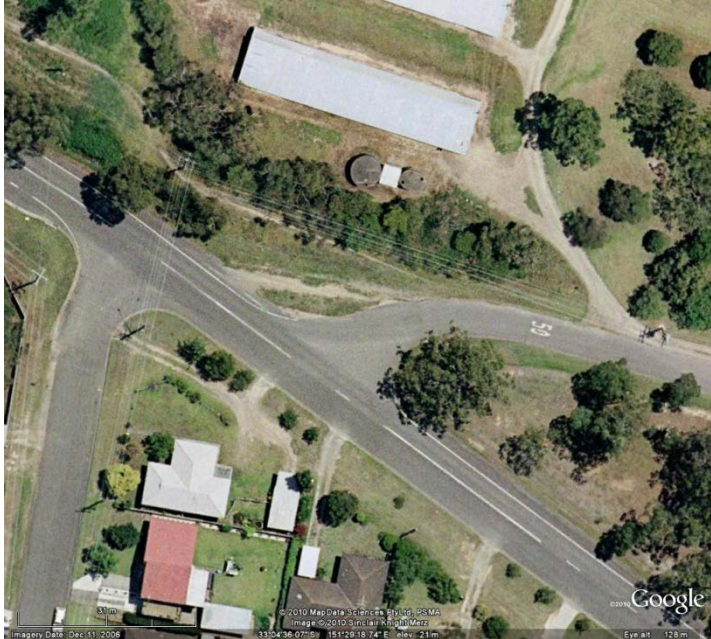
CONCEPT ESTIMATE OF PROPOSED WORKS

Total = \$1,709,335.29

PROJECT: Freeman Drive - Avondale Road , MORISSET
SECTION 07:INTERSECTION OF Freemans Drive - Newport Road
AND Avondale Road **AREA (m^2) 5500**
COST/m2 = 310.79

Description	Unit	Rate	Amount
Fees Consultants & Other			
			\$10,000
Establishment/Site Costs			
			\$22,187
Survey & Setout Costs			
			\$3,000
Clearing			
			\$27,500
Excavation			
			\$68,064
Trench Excavation & Backfill			
			\$111,755
Remove Spoil			
			\$67,429
Supply Rcp And Bends			
			\$41,597
Lay And Joint R.C.P. And Bends			
			\$57,108
Sub Soil Drains			
			\$20,035
Environmental Protection			
			\$7,843
Headwalls			
			\$1,219
Stormwater Pits			
			\$32,623
Kerb And Gutter			
			\$48,000
Footpaths			
			\$45,090
Medians			
			\$0
Roundabouts			

	\$0
Road Sub Bases	
	\$102,053
Road Bases	
	\$104,782
Bitumen Seal	
	\$9,000
Asphaltic Concrete Surfaces	
	\$275,000
Pedestrian Crossings And Refuges	
	\$0
Street Signage	
	\$1,800
Pavement/Line Marking	
	\$6,391
Landscaping	
	\$20,000
Public Utilities	
	\$40,000
Supervision	
	\$11,250
Wet Weather Delays	
	\$17,500
Acquisitions	
	\$80,000
Installation	
	\$250,000
Sub Total	
	\$1,481,226
Design Development Allowance	
	\$148,123
Construction Contingency	
	\$79,986

Plan	Morisset Contributions Catchment		CONCEPT ONLY
Project M08	Newport Road – Coorumbung Road		
Sub-Catchment	Cooranbong		
Description	A complex T- intersection with Newport Road being the major through road.		
Site Layout	 <p data-bbox="958 1118 1749 1150">Aerial view of the intersection of Newport Road and Coorumbung Road</p>		
Features	<ul style="list-style-type: none"> • T intersection CHR, with Newport Road the major through road 		
Attachments	<ul style="list-style-type: none"> • Concept Plan • Concept Estimate 		

CONCEPT ESTIMATE OF PROPOSED WORKS

Total = \$679,269.33

PROJECT: Coorumbung Road , MORISSET		AREA (m ²) = 3500	
SECTION 08:INTERSECTION OF Coorumbung Road AND Newport Road		COST/m2 = 194.0769518	
Description	Unit	Rate	Amount
Fees Consultants & Other			\$47,500
Establishment/Site Costs			\$23,762
Survey & Setout Costs			\$3,000
Clearing			\$18,500
Excavation			\$23,261
Trench Excavation & Backfill			\$18,085
Remove Spoil			\$27,651
Supply Rcp And Bends			\$21,957
Lay And Joint R.C.P. And Bends			\$30,949
Sub Soil Drains			\$7,513
Environmental Protection			\$7,843
Headwalls			\$813
Stormwater Pits			\$17,744
Kerb And Gutter			\$15,000
Footpaths			\$0
Medians			\$0
Roundabouts			\$0

Road Sub Bases	
	\$22,678
Road Bases	
	\$23,285
Bitumen Seal	
	\$2,000
Asphaltic Concrete Surfaces	
	\$175,000
Pedestrian Crossings And Refuges	
	\$0
Street Signage	
	\$1,800
Pavement/Line Marking	
	\$1,532
Landscaping	
	\$10,000
Public Utilities	
	\$40,000
Supervision	
	\$11,250
Wet Weather Delays	
	\$17,500
Acquisitions	
	\$20,000
Instalation	
	\$0
Sub Total	
	\$588,622
Design Development Allowance	
	\$58,862
Construction Contingency	
	\$31,786

Plan	Morisset Contributions Catchment		CONCEPT ONLY
Project M09	Coorumbung Road – Gradwells Road		
Sub-Catchment	Cooranbong		
Description	A complex 4- way intersection.		
Site Layout	 <p data-bbox="958 1129 1760 1161">Aerial view of the intersection of Gradwells Road and Coorumbung Road</p>		
Features	<ul style="list-style-type: none"> • Removal of the Stop signs on Gradwells Road. Gradwells Road becomes the major through road 		
Attachments	<ul style="list-style-type: none"> • Concept Plan • Concept Estimate 		



INTERSECTION 09
1511

NOTE:
1. ALL LANES 3.5m (TYP.)

CONCEPT APPROVAL

WATER WIRE STOP VALVE AIR VALVE WATER METER TAP LEVEL LAMP LAMP		HANDLE MFD SV MV FWP PP MFL		MOUNT STAY TELLER TELLER TELEPHONE		MFL UP 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100		DEFINITION This drawing contains the property of Mark Waugh P/L. It is to be used for the purposes for which it is prepared and is to be returned to the client upon completion of the project. REFERENCE INFORMATION PHONE No: 02 93 325 300 FAX No: 02 93 325 373 MOBILE PHONE No: 0489 256 715 EMAIL ADDRESS: info@markwaugh.com.au POSTAL ADDRESS: PO Box 194, New Lambton, NSW 2265		MARK WAUGH P/L TRANSPORT PLANNING AND ENGINEERING		CLIENT LAKE MACQUARIE CITY COUNCIL PROJECT MORISSETT AREA STUDY ROAD NETWORK UPGRADE DESIGNED BY SEAN MORGAN DRAWN BY MARK WAUGH		DRAWING TITLE ROAD NETWORK UPGRADE INTERSECTIONS IN CONNORS AND MORISSETT ROADS, MORISSETT SCALE AS SHOWN DO NOT SCALE PROJECT NO. 209176 DATE 11/11/24 SHEET NO. 11 OF 24 DRAWN BY CIVIL DESIGN P/L	
---	--	---	--	--	--	---	--	---	--	---	--	--	--	--	--

CONCEPT ESTIMATE OF PROPOSED WORKS


Total = \$457,918.22

PROJECT: Coorumbung Road , MORISSET
SECTION 09:INTERSECTION OF Coorumbung Road
AND Gradwells Road

AREA (m²) = 1400
 COST/m2 = 327.0844411

Description	Unit	Rate	Amount
Fees Consultants & Other			
			\$47,500
Establishment/Site Costs			
			\$16,367
Survey & Setout Costs			
			\$3,000
Clearing			
			\$9,050
Excavation			
			\$16,961
Trench Excavation & Backfill			
			\$18,085
Remove Spoil			
			\$18,434
Supply Rcp And Bends			
			\$12,479
Lay And Joint R.C.P. And Bends			
			\$17,133
Sub Soil Drains			
			\$7,513
Environmental Protection			
			\$7,843
Headwalls			
			\$813
Stormwater Pits			
			\$17,744
Kerb And Gutter			
			\$13,800
Footpaths			
			\$0
Medians			
			\$0
Roundabouts			
			\$0

Road Sub Bases	
	\$11,339
Road Bases	
	\$11,642
Bitumen Seal	
	\$1,000
Asphaltic Concrete Surfaces	
	\$70,000
Pedestrian Crossings And Refuges	
	\$0
Street Signage	
	\$1,800
Pavement/Line Marking	
	\$558
Landscaping	
	\$5,000
Public Utilities	
	\$40,000
Supervision	
	\$11,250
Wet Weather Delays	
	\$17,500
Acquisitions	
	\$20,000
Installation	
	\$0
Sub Total	
	\$396,810
Design Development Allowance	
	\$39,681
Construction Contingency	
	\$21,428

Plan	Morisset Contributions Catchment		CONCEPT ONLY
Project M10	Newport Road – Gradwells Road		
Sub-Catchment	Cooranbong		
Description	A T- intersection with Newport Road being the major through road.		
Site Layout	 <p data-bbox="981 1129 1736 1161">Aerial view of the intersection of Newport Road and Gradwells Road</p>		
Features	<ul data-bbox="555 1173 1384 1204" style="list-style-type: none"> • T Intersection CHR, with Newport Road being the major through road. 		
Attachments	<ul data-bbox="555 1232 801 1292" style="list-style-type: none"> • Concept Plan • Concept Estimate 		



INTERSECTION 10
1410

NOTE:
1. ALL LANES 3.5m (TYP.)

CONCEPT APPROVAL


<p>DATE: / /</p> <p>SYMBOL: /</p> <p>STAMP VALUE: /</p> <p>NO VALUE: /</p> <p>WATER METER: /</p> <p>TAP: /</p> <p>LEVEL: /</p> <p>LAIR/RAIL: /</p>		<p>MANHOLE: /</p> <p>GAS VALVE: /</p> <p>GAS METER: /</p> <p>ELECTRICITY: /</p> <p>POWER POLE: /</p> <p>POWER LIGHT MAST: /</p>		<p>LIMIT POLE: /</p> <p>STEEL PIPE: /</p> <p>TELE POLE: /</p> <p>TELE PULLER: /</p> <p>TELEPHONE POLE: /</p>		<p>DISCLAIMER This drawing contains the property of Mark Waugh P/L. It may only be used for the purpose for which it was prepared. It is intended for the use of a professional engineer and is not to be used for any other purpose.</p> <p>MARK WAUGH CONSULTANTS PHONE No: 02 99 320 200 FAX No: 02 99 320 203 MOBILE PHONE No: 0488 154 175 EMAIL ADDRESS: mark@markwaugh.com.au POSTAL ADDRESS: PO Box 174, New Lambton, NSW 2305</p>		<p>MARK WAUGH P/L TRANSPORT PLANNING AND ENGINEERING</p> <p>Better Transport Futures</p>		<p>CLIENT: LAKE MACQUARIE CITY COUNCIL</p> <p>PROJECT: MORISSETT AREA STUDY ROAD NETWORK UPGRADE</p> <p>DESIGNED BY: SCAM MORGAN</p> <p>CHECKED BY: MARK WAUGH</p>		<p>ROAD NETWORK UPGRADE INTERSECTIONS 10 KEMPS AND GRADWELL ROAD, MORISSETT</p> <p>SCALE: AS SHOWN DO NOT SCALE</p> <p>DATE: 2019/16</p> <p>PROJECT NO: E12</p> <p>SHEET: 12 of 24</p> <p>SCALE: A</p>	
--	--	---	--	--	--	---	--	---	--	--	--	--	--

CONCEPT ESTIMATE OF PROPOSED WORKS

Total = \$828,820.71

Description		Unit	Rate	Amount
PROJECT: Newport Road , MORISSET				
SECTION 10: INTERSECTION OF Newport Road AND Gradwells Road				
			AREA (m ²) = 3700	
			COST/m ² = 224.005596	
Fees Consultants & Other				\$47,500
Establishment/Site Costs				\$23,762
Survey & Setout Costs				\$3,000
Clearing				\$18,850
Excavation				\$36,361
Trench Excavation & Backfill				\$27,639
Remove Spoil				\$36,868
Supply Rcp And Bends				\$32,277
Lay And Joint R.C.P. And Bends				\$44,581
Sub Soil Drains				\$7,513
Environmental Protection				\$7,843
Headwalls				\$813
Stormwater Pits				\$26,448
Kerb And Gutter				\$36,000
Footpaths				\$0
Medians				\$0
Roundabouts				\$0

Road Sub Bases	
	\$38,553
Road Bases	
	\$39,584
Bitumen Seal	
	\$3,400
Asphaltic Concrete Surfaces	
	\$185,000
Pedestrian Crossings And Refuges	
	\$0
Street Signage	
	\$1,800
Pavement/Line Marking	
	\$1,674
Landscaping	
	\$10,000
Public Utilities	
	\$40,000
Supervision	
	\$11,250
Wet Weather Delays	
	\$17,500
Acquisitions	
	\$20,000
Installation	
	\$0
Sub Total	
	\$718,216
Design Development Allowance	
	\$71,822
Construction Contingency	
	\$38,784


Plan	Morisset Contributions Catchment	CONCEPT ONLY
Project M11	Wamsley Street – Macquarie Street – Dora Street	
Sub-Catchment	Dora Creek	
Description	A complicated intersection with Macquarie Street the major through road. Dora Street is controlled by Stop Signs at its junctions with Wamsley Street and Macquarie Street, while Wamsley Street is controlled by a Stop Sign in the north bound direction only.	
Site Layout	 <p>Aerial view of the intersection of Macquarie Street, Wamsley Street and Dora Street</p>	
Features	<ul style="list-style-type: none"> • Signalised 4 way intersection of Macquarie Street, Dora Street and Wamsley Street. • Realignment of Macquarie Street • Reinforce the through movement of Wamsley Street between Dora Street and Douglass Street 	
Attachments	<ul style="list-style-type: none"> • Concept Plan • Concept Estimate 	

CONCEPT ESTIMATE OF PROPOSED WORKS

Total = \$1,232,221.46

PROJECT: Macquarie Road , MORISSET			
SECTION 11:INTERSECTION OF Macquarie Road AND Wamsley Street and Dora Street		AREA (m ²) = 4700	
		COST/m2 = 262.1747785	
Description	Unit	Rate	Amount
Fees Consultants & Other			\$10,000
Establishment/Site Costs			\$22,187
Survey & Setout Costs			\$3,000
Clearing			\$23,900
Excavation			\$52,121
Trench Excavation & Backfill			\$70,961
Remove Spoil			\$30,561
Supply Rcp And Bends			\$555
Lay And Joint R.C.P. And Bends			\$720
Sub Soil Drains			\$5,009
Environmental Protection			\$7,843
Headwalls			\$1,219
Stormwater Pits			\$32,623
Kerb And Gutter			\$39,000
Footpaths			\$6,804
Medians			\$1,226
Roundabouts			\$0

Road Sub Bases	
	\$79,374
Road Bases	
	\$81,497
Bitumen Seal	
	\$7,000
Asphaltic Concrete Surfaces	
	\$235,000
Pedestrian Crossings And Refuges	
	\$0
Street Signage	
	\$1,800
Pavement/Line Marking	
	\$6,633
Landscaping	
	\$10,000
Public Utilities	
	\$40,000
Supervision	
	\$11,250
Wet Weather Delays	
	\$17,500
Acquisitions	
	\$20,000
Installation	
	\$250,000
Sub Total	
	\$1,067,783
Design Development Allowance	
	\$106,778
Construction Contingency	
	\$57,660
Supervision	
	\$11,250
Wet Weather Delays	
	\$17,500
Acquisitions	
	\$20,000
Sub Total	
	\$748,460
Design Development Allowance	
	\$74,846
Construction Contingency	
	\$41,588

Plan	Morisset Contributions Catchment	CONCEPT ONLY
Project M13	Fishery Point Road – Morisset Park Road	
Sub-Catchment	Morisset Peninsula	
Description	A T intersection. Morisset Park Road/ Fishery Point Road (west) operate with priority as the major through road. Fishery Point Road (east) operates under a signed give way control at this intersection.	
Site Layout	 <p>View of proposed intersection layout at the junction of Fishery Point Road and Morisset Park Road</p>	
Features	<ul style="list-style-type: none"> • A T intersection, CHR, with Morisset Park Road/ Fishery Point Road (west) operating as the major through road. 	
Attachments	<ul style="list-style-type: none"> • Concept Plan • Concept Estimate 	

CONCEPT ESTIMATE OF PROPOSED WORKS


Total = \$721,937.13

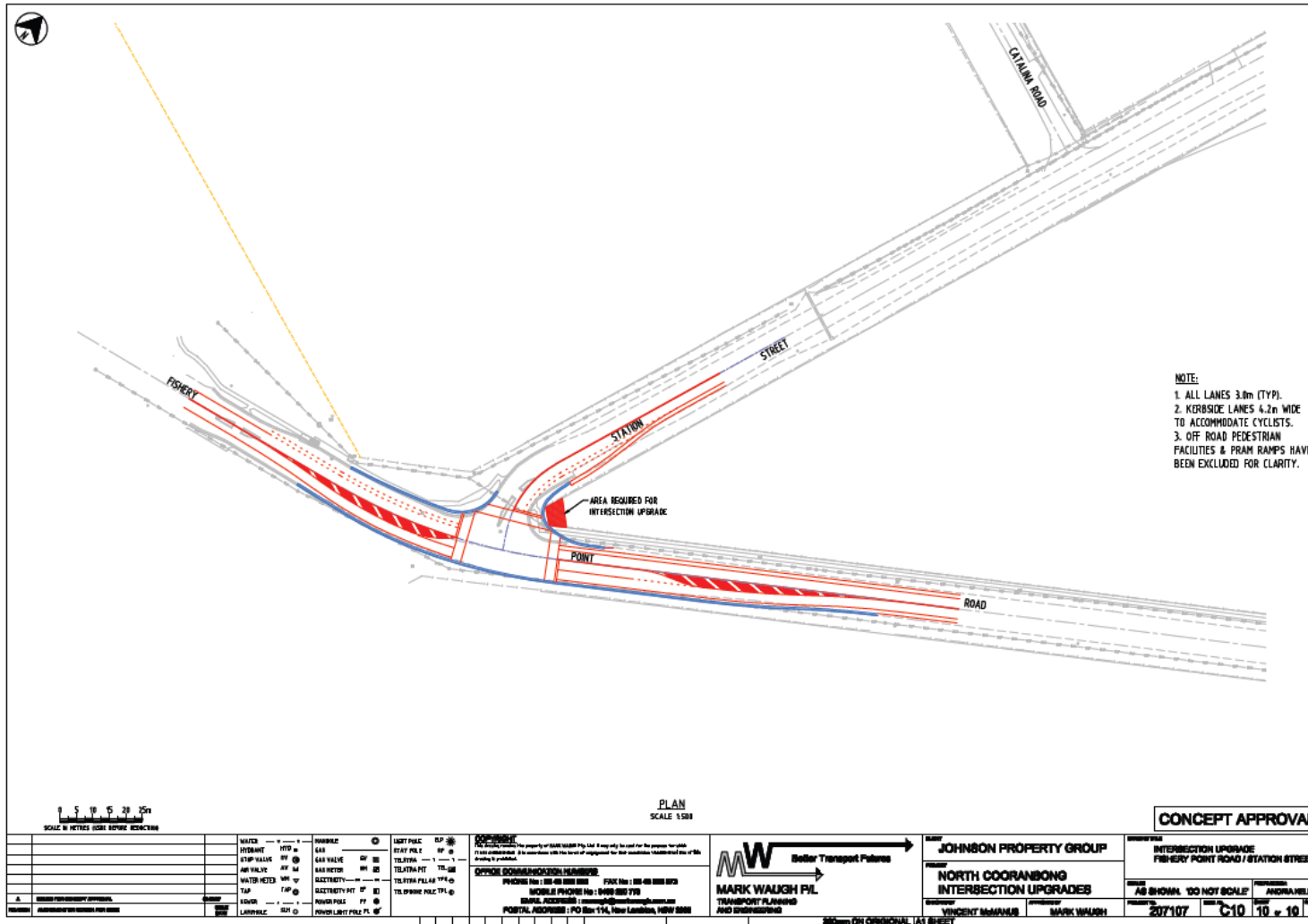
PROJECT: Fishery Point Road , MORISSET
SECTION 13:INTERSECTION OF Fishery Point Road
AND Morisset Park Road

AREA (m²) = 3500
 COST/m² = 206.2677521

Description	Unit	Rate	Amount
Fees Consultants & Other			
			\$47,500
Establishment/Site Costs			
			\$20,065
Survey & Setout Costs			
			\$3,000
Clearing			
			\$18,500
Excavation			
			\$35,761
Trench Excavation & Backfill			
			\$18,085
Remove Spoil			
			\$36,868
Supply Rcp And Bends			
			\$32,277
Lay And Joint R.C.P. And Bends			
			\$44,581
Sub Soil Drains			
			\$7,513
Environmental Protection			
			\$7,843
Headwalls			
			\$813
Stormwater Pits			
			\$20,609
Kerb And Gutter			
			\$12,000
Footpaths			
			\$0
Medians			
			\$0
Roundabouts			
			\$0

Road Sub Bases	
	\$22,678
Road Bases	
	\$23,285
Bitumen Seal	
	\$2,000
Asphaltic Concrete Surfaces	
	\$175,000
Pedestrian Crossings And Refuges	
	\$0
Street Signage	
	\$1,800
Pavement/Line Marking	
	\$1,669
Landscaping	
	\$5,000
Public Utilities	
	\$40,000
Supervision	
	\$11,250
Wet Weather Delays	
	\$17,500
Acquisitions	
	\$20,000
Installation	
	\$0
Sub Total	
	\$625,595
Design Development Allowance	
	\$62,560
Construction Contingency	
	\$33,782

Plan	Morisset Contributions Catchment	CONCEPT ONLY
Project M14	Fishery Point Road – Station Street	
Sub-Catchment	Morisset Peninsula	
Description	A T intersection with Fishery Point Road the major through road. Station Street operates under a signed give way control	
Site Layout	 <p>View of current intersection layout at the junction of Fishery Point Road and Station Street. (Google earth)</p>	
Features	<ul style="list-style-type: none"> • A signalised T intersection 	
Attachments	<ul style="list-style-type: none"> • Concept Plan • Concept Estimate 	



CONCEPT ESTIMATE OF PROPOSED WORKS

Total = \$867,383.42

Description	Unit	Rate	Amount
PROJECT: Fishery Point Road, MORISSET			
SECTION 14: INTERSECTION OF Fishery Point Road AND Station Street			
	AREA (m ²) =	3500	
	COST/m ² =	247.8238342	
Fees Consultants & Other			\$10,000
Establishment/Site Costs			\$7,396
Survey & Setout Costs			\$3,000
Clearing			\$16,300
Excavation			\$23,261
Trench Excavation & Backfill			\$32,926
Remove Spoil			\$18,434
Supply Rcp And Bends			\$32,277
Lay And Joint R.C.P. And Bends			\$44,581
Sub Soil Drains			\$7,513
Environmental Protection			\$7,843
Headwalls			\$813
Stormwater Pits			\$20,609
Kerb And Gutter			\$15,000
Footpaths			\$667
Medians			\$0
Roundabouts			

	\$0
Road Sub Bases	
	\$11,339
Road Bases	
	\$11,642
Bitumen Seal	
	\$1,000
Asphaltic Concrete Surfaces	
	\$175,000
Pedestrian Crossings And Refuges	
	\$0
Street Signage	
	\$1,800
Pavement/Line Marking	
	\$2,231
Landscaping	
	\$20,000
Public Utilities	
	\$40,000
Supervision	
	\$7,500
Wet Weather Delays	
	\$10,500
Acquisitions	
	\$0
Installation	
	\$230,000
Sub Total	
	\$751,632
Design Development Allowance	
	\$75,163
Construction Contingency	
	\$40,588


Plan	Morisset Contributions Catchment		CONCEPT ONLY
Project M15	Newport Road – Cadillac Close		
Sub-Catchment	Cooranbong		
Description	A T intersection with Newport Road the major through road.		
Site Layout	 <p data-bbox="981 1118 1733 1145">Aerial view of the T intersection of Newport Road and Cadillac Close</p>		
Features	<ul data-bbox="555 1161 1402 1189" style="list-style-type: none"> • T intersection, CHR, Newport Road operating as the major through road 		
Attachments	<ul data-bbox="555 1217 797 1278" style="list-style-type: none"> • Concept Plan • Concept Estimate 		

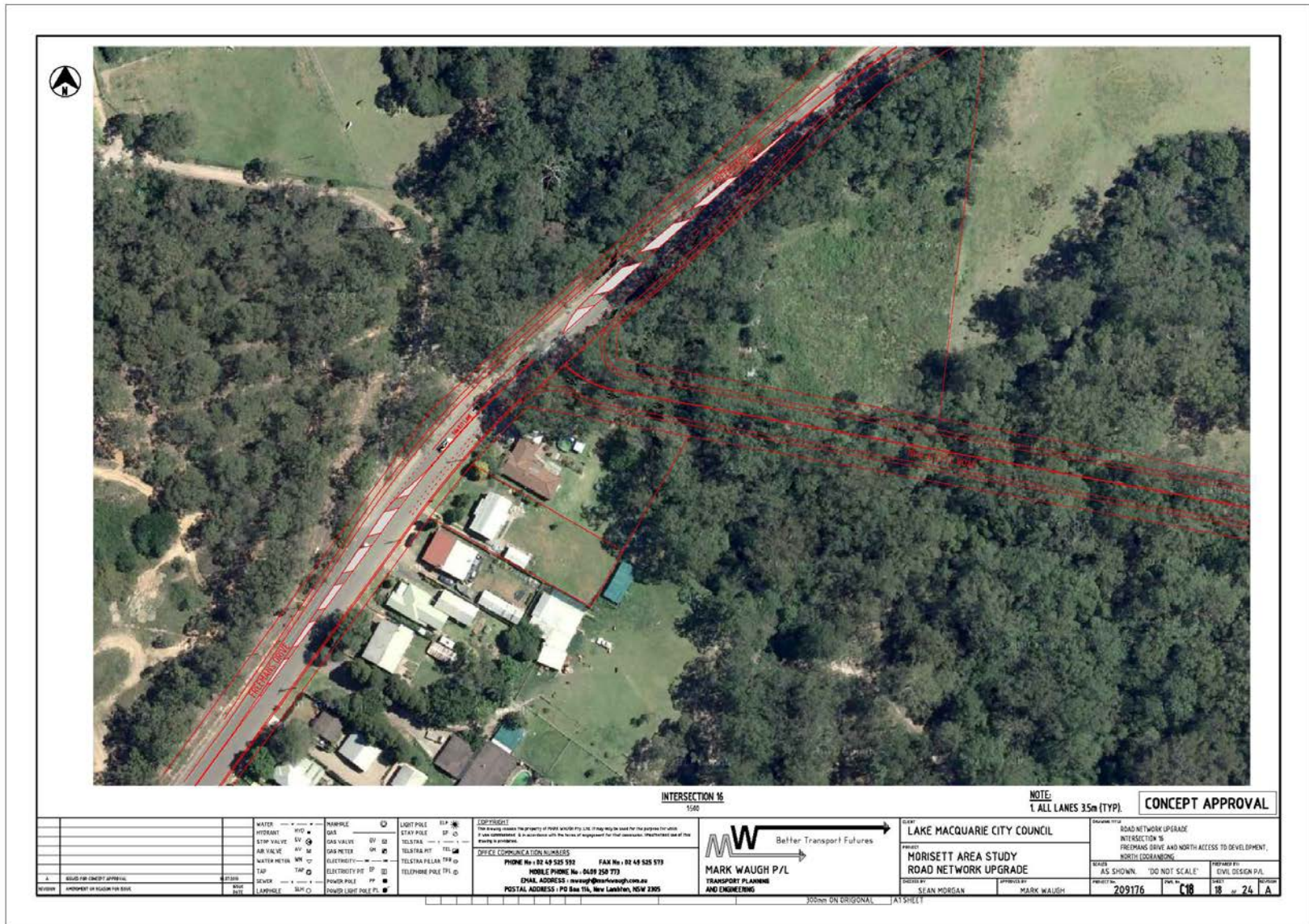
CONCEPT ESTIMATE OF PROPOSED WORKS

Total = \$631,741.78

PROJECT: Newport Road , MORISSET				
SECTION 15:INTERSECTION OF Newport Road AND Cadillac Close		AREA (m^2) = 3500		
		COST/m2 = 180.4976513		
Description	Unit	Rate	Amount	
Fees Consultants & Other				
				\$47,500
Establishment/Site Costs				
				\$20,590
Survey & Setout Costs				
				\$3,000
Clearing				
				\$17,950
Excavation				
				\$23,261
Trench Excavation & Backfill				
				\$13,819
Remove Spoil				
				\$18,434
Supply Rcp And Bends				
				\$18,366
Lay And Joint R.C.P. And Bends				
				\$25,643
Sub Soil Drains				
				\$5,009
Environmental Protection				
				\$7,843
Headwalls				
				\$813
Stormwater Pits				
				\$17,744
Kerb And Gutter				
				\$34,800
Footpaths				
				\$0
Medians				
				\$0
Roundabouts				
				\$0

Road Sub Bases	\$11,339
Road Bases	\$11,642
Bitumen Seal	\$1,000
Asphaltic Concrete Surfaces	\$175,000
Pedestrian Crossings And Refuges	\$0
Street Signage	\$1,800
Pavement/Line Marking	\$1,885
Landscaping	\$5,000
Public Utilities	\$40,000
Supervision	\$7,500
Wet Weather Delays	\$17,500
Acquisitions	\$20,000
Installation	\$547,437
Design Development Allowance	\$54,744
Construction Contingency	\$29,562

Plan	Morisset Contributions Catchment	CONCEPT ONLY
Project M16	Proposed Intersection of Freemans Drive and a new access road	
Sub-Catchment	Cooranbong	
Description	Construction of a T intersection with Freemans Drive the major through road. The intersection is structured as a seagull with a dedicated right hand turn bay for Freemans Drive.	
Site Layout	 <p>Aerial view showing the location of the proposed intersection</p>	
Features	<ul style="list-style-type: none"> • T intersection, CHR, Freemans Drive operating as the major through road 	
Attachments	<ul style="list-style-type: none"> • Concept Estimate • Concept Plan 	



INTERSECTION 16
1580

NOTE:
1. ALL LANES 3.5m (TYP)

CONCEPT APPROVAL

WATER	HYDRANT	STOP VALVE	AIR VALVE	WATER METER	TAP	SEWER	LAMP/POLE
WIND	WV	AV	AM	WM	TP	SP	LP
NATURAL GAS	GAS VALVE	GAS METER	ELECTRICITY	ELECTRICITY PILE	TAP	POWER POLE	TOWER LIGHT POLE
TELEPHONE	TELEPHONE PILE	TELEPHONE PILE	TELEPHONE PILE	TELEPHONE PILE	TELEPHONE PILE	TELEPHONE PILE	TELEPHONE PILE

DISCLAIMER
This drawing is the property of Mark Waugh P/L. It may only be used for the purposes for which it was prepared. It is provided with the understanding that the user assumes full responsibility for its use in any way.

CHECK COMMUNICATIONS NUMBERS
PHONE No: 02 48 525 592 FAX No: 02 48 525 579
MOBILE PHONE No: 0489 250 773
EMAIL ADDRESS: m.waugh@markwaugh.com.au
POSTAL ADDRESS: PO Box 116, New Lambton, NSW 2305

W Better Transport Futures

MARK WAUGH P/L
TRANSPORT PLANNING
AND ENGINEERING

CLIENT: LAKE MACQUARIE CITY COUNCIL
PROJECT: MORISSETT AREA STUDY
ROAD NETWORK UPGRADE

PROJECT TITLE	ROAD NETWORK UPGRADE INTERSECTION 16 DREWMANS DRIVE AND NORTH ACCESS TO DEVELOPMENT, NORTH (DRAWING)
SCALE	AS SHOWN (DO NOT SCALE)
DATE	18
REVISED BY	SEAN MORGAN
APPROVED BY	MARK WAUGH
PROJECT NO.	209176
DWG. NO.	C18
SHEET	18
TOTAL SHEETS	24
DESIGN	A


300mm ON ORIGINAL J13 SHEET

CONCEPT ESTIMATE OF PROPOSED WORKS

Total = \$920,732.90

PROJECT: Freemans Drive , MORISSET			
SECTION 16:INTERSECTION OF Freemans Road AND Industrial Road		AREA (m^2) = 4700	
		COST/m2 = 195.9006169	
Description	Unit	Rate	Amount
Fees Consultants & Other			
			\$47,500
Establishment/Site Costs			
			\$20,590
Survey & Setout Costs			
			\$3,000
Clearing			
			\$23,350
Excavation			
			\$39,361
Trench Excavation & Backfill			
			\$30,282
Remove Spoil			
			\$29,494
Supply Rcp And Bends			
			\$32,277
Lay And Joint R.C.P. And Bends			
			\$44,581
Sub Soil Drains			
			\$10,017
Environmental Protection			
			\$7,843
Headwalls			
			\$2,438
Stormwater Pits			
			\$32,623
Kerb And Gutter			
			\$30,000
Footpaths			
			\$0
Medians			
			\$0
Roundabouts			
			\$0

Road Sub Bases	
	\$49,893
Road Bases	
	\$51,227
Bitumen Seal	
	\$4,400
Asphaltic Concrete Surfaces	
	\$235,000
Pedestrian Crossings And Refuges	
	\$0
Street Signage	
	\$1,800
Pavement/Line Marking	
	\$3,437
Landscaping	
	\$10,000
Public Utilities	
	\$40,000
Supervision	
	\$11,250
Wet Weather Delays	
	\$17,500
Acquisitions	
	\$20,000
Installation	
	\$797,862
Design Development Allowance	
	\$79,786
Construction Contingency	
	\$43,085

Plan	Morisset Contributions Catchment		CONCEPT ONLY
Project M17	Wye Road – Alliance Avenue		
Sub-Catchment	Morisset		
Description	A T intersection with Wye Road the major through road. Alliance Avenue operates under a signed give way control		
Site Layout	 <p data-bbox="712 1078 1749 1107">Aerial view showing the general layout of the intersection of Wye Road and Alliance Avenue</p>		
Features	<ul data-bbox="568 1118 994 1150" style="list-style-type: none"> • Three leg, single lane roundabout 		
Attachments	<ul data-bbox="568 1201 819 1272" style="list-style-type: none"> • Concept plan • Concept Estimate 		



NOTE:
1 ALL LANES 3.5m (TYP).

INTERSECTION 17
1504

CONCEPT APPROVAL


<p>WAIVER</p> <p>HYDRANT</p> <p>STOP VALVE</p> <p>AIR VALVE</p> <p>WATER METRE</p> <p>TAP</p> <p>COVER</p> <p>LANDFILL</p>		<p>MANHOLE</p> <p>600</p> <p>600</p> <p>600</p> <p>600</p> <p>600</p> <p>600</p>		<p>LIBTY POLE</p> <p>STAY POLE</p> <p>TELETRA</p> <p>TELETRA HT</p> <p>TELETRA PULLAB</p> <p>TELEPHONE PULLZ</p>		<p>MARK WAUGH P/L</p> <p>BETTER TRANSPORT FUTURES</p> <p>TRANSPORT PLANNING AND ENGINEERING</p>		<p>LAKE MACQUARIE CITY COUNCIL</p> <p>MORISSETT AREA STUDY ROAD NETWORK UPGRADE</p> <p>SCANN MORGAN</p>		<p>ROAD NETWORK UPGRADE INTERSECTING T7 WYEE ROAD AND ALLIANCE AVENUE</p> <p>AS SHOWN</p> <p>209176</p>		<p>DO NOT SCALE</p> <p>19</p>		<p>CIVIL DESIGN P/L</p> <p>19</p>	
--	--	--	--	--	--	---	--	---	--	---	--	-------------------------------	--	-----------------------------------	--

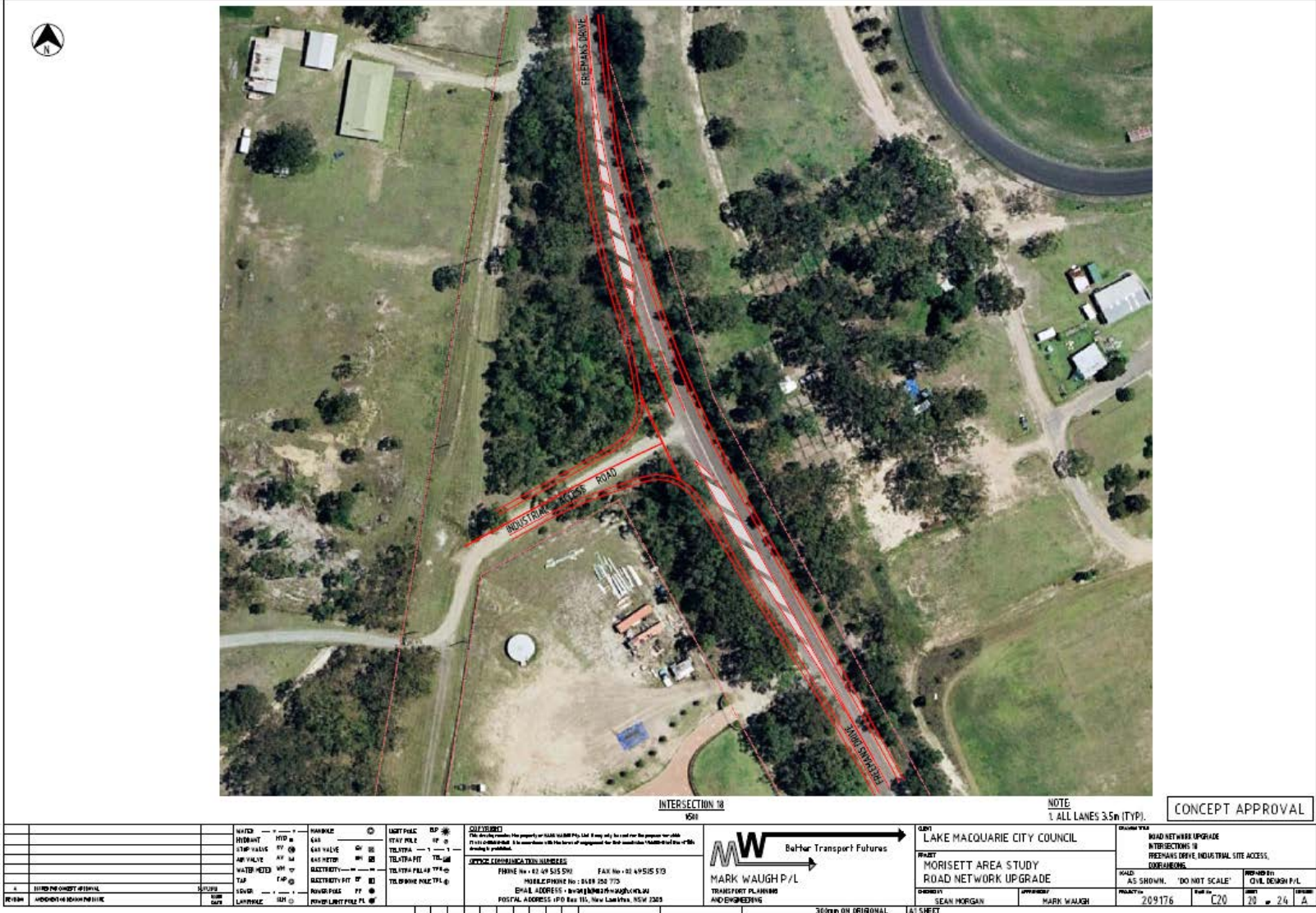
CONCEPT ESTIMATE OF PROPOSED WORKS

Total = \$863,723.08

Description	Unit	Rate	Amount
PROJECT: WYEE ROAD / ALLIANCE AVENUE, MORISSET			
SECTION 17: INTERSECTION OF WYEE ROAD AND ALLIANCE AVENUE			
	AREA =	2700m2	
	COST/m2 =	\$320	
Fees Consultants & Other			\$47,500
Establishment/Site Costs			\$26,387
Survey & Setout Costs			\$3,000
Clearing			\$13,290
Excavation			\$45,861
Trench Excavation & Backfill			\$26,341
Remove Spoil			\$55,301
Supply Rcp And Bends			\$20,799
Lay And Joint R.C.P. And Bends			\$28,554
Sub Soil Drains			\$21,537
Environmental Protection			\$9,698
Headwalls			\$1,625
Stormwater Pits			\$23,474
Kerb And Gutter			\$20,220
Footpaths			\$24,973
Medians			\$5,751
Roundabouts			\$21,076

Road Sub Bases	
	\$61,232
Road Bases	
	\$54,836
Bitumen Seal	
	\$4,710
Asphaltic Concrete Surfaces	
	\$117,750
Pedestrian Crossings And Refuges	
	\$9,000
Street Signage	
	\$3,600
Pavement/Line Marking	
	\$3,196
Landscaping	
	\$10,000
Public Utilities	
	\$40,000
Supervision	
	\$11,250
Wet Weather Delays	
	\$17,500
Acquisitions	
	\$20,000
Sub Total	
	\$748,460
Design Development Allowance	
	\$74,846
Construction Contingency	
	\$40,417

Plan	Morisset Contributions Catchment	CONCEPT ONLY
Project M18	Freemans Drive – Industrial Site Access	
Sub-Catchment	Morisset	
Description	A T intersection with Freemans Drive the major through road. New industrial site access operates under a signed give way control	
Site Layout	 <p>Arial view showing the general layout of the intersection of Freemans Drive and Industrial Site Access</p>	
Features	<ul style="list-style-type: none"> • T intersection, CHR, Freemans Drive operates as the major through road 	
Attachments	<ul style="list-style-type: none"> • Concept Plan • Concept Estimate 	




INTERSECTION 18 181		NOTE: 1 ALL LANES 3.5m (TYP).		CONCEPT APPROVAL	
CLIENT: LAKE MACQUARIE CITY COUNCIL PROJECT: MORISSETT AREA STUDY ROAD NETWORK UPGRADE DRAWN BY: SEAN MORGAN CHECKED BY: MARK WALSH	DATE: 20/11/16 SCALE: AS SHOWN SHEET: 20 of 24	PROJECT: MORISSETT AREA STUDY ROAD NETWORK UPGRADE DRAWN BY: SEAN MORGAN CHECKED BY: MARK WALSH	PROJECT: MORISSETT AREA STUDY ROAD NETWORK UPGRADE DRAWN BY: SEAN MORGAN CHECKED BY: MARK WALSH	PROJECT: MORISSETT AREA STUDY ROAD NETWORK UPGRADE DRAWN BY: SEAN MORGAN CHECKED BY: MARK WALSH	PROJECT: MORISSETT AREA STUDY ROAD NETWORK UPGRADE DRAWN BY: SEAN MORGAN CHECKED BY: MARK WALSH

CONCEPT ESTIMATE OF PROPOSED WORKS

Total = \$845,487.21

PROJECT: Freemans Drive , MORISSET				
SECTION 18:INTERSECTION OF Freemans Road AND Industrial Access Road		AREA (m ²) = 3900		
		COST/m ² = 216.7915927		
Description	Unit	Rate	Amount	
Fees Consultants & Other				
			\$47,500	
Establishment/Site Costs				
			\$20,590	
Survey & Setout Costs				
			\$3,000	
Clearing				
			\$21,950	
Excavation				
			\$36,961	
Trench Excavation & Backfill				
			\$30,282	
Remove Spoil				
			\$29,494	
Supply Rcp And Bends				
			\$32,277	
Lay And Joint R.C.P. And Bends				
			\$44,581	
Sub Soil Drains				
			\$10,017	
Environmental Protection				
			\$7,843	
Headwalls				
			\$2,438	
Stormwater Pits				
			\$29,759	
Kerb And Gutter				
			\$36,000	
Footpaths				
			\$0	
Medians				
			\$0	
Roundabouts				
			\$0	

Road Sub Bases	\$38,553
Road Bases	\$39,584
Bitumen Seal	\$3,400
Asphaltic Concrete Surfaces	\$195,000
Pedestrian Crossings And Refuges	\$0
Street Signage	\$1,800
Pavement/Line Marking	\$2,879
Landscaping	\$10,000
Public Utilities	\$40,000
Supervision	\$11,250
Wet Weather Delays	\$17,500
Acquisitions	\$20,000
Sub Total	\$732,658
Design Development Allowance	\$73,266
Construction Contingency	\$39,564

Plan	Morisset Contributions Catchment		CONCEPT ONLY
Project M19	Newcastle Street – Doyalson Street		
Sub-Catchment	Morisset CBD		
Description	A crossing intersection with Doyalson Street being the major through road.		
Site Layout	 <p data-bbox="504 1086 1601 1118">Aerial view showing the general layout of the intersection of Doyalson Street and Newcastle Street</p>		
Features	<ul style="list-style-type: none"> • Four leg, one lane Roundabout 		
Attachments	<ul style="list-style-type: none"> • Concept Plan • Concept Estimate 		


CONCEPT ESTIMATE OF PROPOSED WORKS

Total = \$818,727.81

PROJECT: Newcastle Street / Doyalson Street, MORISSET
SECTION 21: INTERSECTION OF Newcastle Street
 AND Doyalson Street.

AREA = 2281m2
COST/m2 = \$359

Description	Unit	Rate	Amount
Fees Consultants & Other			
			\$47,500
Establishment/Site Costs			
			\$24,538
Survey & Setout Costs			
			\$3,000
Clearing			
			\$26,800
Excavation			
			\$42,104
Trench Excavation & Backfill			
			\$26,341
Remove Spoil			
			\$51,615
Supply Rcp And Bends			
			\$19,808
Lay And Joint R.C.P. And Bends			
			\$26,206
Sub Soil Drains			
			\$18,282
Environmental Protection			
			\$9,698
Headwalls			
			\$3,250
Stormwater Pits			
			\$20,609
Kerb And Gutter			
			\$21,900
Footpaths			
			\$26,734
Medians			
			\$4,095
Roundabouts			
			\$11,286

Plan	Morisset Contributions Catchment	CONCEPT ONLY
Project M20, NCVPA16	Freemans Drive – Alton Road – Central Road	
Sub-Catchment	Cooranbong	
Description	A staggered T intersection in the order of 50 metres apart with Freemans Drive the major through road.	
Site Layout	 <p>Aerial view of the staggered intersection of Freemans Drive with Alton Road to the north and Central Road to the south</p>	
Features	<ul style="list-style-type: none"> • Signalised intersection of Freemans Drive and Alton Road 	
Attachments	<ul style="list-style-type: none"> • Concept plan • Concept Estimate 	



INTERSECTION 19
1918

NOTE:
1. ALL LANES 3.5m (TYP.)

CONCEPT APPROVAL

<table border="1"> <tr> <td>WATER</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>SEWER</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>STOP VALVE</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>AIR VALVE</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>WATER METER</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>TAP</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>150mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>750mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>1050mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>1200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>1500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>1800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>2100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>2400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>2700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>3000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>3300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>3600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>3900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>4200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>4500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>4800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>5100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>5400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>5700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>6000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>6300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>6600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>6900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>7200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>7500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>7800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>8100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>8400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>8700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>9000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>9300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>9600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>9900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>10200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>10500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>10800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>11100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>11400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>11700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>12000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>12300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>12600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>12900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>13200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>13500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>13800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>14100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>14400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>14700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>15000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>15300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>15600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>15900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>16200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>16500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>16800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>17100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>17400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>17700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>18000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>18300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>18600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>18900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>19200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>19500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>19800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>20100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>20400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>20700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>21000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>21300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>21600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>21900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>22200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>22500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>22800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>23100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>23400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>23700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>24000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>24300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>24600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>24900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>25200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>25500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>25800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>26100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>26400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>26700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>27000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>27300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>27600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>27900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>28200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>28500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>28800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>29100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>29400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>29700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>30000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>30300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>30600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>30900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>31200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>31500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>31800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>32100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>32400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>32700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>33000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>33300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>33600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>33900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>34200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>34500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>34800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>35100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>35400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>35700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>36000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>36300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>36600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>36900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>37200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>37500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>37800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>38100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>38400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>38700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>39000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>39300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>39600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>39900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>40200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>40500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>40800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>41100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>41400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>41700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>42000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>42300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>42600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>42900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>43200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>43500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>43800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>44100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>44400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>44700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>45000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>45300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>45600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>45900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>46200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>46500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>46800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>47100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>47400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>47700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>48000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>48300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>48600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>48900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>49200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>49500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>49800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>50100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>50400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>50700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>51000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>51300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>51600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>51900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>52200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>52500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>52800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>53100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>53400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>53700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>54000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>54300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>54600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>54900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>55200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>55500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>55800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>56100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>56400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>56700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>57000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>57300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>57600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>57900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>58200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>58500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>58800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>59100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>59400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>59700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>60000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>60300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>60600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>60900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>61200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>61500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>61800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>62100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>62400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>62700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>63000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>63300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>63600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>63900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>64200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>64500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>64800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>65100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>65400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>65700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>66000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>66300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>66600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>66900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>67200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>67500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>67800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>68100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>68400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>68700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>69000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>69300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>69600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>69900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>70200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>70500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>70800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>71100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>71400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>71700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>72000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>72300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>72600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>72900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>73200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>73500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>73800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>74100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>74400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>74700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>75000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>75300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>75600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>75900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>76200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>76500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>76800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>77100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>77400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>77700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>78000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>78300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>78600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>78900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>79200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>79500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>79800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>80100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>80400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>80700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>81000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>81300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>81600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>81900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>82200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>82500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>82800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>83100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>83400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>83700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>84000mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>84300mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>84600mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>84900mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>85200mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>85500mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>85800mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>86100mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>86400mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>86700mm</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>87000mm</td> <td>1</td> </tr></table>		WATER	1	1	1	SEWER	1	1	1	STOP VALVE	1	1	1	AIR VALVE	1	1	1	WATER METER	1	1	1	TAP	1	1	1	100mm	1	1	1	150mm	1	1	1	200mm	1	1	1	300mm	1	1	1	400mm	1	1	1	500mm	1	1	1	600mm	1	1	1	750mm	1	1	1	900mm	1	1	1	1050mm	1	1	1	1200mm	1	1	1	1500mm	1	1	1	1800mm	1	1	1	2100mm	1	1	1	2400mm	1	1	1	2700mm	1	1	1	3000mm	1	1	1	3300mm	1	1	1	3600mm	1	1	1	3900mm	1	1	1	4200mm	1	1	1	4500mm	1	1	1	4800mm	1	1	1	5100mm	1	1	1	5400mm	1	1	1	5700mm	1	1	1	6000mm	1	1	1	6300mm	1	1	1	6600mm	1	1	1	6900mm	1	1	1	7200mm	1	1	1	7500mm	1	1	1	7800mm	1	1	1	8100mm	1	1	1	8400mm	1	1	1	8700mm	1	1	1	9000mm	1	1	1	9300mm	1	1	1	9600mm	1	1	1	9900mm	1	1	1	10200mm	1	1	1	10500mm	1	1	1	10800mm	1	1	1	11100mm	1	1	1	11400mm	1	1	1	11700mm	1	1	1	12000mm	1	1	1	12300mm	1	1	1	12600mm	1	1	1	12900mm	1	1	1	13200mm	1	1	1	13500mm	1	1	1	13800mm	1	1	1	14100mm	1	1	1	14400mm	1	1	1	14700mm	1	1	1	15000mm	1	1	1	15300mm	1	1	1	15600mm	1	1	1	15900mm	1	1	1	16200mm	1	1	1	16500mm	1	1	1	16800mm	1	1	1	17100mm	1	1	1	17400mm	1	1	1	17700mm	1	1	1	18000mm	1	1	1	18300mm	1	1	1	18600mm	1	1	1	18900mm	1	1	1	19200mm	1	1	1	19500mm	1	1	1	19800mm	1	1	1	20100mm	1	1	1	20400mm	1	1	1	20700mm	1	1	1	21000mm	1	1	1	21300mm	1	1	1	21600mm	1	1	1	21900mm	1	1	1	22200mm	1	1	1	22500mm	1	1	1	22800mm	1	1	1	23100mm	1	1	1	23400mm	1	1	1	23700mm	1	1	1	24000mm	1	1	1	24300mm	1	1	1	24600mm	1	1	1	24900mm	1	1	1	25200mm	1	1	1	25500mm	1	1	1	25800mm	1	1	1	26100mm	1	1	1	26400mm	1	1	1	26700mm	1	1	1	27000mm	1	1	1	27300mm	1	1	1	27600mm	1	1	1	27900mm	1	1	1	28200mm	1	1	1	28500mm	1	1	1	28800mm	1	1	1	29100mm	1	1	1	29400mm	1	1	1	29700mm	1	1	1	30000mm	1	1	1	30300mm	1	1	1	30600mm	1	1	1	30900mm	1	1	1	31200mm	1	1	1	31500mm	1	1	1	31800mm	1	1	1	32100mm	1	1	1	32400mm	1	1	1	32700mm	1	1	1	33000mm	1	1	1	33300mm	1	1	1	33600mm	1	1	1	33900mm	1	1	1	34200mm	1	1	1	34500mm	1	1	1	34800mm	1	1	1	35100mm	1	1	1	35400mm	1	1	1	35700mm	1	1	1	36000mm	1	1	1	36300mm	1	1	1	36600mm	1	1	1	36900mm	1	1	1	37200mm	1	1	1	37500mm	1	1	1	37800mm	1	1	1	38100mm	1	1	1	38400mm	1	1	1	38700mm	1	1	1	39000mm	1	1	1	39300mm	1	1	1	39600mm	1	1	1	39900mm	1	1	1	40200mm	1	1	1	40500mm	1	1	1	40800mm	1	1	1	41100mm	1	1	1	41400mm	1	1	1	41700mm	1	1	1	42000mm	1	1	1	42300mm	1	1	1	42600mm	1	1	1	42900mm	1	1	1	43200mm	1	1	1	43500mm	1	1	1	43800mm	1	1	1	44100mm	1	1	1	44400mm	1	1	1	44700mm	1	1	1	45000mm	1	1	1	45300mm	1	1	1	45600mm	1	1	1	45900mm	1	1	1	46200mm	1	1	1	46500mm	1	1	1	46800mm	1	1	1	47100mm	1	1	1	47400mm	1	1	1	47700mm	1	1	1	48000mm	1	1	1	48300mm	1	1	1	48600mm	1	1	1	48900mm	1	1	1	49200mm	1	1	1	49500mm	1	1	1	49800mm	1	1	1	50100mm	1	1	1	50400mm	1	1	1	50700mm	1	1	1	51000mm	1	1	1	51300mm	1	1	1	51600mm	1	1	1	51900mm	1	1	1	52200mm	1	1	1	52500mm	1	1	1	52800mm	1	1	1	53100mm	1	1	1	53400mm	1	1	1	53700mm	1	1	1	54000mm	1	1	1	54300mm	1	1	1	54600mm	1	1	1	54900mm	1	1	1	55200mm	1	1	1	55500mm	1	1	1	55800mm	1	1	1	56100mm	1	1	1	56400mm	1	1	1	56700mm	1	1	1	57000mm	1	1	1	57300mm	1	1	1	57600mm	1	1	1	57900mm	1	1	1	58200mm	1	1	1	58500mm	1	1	1	58800mm	1	1	1	59100mm	1	1	1	59400mm	1	1	1	59700mm	1	1	1	60000mm	1	1	1	60300mm	1	1	1	60600mm	1	1	1	60900mm	1	1	1	61200mm	1	1	1	61500mm	1	1	1	61800mm	1	1	1	62100mm	1	1	1	62400mm	1	1	1	62700mm	1	1	1	63000mm	1	1	1	63300mm	1	1	1	63600mm	1	1	1	63900mm	1	1	1	64200mm	1	1	1	64500mm	1	1	1	64800mm	1	1	1	65100mm	1	1	1	65400mm	1	1	1	65700mm	1	1	1	66000mm	1	1	1	66300mm	1	1	1	66600mm	1	1	1	66900mm	1	1	1	67200mm	1	1	1	67500mm	1	1	1	67800mm	1	1	1	68100mm	1	1	1	68400mm	1	1	1	68700mm	1	1	1	69000mm	1	1	1	69300mm	1	1	1	69600mm	1	1	1	69900mm	1	1	1	70200mm	1	1	1	70500mm	1	1	1	70800mm	1	1	1	71100mm	1	1	1	71400mm	1	1	1	71700mm	1	1	1	72000mm	1	1	1	72300mm	1	1	1	72600mm	1	1	1	72900mm	1	1	1	73200mm	1	1	1	73500mm	1	1	1	73800mm	1	1	1	74100mm	1	1	1	74400mm	1	1	1	74700mm	1	1	1	75000mm	1	1	1	75300mm	1	1	1	75600mm	1	1	1	75900mm	1	1	1	76200mm	1	1	1	76500mm	1	1	1	76800mm	1	1	1	77100mm	1	1	1	77400mm	1	1	1	77700mm	1	1	1	78000mm	1	1	1	78300mm	1	1	1	78600mm	1	1	1	78900mm	1	1	1	79200mm	1	1	1	79500mm	1	1	1	79800mm	1	1	1	80100mm	1	1	1	80400mm	1	1	1	80700mm	1	1	1	81000mm	1	1	1	81300mm	1	1	1	81600mm	1	1	1	81900mm	1	1	1	82200mm	1	1	1	82500mm	1	1	1	82800mm	1	1	1	83100mm	1	1	1	83400mm	1	1	1	83700mm	1	1	1	84000mm	1	1	1	84300mm	1	1	1	84600mm	1	1	1	84900mm	1	1	1	85200mm	1	1	1	85500mm	1	1	1	85800mm	1	1	1	86100mm	1	1	1	86400mm	1	1	1	86700mm	1	1	1	87000mm	1
WATER	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
SEWER	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
STOP VALVE	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
AIR VALVE	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
WATER METER	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
TAP	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
150mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
750mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
1050mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
1200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
1500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
1800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
2100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
2400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
2700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
3000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
3300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
3600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
3900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
4200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
4500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
4800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
5100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
5400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
5700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
6000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
6300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
6600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
6900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
7200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
7500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
7800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
8100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
8400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
8700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
9000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
9300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
9600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
9900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
10200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
10500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
10800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
11100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
11400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
11700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
12000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
12300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
12600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
12900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
13200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
13500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
13800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
14100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
14400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
14700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
15000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
15300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
15600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
15900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
16200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
16500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
16800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
17100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
17400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
17700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
18000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
18300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
18600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
18900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
19200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
19500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
19800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
20100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
20400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
20700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
21000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
21300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
21600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
21900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
22200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
22500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
22800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
23100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
23400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
23700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
24000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
24300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
24600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
24900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
25200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
25500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
25800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
26100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
26400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
26700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
27000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
27300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
27600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
27900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
28200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
28500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
28800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
29100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
29400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
29700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
30000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
30300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
30600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
30900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
31200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
31500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
31800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
32100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
32400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
32700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
33000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
33300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
33600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
33900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
34200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
34500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
34800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
35100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
35400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
35700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
36000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
36300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
36600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
36900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
37200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
37500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
37800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
38100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
38400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
38700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
39000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
39300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
39600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
39900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
40200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
40500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
40800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
41100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
41400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
41700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
42000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
42300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
42600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
42900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
43200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
43500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
43800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
44100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
44400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
44700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
45000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
45300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
45600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
45900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
46200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
46500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
46800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
47100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
47400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
47700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
48000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
48300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
48600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
48900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
49200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
49500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
49800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
50100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
50400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
50700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
51000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
51300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
51600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
51900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
52200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
52500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
52800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
53100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
53400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
53700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
54000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
54300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
54600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
54900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
55200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
55500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
55800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
56100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
56400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
56700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
57000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
57300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
57600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
57900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
58200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
58500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
58800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
59100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
59400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
59700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
60000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
60300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
60600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
60900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
61200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
61500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
61800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
62100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
62400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
62700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
63000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
63300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
63600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
63900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
64200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
64500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
64800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
65100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
65400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
65700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
66000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
66300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
66600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
66900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
67200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
67500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
67800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
68100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
68400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
68700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
69000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
69300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
69600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
69900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
70200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
70500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
70800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
71100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
71400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
71700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
72000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
72300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
72600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
72900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
73200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
73500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
73800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
74100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
74400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
74700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
75000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
75300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
75600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
75900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
76200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
76500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
76800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
77100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
77400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
77700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
78000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
78300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
78600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
78900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
79200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
79500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
79800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
80100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
80400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
80700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
81000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
81300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
81600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
81900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
82200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
82500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
82800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
83100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
83400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
83700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
84000mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
84300mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
84600mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
84900mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
85200mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
85500mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
85800mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
86100mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
86400mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
86700mm	1	1	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
87000mm	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										

CONCEPT ESTIMATE OF PROPOSED WORKS


Total = \$292,390.61

PROJECT: Freemans Drive , MORISSET
SECTION 19: INTERSECTION OF Freemans Drive
 AND Alton Road

AREA (m²) = 225
COST/m² = 1299.513824

Description	Unit	Rate	Amount
Fees Consultants & Other			
			\$10,000
Establishment/Site Costs			
			\$1,850
Survey & Setout Costs			
			\$3,000
Clearing			
			\$0
Excavation			
			\$0
Trench Excavation & Backfill			
			\$0
Remove Spoil			
			\$0
Supply Rcp And Bends			
			\$0
Lay And Joint R.C.P. And Bends			
			\$0
Sub Soil Drains			
			\$0
Environmental Protection			
			\$0
Headwalls			
			\$0
Stormwater Pits			
			\$0
Kerb And Gutter			
			\$0
Footpaths			
			\$0
Medians			
			\$0
Roundabouts			
			\$0

Road Sub Bases	
	\$0
Road Bases	
	\$0
Bitumen Seal	
	\$0
Asphaltic Concrete Surfaces	
	\$0
Pedestrian Crossings And Refuges	
	\$0
Street Signage	
	\$1,800
Pavement/Line Marking	
	\$971
Landscaping	
	\$0
Public Utilities	
	\$0
Supervision	
	\$2,250
Wet Weather Delays	
	\$3,500
Acquisitions	
	\$0
Installation	
	\$230,000
Sub Total	
	\$253,371
Design Development Allowance	
	\$25,337
Construction Contingency	
	\$13,682


Plan	Morisset Contributions Catchment		CONCEPT ONLY
Project M22	Dora Street – Bridge Street		
Sub-Catchment	Morisset CBD		
Description	A T intersection with Dora Street the major through road. Bridge operates under a signed give way control		
Site Layout	 <p data-bbox="526 1074 1529 1110">Aerial view showing the general layout of the intersection of Dora Street and Bridge Street</p>		
Features	<ul style="list-style-type: none"> • Dedicated right hand turn lane from Dora Street Into Bridge Street • Propose a signalised intersection 		
Attachments	<ul style="list-style-type: none"> • Concept plan • Cost estimates 		

CONCEPT ESTIMATE OF PROPOSED WORKS


Total = \$290,411.98

PROJECT: Bridge Street - Dora Street , MORISSET				
SECTION 01:INTERSECTION OF BRIDGE STREET AND DORA STREET		AREA (m^2) = 300		
		COST/m2 = 968.0399231		
Description	Unit	Rate	Amount	
Fees Consultants & Other			\$10,000	
Establishment/Site Costs			\$800	
Survey & Setout Costs			\$3,000	
Clearing			\$0	
Excavation			\$0	
Trench Excavation & Backfill			\$0	
Remove Spoil			\$0	
Supply Rcp And Bends			\$0	
Lay And Joint R.C.P. And Bends			\$0	
Sub Soil Drains			\$0	
Environmental Protection			\$0	
Headwalls			\$0	
Stormwater Pits			\$0	
Kerb And Gutter			\$0	
Footpaths			\$0	
Medians			\$0	
Roundabouts				

	\$0
Road Sub Bases	
	\$0
Road Bases	
	\$0
Bitumen Seal	
	\$0
Asphaltic Concrete Surfaces	
	\$0
Pedestrian Crossings And Refuges	
	\$0
Street Signage	
	\$1,800
Pavement/Line Marking	
	\$307
Landscaping	
	\$0
Public Utilities	
	\$0
Supervision	
	\$2,250
Wet Weather Delays	
	\$3,500
Acquisitions	
	\$0
Installation	
	\$230,000
Sub Total	
	\$251,657
Design Development Allowance	
	\$25,166
Construction Contingency	
	\$13,589

Plan	Morisset Contributions Catchment		CONCEPT ONLY
Project M23	Freemans Drive – Awaba Street		
Sub-Catchment	Morisset		
Description	Currently no intersection of Freemans Drive and Awaba Street.		
Site Layout	 <p data-bbox="577 1086 1742 1121">Aerial view showing the general layout of the proposed intersection of Freemans Drive and Awaba Street</p>		
Features	<ul style="list-style-type: none"> • Extension of Awaba Street between Kahibah Road and Freemans Drive • Three leg, single lane Roundabout 		
Attachments	<ul style="list-style-type: none"> • Concept Plan • Concept Estimate 		

CONCEPT ESTIMATE OF PROPOSED WORKS				
PROJECT: AWABA STREET, MORISSET		Total = \$864,894.23		
SECTION 01: INTERSECTION OF AWABA STREET AND FREEMANS DRIVE		AREA =	2700m2	
		COST/m2 =	\$320	
Description	Unit	Rate	Amount	
Fees Consultants & Other				\$47,500
Establishment/Site Costs				\$26,387
Survey & Setout Costs				\$3,000
Clearing				\$13,290
Excavation				\$45,861
Trench Excavation & Backfill				\$26,341
Remove Spoil				\$55,301
Supply Rcp And Bends				\$20,799
Lay And Joint R.C.P. And Bends				\$28,554
Sub Soil Drains				\$21,537
Environmental Protection				\$9,698
Headwalls				\$1,625
Stormwater Pits				\$23,474
Kerb And Gutter				\$20,220
Footpaths				\$24,973
Medians				\$5,751
Roundabouts				\$21,076
Road Sub Bases				\$61,232
Road Bases				\$54,836
Bitumen Seal				\$4,710
Asphaltic Concrete Surfaces				\$117,750
Pedestrian Crossings And Refuges				\$9,000
Street Signage				\$3,600
Pavement/Line Marking				\$3,196
Landscaping				\$10,000
Public Utilities				\$40,000

Plan	Morisset Contributions Catchment		CONCEPT ONLY
Project M24, NCVPA15	Proposed new Intersection of Freemans Drive and a new access road		
Sub-Catchment	Cooranbong		
Description	Construction of a signalised T intersection, with dedicated left and right hand turning lanes on the new access road and dedicated left and right hand turning lanes on Freemans Drive. Required to accommodate Cooranbong traffic flows.		
Site Layout	 <p data-bbox="1010 1075 1603 1102">Aerial view showing location of proposed access road.</p>		
Features	<ul style="list-style-type: none"> • Signalised T intersection • Widening of roadway to accommodate turning lanes. • Off road cycle path Freemans Drive (Cooranbong to Morisset TC Route) 		
Attachments	<ul style="list-style-type: none"> • Concept Estimate • Concept Plan 		



INTERSECTION 20
15/1

NOTE:
1. ALL LANES 35m (TYP).

CONCEPT APPROVAL

<table border="1"> <tr> <td>WATER</td> <td>WID</td> <td>HANDRAIL</td> <td>UP</td> <td>UTILITY POLE</td> <td>UP</td> <td>NEW FISH</td> <td></td> </tr> <tr> <td>STREET LIGHT</td> <td>SP</td> <td>6/4 VALVE</td> <td>OV</td> <td>STEEL PILE</td> <td>SP</td> <td>The client warrants the project is not a road project. It is intended to be used for the purposes of water supply and drainage. It is not intended to be used for any other purpose.</td> <td></td> </tr> <tr> <td>WATER METER</td> <td>MM</td> <td>6/4 METER</td> <td>OH</td> <td>TELETYPE</td> <td>TT</td> <td></td> <td></td> </tr> <tr> <td>TAP</td> <td>TAP</td> <td>ELECTRICITY PIT</td> <td>EP</td> <td>TELETYPE PILE</td> <td>TPP</td> <td></td> <td></td> </tr> <tr> <td>CONCRETE</td> <td>CON</td> <td>POWER POLE</td> <td>PP</td> <td>TELETYPE PILE</td> <td>TPP</td> <td></td> <td></td> </tr> <tr> <td>LAUNCH</td> <td>LAUNCH</td> <td>POWER LIGHT MOUNT</td> <td>PLM</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>		WATER	WID	HANDRAIL	UP	UTILITY POLE	UP	NEW FISH		STREET LIGHT	SP	6/4 VALVE	OV	STEEL PILE	SP	The client warrants the project is not a road project. It is intended to be used for the purposes of water supply and drainage. It is not intended to be used for any other purpose.		WATER METER	MM	6/4 METER	OH	TELETYPE	TT			TAP	TAP	ELECTRICITY PIT	EP	TELETYPE PILE	TPP			CONCRETE	CON	POWER POLE	PP	TELETYPE PILE	TPP			LAUNCH	LAUNCH	POWER LIGHT MOUNT	PLM					<p>NEW FISH The client warrants the project is not a road project. It is intended to be used for the purposes of water supply and drainage. It is not intended to be used for any other purpose.</p> <p>NEW COMMUNICATIONS PHONE No: 02 49 325 550 FAX No: 02 49 325 575 MOBILE PHONE No: 0489 154 715 EMAIL ADDRESS: mark@mwpa.com.au POSTAL ADDRESS: PO Box 114, New Lambton, NSW 2305</p>		<p>MARK WAUGH P/L TRANSPORT PLANNING AND ENGINEERING</p>		<p>LAKE MACQUARIE CITY COUNCIL</p> <p>MORISSETT AREA STUDY ROAD NETWORK UPGRADE</p> <p>DESIGNED BY: SCAM MORGAN APPROVED BY: MARK WAUGH</p>		<p>ROAD NETWORK UPGRADE INTERSECTIONS 19 FRESHWATER AND CENTRAL ACCESS CONCEPT APPROVAL</p> <p>SCALE: AS SHOWN DO NOT SCALE DATE: 20/9/16 DRAWN BY: CHL DESIGN/P/L CHECKED BY: 22 DATE: 24/16</p>	
WATER	WID	HANDRAIL	UP	UTILITY POLE	UP	NEW FISH																																																			
STREET LIGHT	SP	6/4 VALVE	OV	STEEL PILE	SP	The client warrants the project is not a road project. It is intended to be used for the purposes of water supply and drainage. It is not intended to be used for any other purpose.																																																			
WATER METER	MM	6/4 METER	OH	TELETYPE	TT																																																				
TAP	TAP	ELECTRICITY PIT	EP	TELETYPE PILE	TPP																																																				
CONCRETE	CON	POWER POLE	PP	TELETYPE PILE	TPP																																																				
LAUNCH	LAUNCH	POWER LIGHT MOUNT	PLM																																																						


CONCEPT ESTIMATE OF PROPOSED WORKS

Total = \$1,142,291.79

PROJECT: Freemans Drive , MORISSET			
SECTION 20:INTERSECTION OF Freemans Road AND Central Access Road (Nth Cooranbong)	AREA (m ²) = 4200 COST/m2 = 271.9742		
Description	Unit	Rate	Amount
Fees Consultants & Other			\$47,500
Establishment/Site Costs			\$20,590
Survey & Setout Costs			\$3,000
Clearing			\$22,750
Excavation			\$37,861
Trench Excavation & Backfill			\$30,282
Remove Spoil			\$29,494
Supply Rcp And Bends			\$32,277
Lay And Joint R.C.P. And Bends			\$44,581
Sub Soil Drains			\$10,017
Environmental Protection			\$7,843
Headwalls			\$2,438
Stormwater Pits			\$32,623
Kerb And Gutter			\$24,000
Footpaths			\$0
Medians			\$0
Roundabouts			\$0

Road Sub Bases	
	\$47,625
Road Bases	
	\$48,898
Bitumen Seal	
	\$4,200
Asphaltic Concrete Surfaces	
	\$210,000
Pedestrian Crossings And Refuges	
	\$0
Street Signage	
	\$1,800
Pavement/Line Marking	
	\$3,325
Landscaping	
	\$10,000
Public Utilities	
	\$40,000
Supervision	
	\$11,250
Wet Weather Delays	
	\$17,500
Acquisitions	
	\$20,000
Installation	
	\$230,000
Sub Total	
	\$989,854
Design Development Allowance	
	\$98,985
Construction Contingency	
	\$53,452

Road Sub Bases	
	\$51,729
Road Bases	
	\$44,707
Bitumen Seal	
	\$3,840
Asphaltic Concrete Surfaces	
	\$96,000
Pedestrian Crossings And Refuges	
	\$12,000
Street Signage	
	\$4,800
Pavement/Line Marking	
	\$4,253
Landscaping	
	\$15,000
Public Utilities	
	\$50,000
Supervision	
	\$9,375
Wet Weather Delays	
	\$14,000
Acquisitions	
	\$20,000
Sub Total	
	\$709,470
Design Development Allowance	
	\$70,947
Construction Contingency	
	\$38,311

Plan	Morisset Contributions Catchment		CONCEPT ONLY
Project M25	Dora Street – New Shared Way		
Sub-Catchment	Morisset CBD		
Description	T intersection with Dora Street the major through Road		
Site Layout	 <p data-bbox="674 1023 1688 1050">Aerial view showing the general layout of the intersection of Dora Street and Station Street</p>		
Features	<ul style="list-style-type: none"> • The Addition of 45 degree angled parking spaces along Station Street • Station Street becomes a one way street travelling north between Dora Street and Yambo Street 		
Attachments	<ul style="list-style-type: none"> • Concept Plan • Concept Estimate 		

CONCEPT ESTIMATE OF PROPOSED WORKS

Total = \$152,309.98

PROJECT: Dora Street , MORISSET
SECTION 22: INTERSECTION OF Station Street
 AND Dora Street

AREA (m²) = 720
COST/m2 = 211.5416401

Description	Unit	Rate	Amount
Fees Consultants & Other			
			\$47,500
Establishment/Site Costs			
			\$3,975
Survey & Setout Costs			
			\$3,000
Clearing			
			\$0
Excavation			
			\$0
Trench Excavation & Backfill			
			\$0
Remove Spoil			
			\$0
Supply Rcp And Bends			
			\$0
Lay And Joint R.C.P. And Bends			
			\$0
Sub Soil Drains			
			\$0
Environmental Protection			
			\$1,500
Headwalls			
			\$0
Stormwater Pits			
			\$0
Kerb And Gutter			
			\$4,800
Footpaths			
			\$3,402
Medians			
			\$0
Roundabouts			
			\$0

Road Sub Bases	
	\$0
Road Bases	
	\$0
Bitumen Seal	
	\$0
Asphaltic Concrete Surfaces	
	\$0
Pedestrian Crossings And Refuges	
	\$0
Street Signage	
	\$1,800
Pavement/Line Marking	
	\$1,258
Landscaping	
	\$10,000
Public Utilities	
	\$40,000
Supervision	
	\$11,250
Wet Weather Delays	
	\$3,500
Acquisitions	
	\$0
Installation	
	\$0
Sub Total	
	\$131,984
Design Development Allowance	
	\$13,198
Construction Contingency	
	\$7,127

Unit Costs for Identified Works

CONCEPT 1			
<u>Site Clearance</u>		Unit	Rate
1	Grubbing and stripping to zone of proposed civil works no greater than 300 deep including disposal of vegetative matter	m ²	3.00
2	Remove tree up to 150 dia., mulch and dispose :[adopted qty]	unit	250.00
<u>Demolition</u>			
3	Saw cut bitumen road pavement :[allow to cut width of existing road every 15m]	m	20.00
4	Take up existing road surface and disposed of material :[275 m]	m ²	15.00
<u>Excavation, Grading & Compaction</u>			
5	Excavation for proposed road pavement including disposal of spoil :[7722 m ²]	m ³	35.00
6	Trim and grade to final levels	m ²	1.00
7	Roll and compact subsurface for subbase course	m ²	2.00
<u>Roadworks</u>			
8	300 thick DGS20 subbase course spread and compacted	m ²	20.00
9	300 thick DGB20 base course ditto	m ²	20.00
10	Prime and seal	m ²	4.00
11	50 thick AC20 including tack coat	m ²	20.00
<u>Concrete Works</u>			
<u>Kerb & Gutter</u>			
12	Extruded concrete kerb and gutter	m	35.00
<u>Footpath</u>			
13	120 thick concrete footpath including sand blinding layer :[585 m]	m ²	60.00
14	Concrete layback :[adopted qty]	unit	300.00
<u>Drainage</u>			
15	Subsoil drainage pipes	m	50.00
16	Allowance for RC pipework laid in trenches including bends, tees, sand bedding and excavation	m	200.00
17	Allowance for precast concrete gully pit :[adopted qty]	unit	3,000.00
<u>Signage & Linemarking</u>			
18	Allowance for street signage :[adopted qty]	unit	350.00
19	Allowance for linemarking	item	7,000.00
<u>Landscaping</u>			
20	Provisional allowance for landscaping	item	45,000.00
<u>Street Lighting</u>			
21	Provisional allowance for street lighting	item	60,000.00
<u>Public Services</u>			
22	Provisional allowance to adjust public services	item	15,000.00
<u>Traffic Control</u>			
23	Allowance for traffic control	weeks	2,500.00

Cycle Facilities

Reference	Location	Description	Length	Cost
M26	Dora Street	New Shared Way		\$152,000
M26	Bonnells Bay to Sunshine	Off Road Dual use path	3400m	\$561,000
M27	Bonnells Bay to Mirrabooka	Off Road Dual use path	930m	\$153,000
M28	Bonnells Bay to Trinity Point	Off Road Dual use path	2250m	\$371,000
M29	Morisset – Kahibah Street	Off Road Dual use path	1280m	\$211,000
M30	Morisset – Doyalson Street	Off Road Dual use path	420m	\$69,000
M31	Wyee Road	New Road Shoulder Cycleway	7,500m	\$20,000

Summary of Costing

Reference #	Facility Name	Capital Cost Estimate
Roads and Intersections		
M02	Roundabout at Freemans Drive and Stockton Street – North Cooranbong VPA Item 19	\$864,000
M03	New Roundabout – Intersection of Stockton Road and Awaba Street	\$1,482,000
M04	Awaba Street Extension at Bridge Street	\$1,682,000
M05	Upgrade Intersection of Kahibah/Wyong/Doyalson Streets	\$913,000
M06	New Traffic Signals – Intersection of Freemans Drive and Deaves Road – North Cooranbong VPA Item 18	\$312,000
M07	New Traffic Signals – Intersection of Freemans Drive, Avondale Road and Newport Road – North Cooranbong VPA Item 14	\$1,709,000
M08	Newport Road and Coorumbung Road	\$679,000
M09	Coorumbung Road and Gradwells Road	\$458,000
M10	Newport Road and Gradwells Road	\$829,000
M11	Wamsley Street – Macquarie Street – Dora Street	\$1,232,000
M13	Fishery Point Road – Morisset Park Road	\$722,000
M14	Fishery Point Road – Station Street	\$867,000
M15	Newport Road – Cadillac Close	\$632,000
M16	New Priority Control Intersection – Freemans Drive and new access road	\$921,000
M17	Wye Road – Alliance Avenue	\$864,000
M18	Freemans Drive – Industrial Site Access	\$845,000
M19	New Roundabout – Intersection of Newcastle Street and Doyalson Street	\$819,000
M20	Priority Control to traffic signals – Intersection of Freemans Drive and Alton Road – North Cooranbong VPA Item 16	\$292,000
M22	Dora Street	\$290,000
M23	Freemans Drive – Awaba Street	\$865,000
M24	New Intersection with Traffic Signals – Freemans Drive and new access road (central) – North Cooranbong VPA Item 15	\$1,142,000
Sub-Total		\$18,419,000
Pedestrian / Bicycle Facilities		
M25	New Shared Way – Dora Street	\$152,000
M26	New Cycleways – Bonnells Bay to Sunshine	\$561,000
M27	New Cycleways – Bonnells Bay to Mirrabooka	\$153,000
M28	New Cycleways – Bonnells Bay to Trinity Point	\$371,000
M29	New Cycleways – Morisset – Kahibah Street	\$211,000
M30	New Cycleways – Morisset – Doyalson Street	\$69,000
M31	New road shoulder cycle lane – Wye Road	\$20,000
M32	New cycleway – North Cooranbong – Dora Creek	\$400,000
M33	New cycleway – Morisset CBD to Morisset Industrial Area	\$200,000
M34	Morisset CBD network	\$50,000
Sub-Total		\$2,187,000
Public Transport Facilities		
M35	New Bus Shelters x 22	\$ 440,000
Sub-Total		\$440,000
TOTAL		\$21,046,000

Summary of Land Acquisitions

Reference #	Facility Name	Land Area to be Acquired (m ²)
Roads and Intersections		
M02	Roundabout at Freemans Drive and Stockton Street - North Cooranbong VPA Item 19	NONE required - within road reserve
M03	New Roundabout - Intersection of Stockton Road and Awaba Street	60 sq metres
M04	Awaba Street Extension at Bridge Street	NONE required - within road reserve
M05	Upgrade Intersection of Kahibah/Wyong/Doyalson Streets	NONE required - Council land
M06	New Traffic Signals - Intersection of Freemans Drive and Deaves Road - North Cooranbong VPA Item 18	NONE required - within road reserve
M07	New Traffic Signals - Intersection of Freemans Drive, Avondale Road and Newport Road - North Cooranbong VPA Item 14	Covered under North Cooranbong VPA
M08	Newport Road and Coorumbung Road	
M09	Coorumbung Road and Gradwells Road	
M10	Newport Road and Gradwells Road	NONE required - within road reserve
M11	Wamsley Street - Macquarie Street - Dora Street	NONE required - within road reserve
M13	Fishery Point Road - Morisset Park Road	NONE required - within road reserve
M14	Fishery Point Road - Station Street	30 sq metres
M15	Newport Road - Cadillac Close	NONE required - within road reserve
M16	New Priority Control Intersection - Freemans Drive and new access road	NONE required - within road reserve
M17	Wye Road - Alliance Avenue	NONE required - within road reserve
M18	Freemans Drive - Industrial Site Access	NONE required - within road reserve
M19	New Roundabout - Intersection of Newcastle Street and Doyalson Street	NONE required - within road reserve
M20	Priority Control to traffic signals - Intersection of Freemans Drive and Alton Road - North Cooranbong VPA Item 16	NONE required - within road reserve
M022	Dora Street	NONE required - within road reserve
M23	Freemans Drive - Awaba Street	NONE required - within road reserve
M24	New Intersection with Traffic Signals - Freemans Drive and new access road (central) - North Cooranbong VPA Item 15	Covered under North Cooranbong VPA
Sub-Total		90 sq metres
Pedestrian / Bicycle Facilities		
M25	Dora Street - New Shared Way	NONE required - within road reserve
M26	Bonnells Bay to Sunshine	NONE required - within road reserve
M27	Bonnells Bay to Mirrabooka	NONE required - within road reserve
M28	Bonnells Bay to Trinity Point	NONE required - within road reserve
M29	Morisset - Kahibah Street	NONE required - within road reserve
M30	Morisset - Doyalson Street	NONE required - within road reserve

Reference #	Facility Name	Land Area to be Acquired (m ²)
M31	Wyee Road	NONE required – within road reserve
M32	North Cooranbong to Dora Creek	NONE required – within road reserve
M33	Dora Street / Mandalong Road	NONE required – within road reserve
M34	Morisset CBD	NONE required – within road reserve
Sub-Total		Zero
Public Transport Facilities		
M35	New Bus Shelters x 22	NONE required – within road reserve
Sub-Total		Zero
TOTAL		90sq metres